Transport Infrastructure Portfolio Plan and Schedule

2018-28

Queensland Government

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1. Message from the Infrastructure Investment Committee Chair

2017 was my first year as the Chair of the Infrastructure Investment Committee (IIC) and what a busy year it has been for all involved in TMR's transport infrastructure portfolio management. There has been a huge effort behind the scenes to ensure the effective governance and decision-making of the IIC. And I am pleased to note the quality outcomes this effort produces are well recognised within TMR.

During 2017, the 200th project gating submission milestone was passed and, in total, 800 submissions have been considered by the IIC since its inception in 2009.

The *Transport Infrastructure Portfolio Plan and Schedule 2018-2028* (TIPPS), the 2018 edition, is our seventh TIPPS and demonstrates the commitment to a robust infrastructure investment approach and our success in continually improving and maturing our processes. Some of the highlights for me as IIC Chair include:

- ✓ **Embedding Program Management in TMR** – the journey of developing and implementing an Assurance Framework and Gated Review for Investment Programs within the portfolio progressed. This included a comprehensive maturity assessment which established a new baseline for each Investment Program.
- ✓ **Portfolio to Program (P2P) Snapshot Dashboards** – a visual depiction of the Investment Programs that can influence the network performance. The analysis of metrics indicates which sub-program or special initiatives within Investment Programs will have the most likely impact on each of the network performance measures, allowing for more targeted investment.

  Importantly, the Dashboards highlight that a multi-modal approach, including a focus on a number of Investment Programs, is required to address network performance
- ✓ **Queensland Audit Office (QAO) Performance Audit on Integrated Transport Planning** – an extensive audit process to determine whether the state's approach to strategic transport planning enables effective use of transport resources and a long-term sustainable transport system. The audit report was finalised in December 2017, with favourable findings around TMR's mature approach to investment and programming. This further reinforces the need for good governance and decision-making through the IIC.

Once again, the TIPPS is the result of a thorough and diligent process involving significant involvement from across the department. Demonstrating our commitment to "OneTMR", this TIPPS is a reflection of the collaborative approach to infrastructure portfolio management and continues to represent best practice public service delivery.

NR

Sally Noonan
Chair – Infrastructure Investment Committee
Deputy Director-General (Policy, Planning and Investment)

/ 03 / 2018

2. Executive Summary

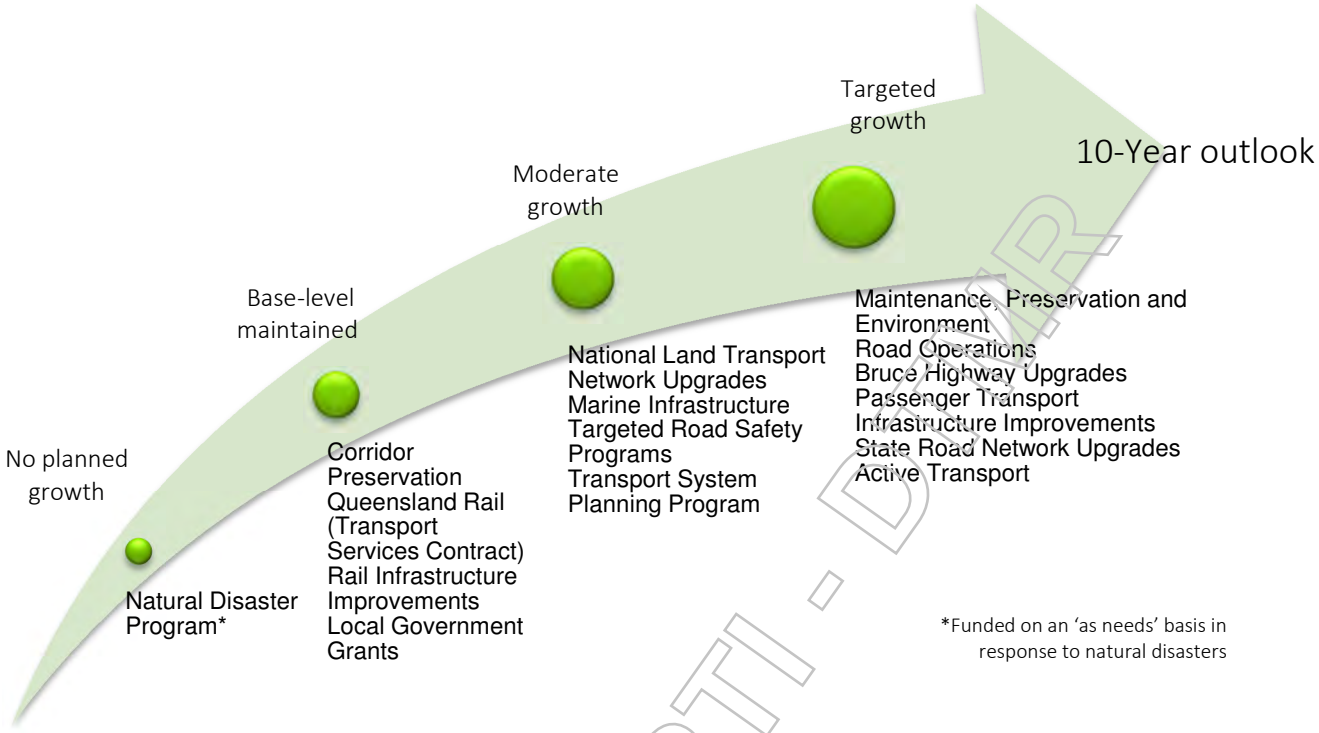
The *Transport Infrastructure Portfolio Plan and Schedule 2018–2028* (TIPPS) aims to translate Queensland Government directions and TMR's policy, strategy and long-term planning outputs into a 10-year transport infrastructure portfolio investment view, within an affordable funding program.

The annual review process to develop the TIPPS has identified a number of new or updated policies and priorities that will necessitate adjustment to the future transport infrastructure investment outlook:

- Australian Government's response to the *Australian Infrastructure Plan*
- Key transport and road initiatives announced under the City Deal for Townsville
- *Queensland Government's submission (22 December 2017) to Infrastructure Australia for additional projects/initiatives to be considered on the Infrastructure Priority List (IPL)*
- New *National Rail Program* (announced in the 2017 Federal Budget)
- *Transport Coordination Plan 2017-2027 (TCP 2017)*
- *State Infrastructure Plan: Part B Program update (2017)*
- Building Queensland's *Infrastructure Pipeline*
- State election 2017 transport infrastructure commitments
- *Shaping SEQ - South East Queensland Regional Plan – August 2017*
- *Connecting Brisbane - A plan for the future of Brisbane's public transport system – June 2017*
- *Queensland Cycling Strategy – 2017-2027*
- *Queensland Road Safety Action Plan – 2017-2019.*

The indicative funding profile outlined in the TIPPS 2018–28 is approximately $45B from 2018–19 to 2027–28. This is not an indication of the complete transport infrastructure investment required to sustain the transport network, but rather a reasonable level of investment (based on historical investment levels and likely available revenue) to address the highest and most critical network requirements, within a fiscally-challenged environment. The TIPPS informs TMR and the Queensland Treasury discussion on an agreed funding position for the transport infrastructure portfolio.

The investment focus (over the next ten years) for TMR's 15 Investment Programs is summarised below:



*Funded on an 'as needs' basis in response to natural disasters

3. Purpose

The *Transport Infrastructure Portfolio Plan and Schedule 2018–2028* (TIPPS) is a key IIC communication tool for its strategic investment direction across the portfolio. Decisions must be made on how limited funding can be deployed to best effect. The TIPPS:

- provides the rationale that supports our transport infrastructure investment choices
- balances the needs for operations, maintenance and upgrade of transport infrastructure assets, within the available funding envelope
- documents the key factors reviewed and assessed (as part of the Portfolio Definition methodology) including: changes in the policy environment, changes to the likely 10-year funding envelope and the priority/timing of current and proposed candidate investments.

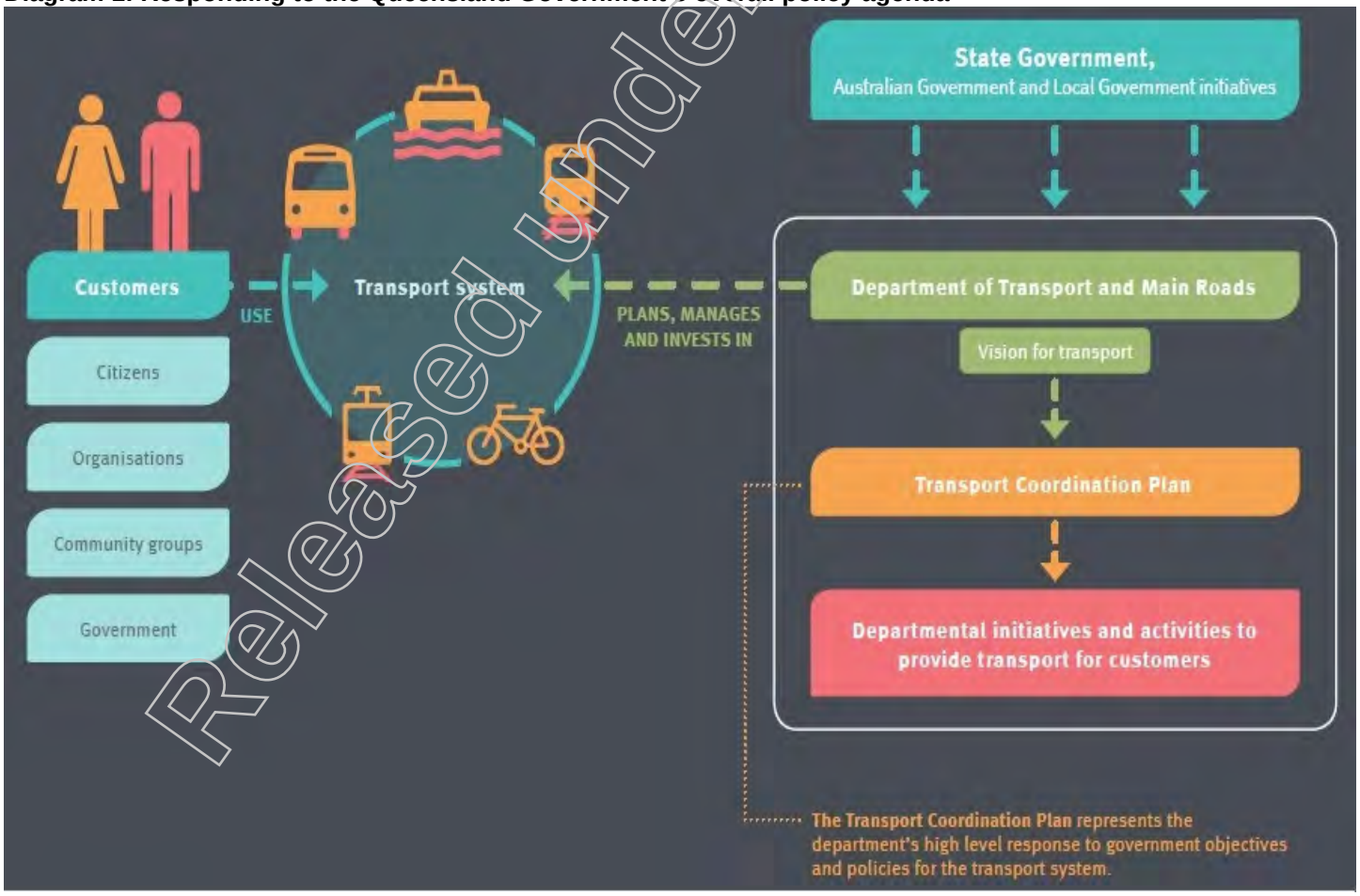
The TIPPS is a key source of direction for the development of the Queensland Transport and Roads Investment Program (QTRIP), the published four-year sub-set of the portfolio, and provides strategic guidance for TMR senior officers involved in portfolio and program development.

4. TMR Vision

The vision for transport in Queensland is a single integrated transport network accessible to everyone.

Released in September 2017, the Transport Coordination Plan 2017-2027 (TCP 2017) represents TMR's overarching response to the broad government policies and objectives of the day.

Diagram 1: Responding to the Queensland Government's overall policy agenda

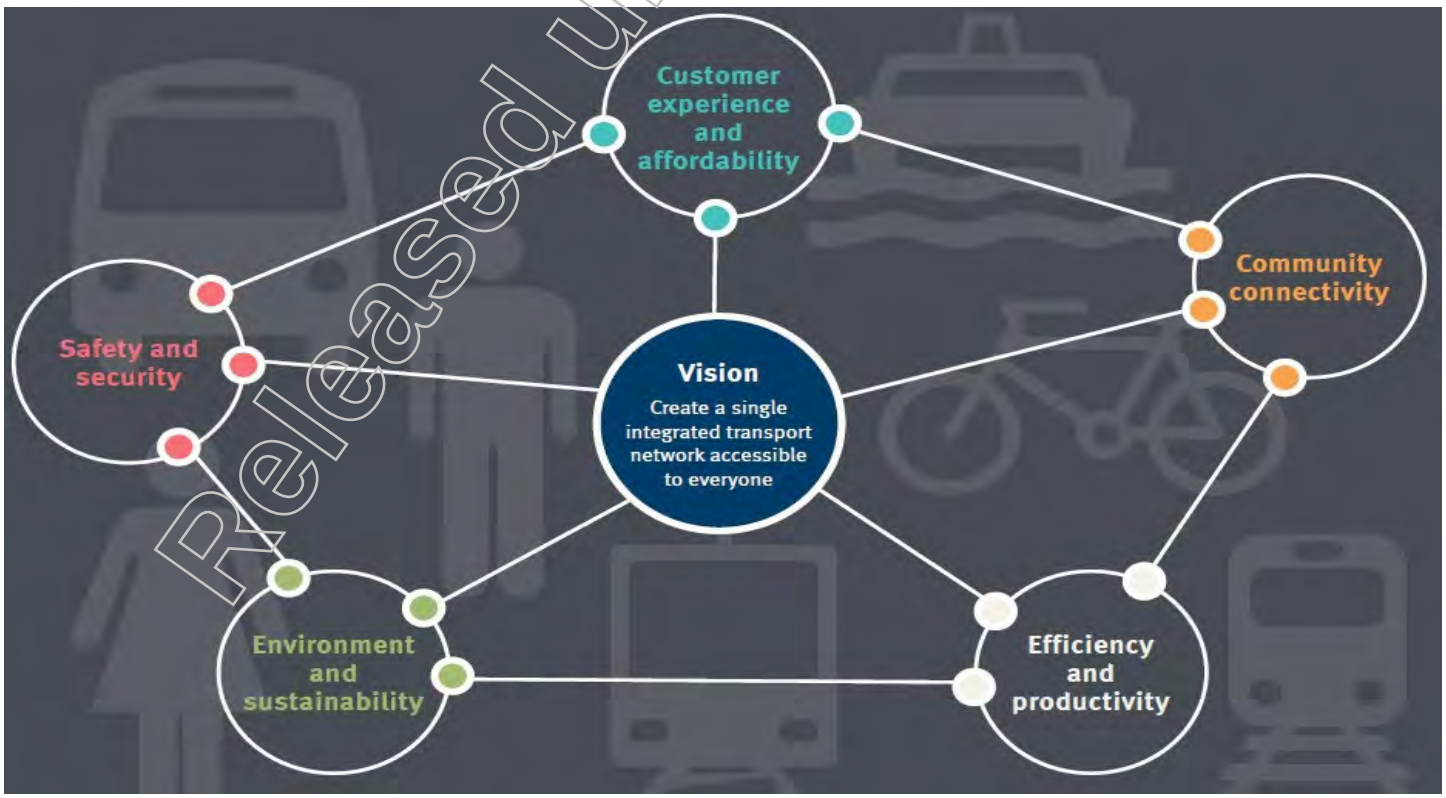


The TCP 2017 sets out the core goals for transport in Queensland (over a 10-year timeframe) – that transport is efficient and reliable, integrated and safe and secure. It also establishes the high-level objectives for the transport system across five key areas:

Table 1: TCP 2017 Objectives

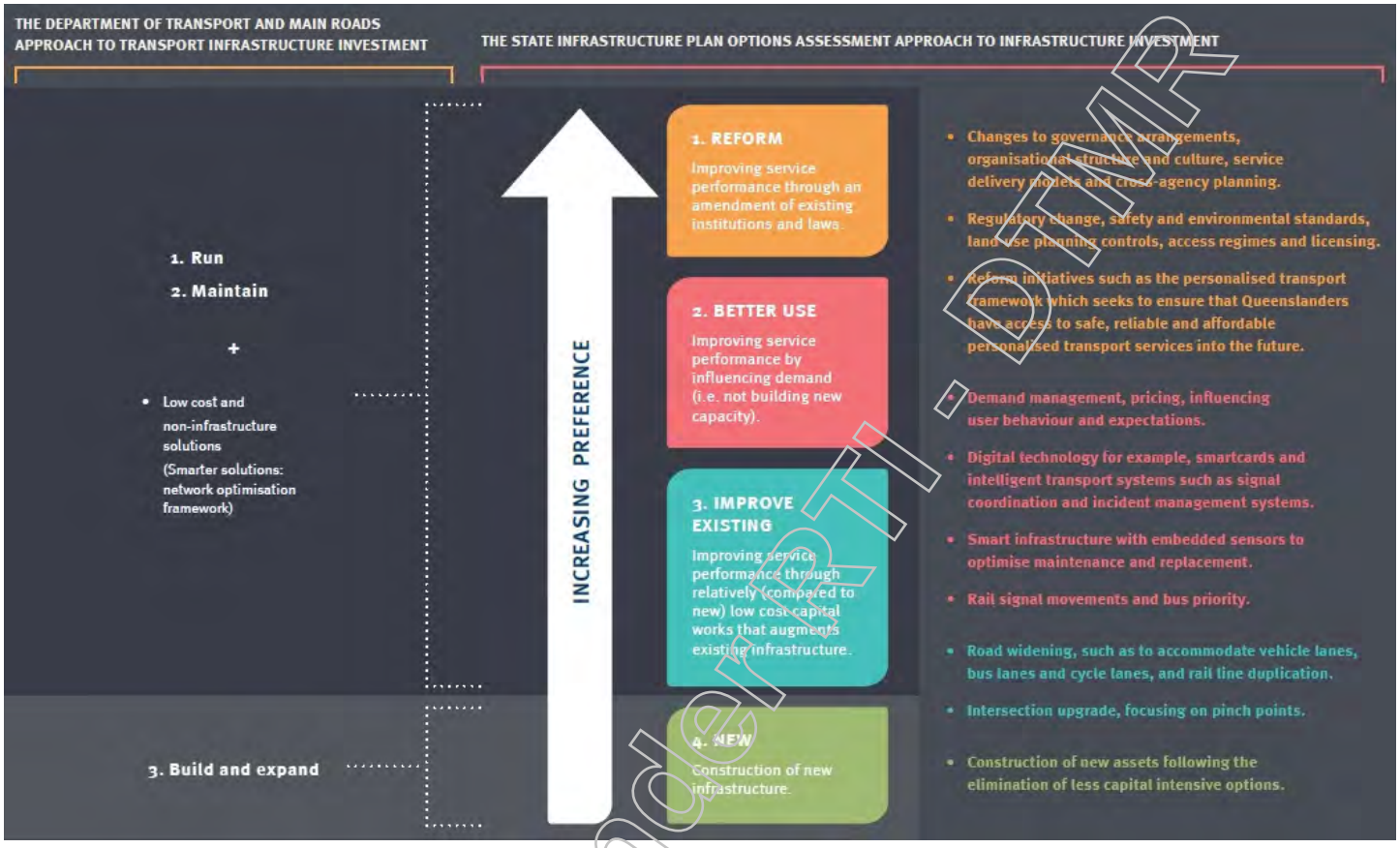
Key Area	Objective	What this means for customers, the community, the economy and the environment
Customer Experience and Affordability	Transport meets the needs of all Queenslanders, now and into the future	• Better ways for customers to access and experience transport
		• Improved transport affordability
Community Connectivity	Transport connects communities to employment and vital services	• Improved mobility for people and goods through more accessible transport
		• Improved health outcomes
Efficiency and Productivity	Transport facilitates the efficient movement of people and freight to grow Queensland's economy	• Focus on maintenance and rehabilitation of existing infrastructure
		• Improved customer experience for all transport users
		• Improved connectedness along key freight corridors and in regional areas
		• Improved freight market access
Safety and Security	Transport is safe and secure for customers and goods	• Reduced rate of transport-related fatalities and injuries
		• Transport protected from attacks
Environment and Sustainability	Transport contributes to a cleaner, healthier and more liveable environment and is resilient to Queensland's weather extremes	• Improved liveability for Queenslanders
		• Greater resilience of transport to the long-term impacts of climate change
		• Enhanced safety, reliability and connectivity during extreme weather events
		• Reduced transport emissions contribute towards meeting our national greenhouse gas reduction targets.

Diagram 2: TCP 2017 Vision and Objectives



The TCP 2017 verifies and aligns our existing approach to transport infrastructure investment (run the system, maintain the system and then build/expand the system) against the State Infrastructure Plan options assessment approach.

Diagram 3: Alignment between departmental and government approaches to infrastructure investment



5. Scope of Transport Infrastructure Portfolio

The TIPPS applies to programs and projects within the Transport Infrastructure Portfolio, as defined below:

In Scope:

- Transport planning and policy studies with significant cost and asset implications
- Maintenance, preservation and operation of existing transport infrastructure assets
- Investment in new transport infrastructure assets
- Initiatives relevant to the management of existing and future transport corridors, including managed motorways and transport corridor acquisitions.

  Note: The IIC also considers/endorses planned investments allocated to other transport infrastructure agencies such as Queensland Rail

Out of Scope:

- Non-infrastructure solutions (for example, public information campaigns, transport user enforcement or behavioural change measures). However, such matters are considered as part of the project investment Gate 1 Strategic Assessment of Service Requirements (SASR) and Gate 2 Preliminary Evaluation (PE) of options.
- Corporate information and communication technology (ICT) investments or corporate investments such as Business Change Programs.

5.1 Portfolio Maturity

In 2016, a number of internal program management reviews concluded that TMR should adopt a more standardised approach to its program management.

The Portfolio Management Office (PfMO) led the development of the TMR Program Maturity Assessment Model based on the UK Office of Government Commerce (OGC) Portfolio, Program and Project Maturity Model (P3M3) and, in 2017, a Program Maturity Assessment was conducted on 14 Investment Programs (Note: Queensland Rail (QR) excluded as it is a separate government entity to TMR). The outcome of the first assessment under the model forms the baseline against which Investment Program Maturity development will be measured in the coming years.

A key measure of program maturity is the benefits management approach, which provides clear measures of performance aligned to departmental strategic objectives. Significant progress has been made with more than half of the Investment Programs having established program-wide Benefit Realisation Plans covering approximately 75 per cent of the total transport infrastructure investment by financial value.

Our project maturity, built upon a benefits management approach that is leading of the Queensland agencies (and most likely the pre-eminent transport agency in Australia), has also achieved significant milestones in 2017 with the M1 Pacific Motorway: Eight Mile Plains to Daisy Hill project being the first project to consider three modes of transport to tackle a network issue.

In addition, the Gold Coast Light Rail (Stage 2) project, which commenced services on 17 December 2017, is set to develop the most advanced, modern public transport interchange in the country, bringing together heavy rail, light rail, buses and personalised transport.

6. Policy Environment

The policy and planning environment relevant to TMR's Transport Infrastructure Portfolio is complex and continually changing. The PfMO reviews the strategic policies and other direction-setting statements to determine - relevance to the portfolio, significant cost and asset implications, and other impacts on the transport system.

The annual review process to develop the TIPPS has identified a number of emerging policy and priority shifts that will likely necessitate adjustment to the future transport infrastructure investment outlook:

6.1 Australian Infrastructure Plan

As part of the Australian Government's response to the *Australian Infrastructure Plan* (AIP), four key initiatives were announced by the Prime Minister in November 2016:

- Undertaking an independent inquiry to look at how the productivity and efficiency of Australia's freight and supply chain infrastructure can be lifted
- Working with state governments to develop urban rail plans for Australia's five largest cities (including their surrounding regions). Refer the National Rail Program (at 6.3.1) for program funding details
- Establishing a study, led by an eminent Australian, into the potential benefits and impacts of road user charging for light vehicles, and progressing next steps for heavy vehicle reform with states and territories
- Developing a technology plan to improve data collection for all users, the private sector and government across all transport modes.

6.2 Infrastructure Priority List

Complementing the AIP is Infrastructure Australia's Infrastructure Priority List (IPL) - a pipeline of nationally significant projects. Infrastructure Australia determines which nationally significant projects should be included on the IPL through a rigorous prioritisation process. IA assess initiatives and project proposals, where federal funding is likely to be $100M or greater, to inform the IPL.

The current IPL (30 November 2017), identifies 17 Queensland nationally-significant transport and road infrastructure priorities.

6.2.1 Queensland Governments submission (Dec 2017) to Infrastructure Australia's Infrastructure Priority List

In December 2017, the Queensland Government responded to Infrastructure Australia's request for Queensland to update the Infrastructure Priority List, advising:

Three priorities be removed from the IPL as they are now in delivery:

- Ipswich Motorway – Rocklea to Darra Stage 1C (tender awarded April 2017)
- Bruce Highway – Cooroy to Curra Section C (construction commenced March 2016)
- Bruce Highway – Mackay Ring Road Stage 1 (tender awarded July 2017)
- M1 Pacific Motorway – Gateway Motorway merge upgrade (main construction contract awarded October 2017)

Nine initiatives be included on the IPL:

- National Land Transport Network Infrastructure Renewal
- Flinders And Barkly Highways Upgrades
- Warrego Highway Upgrades
- Pacific Motorway (Eight Mile Plains to Daisy Hill) Stage 2
- Pacific Motorway (Varsity Lakes to Tugun)
- Cunningham Highway (Flinders to Yamanto)
- North Coast Rail Line Action Plan
- Gold Coast Rail Line: Kuraby to Beenleigh Rail Capacity Improvement
- Gold Coast Light Rail (Stage 3A)

The Queensland Government reaffirmed its commitment for existing projects remaining on the IPL. IA is expected to release an update to the IPL in February 2018.

6.3 2017 Federal Budget investment in rail

In May 2017, as part of the Federal Budget, the Australian Government announced significant investment in regional and urban rail networks through the establishment of a $10B National Rail Program and an $8.4B equity investment towards the Melbourne to Brisbane Inland Rail project.

6.3.1 National Rail Program

The $10B National Rail Program was established to fund rail projects across Australia that improve urban and regional rail services to better connect communities. Under the program the Australian Government will work with state governments to develop Urban Rail Plans for the five largest capital cities and their surrounding regions, to plan and deliver key rail infrastructure projects.

6.3.2 Melbourne to Brisbane Inland Rail project

The Melbourne to Brisbane Inland Rail project will provide a high-capacity freight link between Melbourne and Brisbane through regional Australia to better connect products to domestic and international markets. The Australian Government has committed to finance the project through a combination of an $8.4B equity investment in the Australian Rail Track Corporation and a Public Private Partnership (PPP) for the most complex elements of the project. The 126 kilometre section from Toowoomba to Kagaru, in Queensland, will be delivered through a PPP. Under this delivery arrangement, the private sector will design, build, finance and maintain this section of the railway over a long-term concession period.

6.4 City Deals

City Deals are a core tenet of the Australian Government's Smart Cities Plan (released in April 2016), to coordinate and leverage local, state and federal government investment into an agreed set of projects and associated outcomes.

6.4.1 Townsville City Deal

The Australian Government, Queensland Government and Townsville City Council signed Australia's first City Deal for Townsville on 9 December 2016. City Deals are collective plans for economic growth tailored for a city or region that commit to actions, investments, reforms and the governance needed to implement them.

Key transport and road initiatives under the Townsville City Deal, include:

- Public transport solutions – investigate demand responsive and innovative public transport initiatives that enhances liveability and accessibility
- Port of Townsville channel capacity upgrade – complete the business case for consideration by shareholding ministers
- Townsville Eastern Access Rail Corridor (TEARC) – deliver the TEARC business case, and consider innovative funding and financing options associated with the acceleration of the Townsville State Development Area (SDA) and the future expansion of the Port of Townsville
- Woodstock intersection upgrade – investigate the upgrade to the Flinders Highway/Woodstock-Giru Road intersection to enable access to, and the development of the Woodstock industrial and export estate.

A city deal for South East Queensland is currently under development and is being led by the Department of State Development, Manufacturing, Infrastructure and Planning (DSDMIP).

6.5 Infrastructure Investment Programme

The Australian Government has a number of other specific roads and transport infrastructure initiatives within its Infrastructure Investment Programme for capital works upgrades, for which state, territory and local governments can submit projects for federal funding consideration:

- National Highway Upgrade Programme – generally 80:20 funding arrangements
- Black Spot Programme – 100 per cent federally-funded
- Bridges Renewal Programme – 50:50 funding arrangements (including capping)
- Heavy Vehicle Safety and Productivity Programme – 50:50 funding arrangements
- Northern Australia Roads Programme – 80:20 funding arrangements
- Northern Australia Beef Roads Programme – 80:20 funding arrangements
- Infrastructure Growth Package – Australian Government contribution of 15 per cent of the assessed sale value of the asset used.

Funding updates are included below.

6.5.1 Bridges Renewal Programme (Round 3)

On 14 September 2017, the Australian Government announced successful projects under Bridges Renewal Programme (BRP) Round 3. The Queensland Government secured funding for five projects totalling $46.30M (federal – $20.36M, state – $25.94M) based on 50:50 matching arrangements, with the federal contribution capped at $5M per project, including:

- $5.98M Wills Developmental Road: Beames Brooke Bridge
- $6.66M Townsville Connection Road: Bowen Road Bridge
- $8.30M Capricorn Highway: Valentine Creek Bridge
- $15.58M Burnett Highway: Three Moon Creek Bridge
- $9.78M Burnett Highway: Lochaber Creek Bridge.

6.5.2 Heavy Vehicle Safety and Productivity Programme (Round 5)

Successful projects under Round Five of the Heavy Vehicle Safety and Productivity Programme (HVSPP) were announced in August 2016, with the Australian Government contributing $14.25M (towards a total program budget of $28.5M) for productivity enhancements for the Carnarvon Highway with two road widening upgrades.

6.5.3 Northern Australia Roads Programme

In October 2016, the Australian Government confirmed funding for ten Queensland Northern Australia Roads Programme (NARP) projects totalling $279.7M, with $223.8M in federal funding.

Projects funded on Queensland state-controlled roads include upgrades on Barkly, Flinders, Landsborough, Capricorn and Peak Downs Highways, the Kennedy Developmental Road (locally known as the Hann Highway), the Bajool to Port Alma Road Rockhampton and the Bowen Developmental Road.

6.5.4 Northern Australia Beef Roads Programme

In October 2016, the Australian Government announced funding for 15 Queensland Northern Australia Beef Roads Programme (NABRP) initiatives totalling $59.8M in federal funding.

Projects on Queensland state-controlled roads include upgrades on the Burke and Diamantina Developmental Roads, the Richmond-Winton, Cloncurry-Dajarra and Clermont-Alpha Roads and the Rockhampton Road Train Access (Stage 2) project. Projects funded on local-government government roads include Ootan Road and Richmond-Croydon Road.

6.6 State Infrastructure Plan

6.6.1 Part B: Program update (2017)

On 19 July 2017, the Queensland Government released an update to the State Infrastructure Plan (SIP) Part B: Program. The key changes include updates to the 1-4 year program of investment and future opportunities over the next 15 years, and a new regional planning section that will highlight emerging region shaping infrastructure priorities.

There are no changes within the SIP to the Queensland Government's priority responses for infrastructure in a constrained funding environment. The priorities for the Transport Infrastructure Portfolio remain as:

- increase capacity and resilience of SEQ's transport system
- improve regional connectivity and freight market access
- focus on better preservation of public assets.

If additional funding became available, these areas should become the first focus of investment.

6.7 Building Queensland

Building Queensland is an independent statutory authority that provides strategic, expert advice to government around a pipeline of priority infrastructure projects and their development, including:

- the development of business cases for state infrastructure proposals with an estimated capital cost greater than $100M
- assistance with those business cases between $50M and $100M.

6.7.1 Infrastructure Pipeline update

Building Queensland's Infrastructure Pipeline report provides an appraisal of the maturity of unfunded infrastructure proposals. Transport-related projects that have been identified as priorities in the Building Queensland Infrastructure Pipeline (as at December 2017) are:

Table 2: Transport-related projects on the Building Queensland Infrastructure Pipeline (Dec 2017)

Project Proposal	Estimated Cost of Delivery	Status
Cunningham Highway – Yamanto Interchange to Ebenezer Creek	$330M	Detailed Business Case completed **
North Coast Line – Beerburrum to Nambour Rail	$600M - $700M	Detailed Business Case completed
Townsville Eastern Access Rail Corridor (TEARC)	$500M - $700M	Detailed Business Case completed
M1 Pacific Motorway – Eight Mile Plains to Daisy Hill	TBD	Detailed Business Case underway
Sunshine Motorway – Mooloolah River Interchange	$430M	Preliminary Business Case completed
Bruce Highway – Pine River to Caboolture/Bribie Island Road	TBD	Preliminary Business Case underway
Bruce Highway – Steve Irwin Way to Caloundra Road	TBD	Preliminary Business Case underway
M1 Pacific Motorway – Varsity Lakes to Tugun	TBD	Preliminary Business Case completed

***This initiative will now be referred to Infrastructure Australia for Australian Government funding consideration*

6.8 2017 State election commitments

During the 2017 state election, approximately 33 new transport infrastructure commitments were made, estimated to total around $1.68B in new Queensland Government funding for the Forward Estimates period:

Table 3: Transport Infrastructure Election Commitments (December 2017)

Policy / Program / Project	Investment Program	Commitment	Comment
Commitments for which TMR funding outcomes are confirmed			
Mount Isa – Townsville rail line upgrades	Queensland Rail	$50M	Upgrade and maintain the Mt Isa line on the Queensland Rail network, with $10M allocated in 2020-21 (Note: This line forms part of the NLTN)
Northern and Eastern Transitways	Passenger Transport Infrastructure Improvements	$75M	$22M to upgrade five major intersections, which will include bus priority measures on local government-controlled on Old Cleveland Road (Eastern Transitway)
			$53M for Northern Transitway

Policy / Program / Project	Investment Program	Commitment	Comment
Everton Park Link Road	State Road Network Upgrades	$26M	Construction of the Everton Park Link Road, linking South Pine Road, north of Kedron Brook and Stafford Road, east of Mountridge Street
Mount Lindesay Highway upgrades	State Road Network Upgrades	$20M	Upgrade the Mount Lindesay Highway between Camp Cable Road and Tamborine/ Johanna Street intersections
South East Queensland rail station accessibility upgrades	Queensland Rail	$135.2M	$15.9M for Cannon Hill station
			$17.6M for East Ipswich station
			$16.3M for Fairfield station
			$20M for Buranda station
			$18M for Loganlea station
			$17.4M for Albion station
			$30M for Dakabin station (Minister announced prior to election)
Park 'n' Ride expansion package Rail stations – Queensland Rail	Queensland Rail (noting that planning and resumption costs may be transferred to Transport System Planning)	$44.07M	$3.1M for an additional 70 car spaces at Geebung
			$5M for an additional 70 car spaces at Lindum
			$2.3M for an additional 30 car spaces at Virginia
			$8.77M for an additional 180 car spaces at Darra
			$14.5M for an additional 300 car spaces at Salisbury
			$10.4M for an additional 250 car spaces at Lawton
Park 'n' Ride expansion package Bus stations – TMR	Passenger Transport Infrastructure Improvements	$25.5M	$21M for an additional 600 car spaces at Greenbank bus station
			$4.5M for an additional 200 car spaces at Eight Mile Plains bus station
Marine Infrastructure Fund (Boaties Bonanza)	Marine Infrastructure	$30M	Projects identified through TMR's Recreational Boating Facilities Demand Forecasting Study:
			$5.5M to progress the design and establishment of a boat ramp at Yorkeys Knob
			$4M to construct a new two-lane boat ramp at Newell Beach
			Subject to finalisation of a business case, $4M towards construction works on a barge landing site at Scarborough Boat Harbour
			$1.3M to upgrade the ramp at Cabbage Tree Creek
			$1M to upgrade the Dohles Rocks ramp to 4-lanes and add a floating walkway
			$5M to fund channel deepening works at Molongle Creek
			$1.4M to fund two near all-tide lanes and a floating walkway for the Corbetts Landing boat ramp
			$2M to provide two near all or all-tide lanes at the Thompson Point boat ramp
			$0.8M to construct a two-lane boat ramp with floating walkway at Reidel Road in Carbrook

Policy / Program / Project	Investment Program	Commitment	Comment
			$4M for boat ramps across the Whitsundays, including at Midge Point, $1.4M for a new boat ramp in the Cape Gloucester/Dingo Beach area, an extra lane and floating walkway at Horseshoe Bend (Murray Creek) boat ramp, and improvements to Shute Harbour (Cost and scope of this initiative to be clarified)
			$1M for additional lane on the existing boat ramp Grasstree Beach
Queensland Walking Strategy	Active Transport	$2.5M	To develop a Queensland Walking Strategy (commitment transferred from Queensland Health)
Half-price public transport for veterans	N/A (out-of-scope of the Transport Infrastructure Portfolio)	$1.81M over the forward estimates $608k per annum ongoing	Expand concession to White Card holders under 64 years of age; timeframe 25 April 2018
Vintage motorcycle registration amendments	N/A (out-of-scope of the Transport Infrastructure Portfolio)	$100k per annum	Reduce registration costs for vintage motorcycles by approximately 70 percent; to be implemented fully in 2018
Commitments for which TMR funding outcomes are yet to be confirmed			
Townsville Eastern Access Rail Corridor (TEARC)	Rail Infrastructure Improvements	$10M	Move immediately to preserve preferred TEARC corridor and to meet related environmental requirements. (Note: Federal/state funding arrangements to be resolved)
Yeppoon rail line upgrades	Queensland Rail	$4.1M	Upgrade a 1.9km section of the Yeppoon rail line to the JBS abattoir (Further consultation required with Queensland Rail to resolve funding arrangements)
M1 (Pacific Motorway) Action Plan	National Land Transport Network Upgrades	$247M**	$206M towards the upgrade of the southern M1 between Varsity Lakes and Tugun, based on 80:20 funding arrangements.
			Continue to lobby the Federal Government to secure a fair share of funding for the M1 by seeking $800M from the Australian Government in an 80:20 split.
			$25M to upgrade Exit 57 at Oxenford
			$16M for a business case on future upgrades between Eight Mile Plains and the Logan Motorway
Future-proofing the Bruce policy	Bruce Highway Upgrade Program	$913.5M **	$10M over two years (2019–20 to 2020–21) for the Trust to develop a new 15-year vision and rolling five-year action plans (Recurrent)
			$450M for a Boosting the Bruce program ($50M in 2021–22; $200M per annum in 2022–23 and 2023–24)
			$175M for a Bruce Productivity Program ($50M in 2020–21; $25M in 2021–22; $50M per annum in 2022–23 and 2023–24)
			$30M package to deliver wide centreline treatments and more frequent rest areas in safety hotspots ($10M in 2019–20 and $20M in 2020–21)

Policy / Program / Project	Investment Program	Commitment	Comment
			$2.5M in 2019–20 to reduce the distance between electric vehicle charging stations along the Bruce Highway
			$36M to accelerate delivery of the Townsville Ring Road between Douglas and Bohle Plains (Stage 5) (total project cost estimated at $180M), based on 80:20 funding arrangements ($18M per annum in 2019–20 and 2020–21)
			$210M to complete the Cooroy to Curra – Section D project (total project cost estimated at $1.024B), based on 80:20 funding arrangements over four years from 2020–21
Ruthven Street and North Street intersection upgrade	State Road Network Upgrades	$6M	On top of $400,000 spent on planning, to fix the Ruthven Street and North Street intersection at North Toowoomba
Old Gympie Road and Peachester Road intersection upgrade Beerwah	State Road Network Upgrades	$4M	Install traffic lights and slip lanes at the Old Gympie Road and Peachester Road intersection, outside Beerwah State School
Approaches to Rothwell Intersection	State Road Network Upgrades	$6M	Additional funding to widen the approaches of Deception Bay Road at Morris Road, providing three through lanes at Rothwell Road intersection
Resealing and drainage of Pasha Road	Local Government Grants	$16M	For the resealing and drainage of Pasha Road, Moranbah (Note: Local government-controlled road; project scope and funding arrangements to be confirmed)
Coopers Plains level crossing business case	Transport System Planning	$0.8M	Towards development of a business case for the Coopers Plains level crossing based on 50:50 funding arrangements with Brisbane City Council (Note: TMR advised DPC **that likely cost of Business Case development is $5M**; further as a local-government controlled road, 50:50 funding should apply)
Beams Road level crossing Feasibility study	Transport System Planning	$0.4M	Feasibility study into an overpass at the Beams Road level crossing at Carseldine (Note: As a local-government controlled road 50:50 funding should apply)
Springfield Central Park 'n' Ride expansion	Queensland Rail (noting that planning and resumption costs may be transferred to Transport System Planning)	$44M	Additional 650 car spaces at Springfield Central Station, bringing total capacity to 1,100 spaces Note: Proposed expansion at Springfield Central is currently subject to change, pending outcomes of a separate CBRC submission.
2017 State Election Commitments within existing QTRIP allocation			
Kurilpa traffic management plan	Transport System Planning	$0.6M	Towards a Kurilpa Traffic Management Plan, which will have a multimodal focus on transport in Woolloongabba, South Bank Precinct, South Brisbane and West End (Note: 50:50 funding arrangements with Brisbane City Council should apply)

Policy / Program / Project	Investment Program	Commitment	Comment
New Generation Rollingstock modifications in Maryborough	Rail Infrastructure Improvements	$150M	Guarantee that all future rail rollingstock and associated infrastructure, for which Queensland has the manufacturing capacity to deliver, will be manufactured and maintained by Queenslanders to support jobs in Maryborough and other regional centres. Note: Estimated cost of $150M to repair approximately 30 New Generation Rollingstock trains is expected to be met from NGR risk allowance
Centenary Bridge business case	Transport System Planning	$4M	Develop a business case for Centenary Bridge upgrade on the Centenary Motorway
Bulimba Transport and Congestion Study	Transport System Planning	$0.2M	Conduct a comprehensive study into traffic flows
Samford Road traffic study	Transport System Planning	$0.35M	Conduct a comprehensive study into traffic flows on Samford Road. Note: Study due to be finalised December 2017.
Linkfield Road / Gympie Arterial Interchange, Carseldine	Transport System Planning	$0.21M	Undertake planning and design work for an improved solution to the eastbound one-lane choke point
Charity Infrastructure Fund	State Road Network Upgrades	$1M	Establish a fund to help charities meet safety standards for roads or transport-related works associated with their developments. This will support Farm Animal Rescue at Dayboro
Continue to work with the Commonwealth to secure funding for important upgrades to the Gulf Savannah Way	National Land Transport Network	-	Continue to work with the Commonwealth to secure funding for important upgrades to the Gulf Savananah Way and assess the best path forward through the 2018-19 State Budget process.
North Brisbane Bikeway	Active Transport	$18M	Complete the next stage of the North Brisbane Bikeway from Somerset Street, Windsor to Price Street, Wooloowin Note: Estimated cost $14M in QTRIP is deemed sufficient to deliver this commitment
O'Keefe Street Veloway Overpass	Active Transport	$4M	Construct grade-separation over O'Keefe Street, Woolloongabba linking the recently completed Stage D of the Veloway 1 cycleway with the existing V1
Repurposing disused rail corridors	Active Transport	$14M	Towards building walking, cycling and horse-riding trails on disused rail corridors
Other TMR-related initiatives			
An improved bus service for Upper Kedron in 2018	-	-	An improved bus service for Upper Kedron in 2018. There will be an extended 367 weekday service in early 2018 providing better access to Ferny Grove rail station and the Great Western Super Centre at Keperra.
ANCAP and UCAP financial support	-	ANCAP - $132k per annum UCAP - $28k per annum	Continued TMR financial support to ANCAP and Monash University for the Used Car Assessment Program (UCAP) Note: Included in a letter from Deputy Premier Jackie Trad to RACQ

Policy / Program / Project	Investment Program	Commitment	Comment
Publish more new and updated Principal Cycle Network Plans; investigate new approaches to wayfinding for cycle networks; investigate the collection of incident and injury data relating to cyclists; investigate reducing speed limits in areas of high pedestrian and cycling activity; and deliver a road safety education program	-	-	To empower young Queenslanders to safely and confidently use city and regional roads Note: Committed in a stakeholder letter response to Space4Cycling.
Increase law enforcement to prevent trucks heavier than 4.5 tonnes illegally using the Brisbane Urban Corridor (BUC) as a through-route.	-	-	Increase law enforcement to prevent trucks heavier than 4.5 tonnes illegally using the Brisbane Urban Corridor (BUC) as a through-route. Actions may include: - installing anti-heavy vehicle signage along Mt Gravatt-Capalaba Road, Kessells Road and Granard Road. - compliance staff using mobile automatic number plate-recognition devices to identify the heavy vehicles flouting the road rules. Note: It is understood this initiative has been delivered
Develop a more detailed fatigue management framework for the Personalised Transport industry	-	-	Note: Fatigue management-related amendments approved to Transport Operations (Passenger Transport) Regulation 2005 Note: Committed in a letter from Deputy Premier Jackie Trad to Cairns Taxis

***These commitments seek an 80% contribution from Aust Govt*

On 23 November 2017, Queensland Labor announced a plan to introduce four new taxes (on luxury cars, large properties and online bets) and government efficiency measures (funding reallocations and public service efficiency measures) to fund an estimated $2.8B worth of 2017 election commitments over the forward estimates (that is, $1.38B in recurrent spending and $1.4B in capital works).

6.9 Shaping SEQ - South East Queensland Regional Plan – August 2017

The *Shaping SEQ: South East Queensland Regional Plan* was released by the Queensland Government in August 2017. The Plan guides local government planning schemes and will also form the basis of negotiations for a future SEQ City Deal.

ShapingSEQ includes a program of actions that include: infrastructure planning and delivery, koala conservation and biodiversity assessments, design guidelines, a focus on climate change adaptation, monitoring land supply and unlocking undeveloped land with the urban footprint. Implementation of the program is subject to government budgetary consideration, improved knowledge of the plan's performance over time through monitoring activities, and ongoing community engagement.

6.10 Connecting Brisbane - A plan for the future of Brisbane's public transport system

Connecting Brisbane: A plan for the future of Brisbane's public transport system was released in June 2017. The plan was jointly developed by the Department of Transport and Main Roads, the Department of Infrastructure, Local Government and Planning and Brisbane City Council in consultation with the Federal Department of Infrastructure and Regional Development.

The Plan centres around a vision for a high-frequency public transport 'trunk' service with feeder services that complement the Cross River Rail and Brisbane Metro projects. The *Connecting Brisbane* strategy includes two main reform tasks:

- to provide infrastructure, particularly at the core of our transportation system, to unlock existing capacity and overcome current constraints and avoid congestion
- improve services with a network providing more frequent, integrated services on a 'turn up and go' high-frequency trunk network supported by feeder services.

6.11 Queensland Cycling Strategy 2017-2027

The *Queensland Cycling Strategy 2017-2027* sets the strategic direction for cycling in Queensland over the next ten years. The strategy includes a two-year action plan which focuses on the practical actions under fiver priority areas needed encourage more people to cycle more often.

- Building and connecting infrastructure to grow participation
- Encouraging more people to ride
- Sharing our roads and public spaces
- Powering the economy
- Using research and data in decision making.

The action plan is delivered under the Active Transport Investment Program.

6.12 Queensland's Road Safety Action Plan 2017-2019

Safer Roads, Safer Queensland: Queensland's Road Safety Action Plan 2017-19 is the second action plan recently launched under the *Queensland Road Safety Strategy 2015-21.* The two-year action plan sets out a response that focuses on four priority areas - and setting the path towards a vision of zero fatalities and serious injuries:

- Delivering safer roads for Queenslanders
- Getting people into safer vehicles
- Encouraging safer road use
- Planning our future and strengthening our partnerships.

The action plan is delivered under the Targeted Road Safety Investment Program.

7. Investment Criteria

The key investment criteria outlined in the TCP are:

Run the system

Sufficient funding will be provided to operate services and infrastructure to ensure an appropriate level of access and safety.

Maintain existing services and infrastructure assets

In relation to existing infrastructure, the focus will be on repair or rehabilitation, rather than replacement, where this reduces the whole-of-life costs of transport infrastructure.

Build the system

After sufficient funding has been allocated to run and maintain the system, investments to expand services and infrastructure will be balanced to meet growing demand. In relation to new infrastructure, decision-making will be targeted towards infrastructure that supports:

- **Customer Experience and Affordability** (*efficient and reliable transport system*)

  Investment choices need to be conscious of a whole-of-life approach and adaptability to a new environment (such as the freight task volume increasing and becoming more complex).

- **Community Connectivity** (*integrated transport system*)

  Transport infrastructure will not only be integrated across modes and with other inter-related planning regimes, like state development and land use, but also across all levels of government and between the public and private sectors. This sub-theme will focus on meeting the goal to provide connected and accessible transport infrastructure across the state that connects communities to employment and vital services.

- **Efficiency and productivity** (*efficient and reliable transport system*)

  An efficient and effective transport network is essential to support economic productivity and the global competitiveness of Queensland industries. As the state continues to grow, the transport system will experience significant increases in demand to move both people and freight. Effective transport infrastructure planning will allow for programs / projects to be implemented to manage growth demands, while supporting the short- and long-term requirements of the state.

- **Safety and Security** (*safe and secure transport system*)

  Resilience to events that may impact the transport network need to be considered to ensure reliability and continuity of service. The overall transport challenge will include meeting the needs of growth and raised community, industry and government expectations of a safe and secure network.

Overlaying the investment criteria is transport system safety. *Safety underpins everything that we do*.

8. Portfolio Categorisation

In order to better govern, prioritise and manage the Transport Infrastructure Portfolio (TIP), investments are divided into sub-sets known as Investment Programs. Each Investment Program provides for a manageable and easily understood portfolio component that applies a program management approach to deliver outcomes and benefits aligned to TMR's strategic direction. The 15 Investment Programs that for the portfolio are:

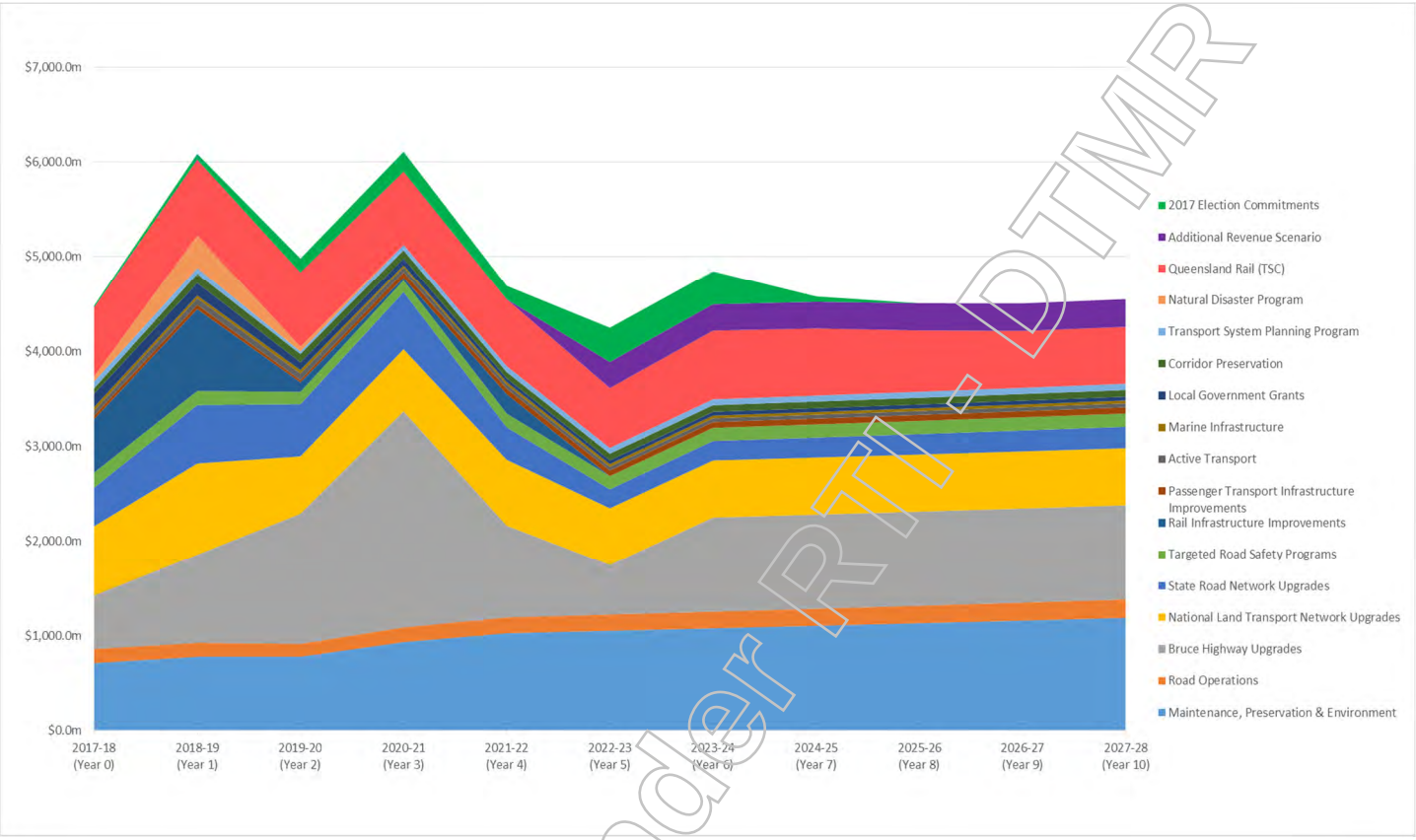
Table 4: Portfolio Categorisation

Investment Program	Brief description
Maintenance, Preservation & Environment	Road and busway maintenance activities, such as programmed maintenance and pavement rehabilitation to get longer life out of the existing asset; includes routine maintenance activities for transport infrastructure assets (excluding rail); also includes ineligible Natural Disaster Relief and Recovery Arrangements funding requirements.
Road Operations	Investment for managing road use to improve travel efficiency for freight and passenger vehicle users and maintenance of traffic equipment, such as enhancing Intelligent Transport Systems and equipment, guidance & illumination enhancement, Emergency Vehicle Priority works, and so on.
Bruce Highway Upgrades	Australian and Queensland Government-funded upgrades on the Bruce Highway (Brisbane to Cairns), excluding items included in other Investments Programs, such as the other National Land Transport Network Upgrades, Maintenance, Preservation and Environment, Road Operations and natural disaster recovery works.
National Land Transport Network Upgrade	Australian and Queensland Government-funded upgrades on the National Land Transport Network, excluding items included in other Investments Programs, such as the Bruce Highway Upgrades, Maintenance, Preservation and Environment, Road Operations and natural disaster recovery works.
State Road Network Upgrades	Upgrades on the Other State-controlled Road Network, excluding items included in other Investment Programs, such as Local Government Grants, Targeted Road Safety, Maintenance, Preservation and Environment, Road Operations and natural disaster recovery works.
Targeted Road Safety Program	Low to medium cost, high-benefit investments funded under the *National Black Spot* and Queensland *Safer Roads Sooner* programs – includes *Safer Roads Sooner* initiatives funded from *Camera Detected Offence* revenue and the former corridor management road safety elements.
Passenger Transport Infrastructure Improvements	Investments for either construction or upgrade of bus infrastructure and station facilities, including busways and transit ways. Includes other modes such as Long Distance Coach, Jetties, Transit Oriented Developments, certain Park n' Ride facilities and Intelligent Transport Systems; also includes capital grant initiatives such as School Bus Upgrade Scheme and Passenger Transport Accessible Infrastructure Program.
Active Transport	Active Transport infrastructure investments, such as the cycling infrastructure program's capital works, capital grants, off-road cycling infrastructure maintenance and RailTrails sub-programs.
Local Government Grants	Encompasses ongoing base funding to local governments throughout Queensland under the Transport Infrastructure Development Scheme (TIDS), the bulk of which is prioritised through the Roads and Transport Alliance's Regional Roads and Transport Groups (RRTGs), comprised of Local Government Mayors and relevant TMR District Directors. TIDS aims to support local transport infrastructure needs.
Marine Infrastructure	Includes items, such as funding for recreational boating infrastructure initiatives, routine maintenance for Recreational Boating facilities and funding provided to local governments for various boating infrastructure.
Transport System Planning Program	Queensland Government funding for planning projects (strategic planning and up to business case).
Natural Disaster Program	Reconstruction and restoration of transport infrastructure damaged by natural disasters. Excludes items ineligible for Natural Disaster Relief and Recovery Arrangements (NDRRA) funding (see MP&E above), and NDRRA funding for maritime infrastructure (see *Marine Infrastructure*).
Corridor Preservation	Corridor preservation (hardship acquisitions) on the State-controlled Road Network and outstanding property liabilities on practically completed construction projects.
Rail Infrastructure Improvements	Investments for construction and/or upgrade of rail infrastructure that is funded and managed as part of TMR's capital-controlled budget; includes New Generation Rollingstock and Gold Coast Light Rail.
Queensland Rail (TSC)	Investments funded under Queensland Rail administered/debt funding, currently including rail track construction and upgrades.

9. Portfolio Investment and Direction

The 10-year TIPPS indicative funding profile across the Investment Programs is as follows:

Diagram 4: Indicative funding allocation from 2018–28 by Investment Program



The distribution of funding across the Investment Programs uses existing funding levels in the Forward Estimates, in addition to a number of assumptions (refer *Appendix 2*), to determine a reasonable funding distribution for the total portfolio and each Investment Program.

The 10-year funding allocation (Diagram 4) illustrates the rolling four-year QTRIP program of works, with firm funding commitment for projects in 2017–18 to 2018–19 and indicative funding in the following two years for planning purposes. From 2021–22 onwards, the investment allocation is based on a conservative outlook of the funding forecast, in accordance with the investment criteria of *Run, Maintain,* then *Build the System.* This is illustrated by maintenance and operational funding of the transport system steadily increasing over a 10-year period from 36 per cent (in terms of the total state funding allocation, excluding federal funding) in 2018–19 to 51 per cent in 2021–22 and ongoing incremental improvement.

The 10-year funding allocation also illustrates the significant federal funding under the current five-year NPA 2014–15 to 2018–19 (generally in the order of 25–50 per cent of the funding allocation, predominantly in the National Land Transport Network/Bruce Highway Upgrades) and until such time that the next NPA is formalised, the indicative funding forecast for future federal funding is conservatively based on $480M per annum (state matching funds based on 80:20 federal:state sharing arrangement of $120M per annum). Historically, funding agreements for Queensland have been up to $800M per annum, excluding the Bruce Highway. In recent times, the Australian Government has expanded significant investment in the non-NLTN, as illustrated in Diagram 4 for the State Road Network Upgrade Investment Program in the Forward Estimates and detailed in section 10.5.

Diagram 4 shows a peak in investment for the Bruce Highway Upgrade Investment Program in 2020–21, a culmination of the 2016 and 2017 Federal Budget to accelerate a number of projects as well as the allocation of identified contingencies/savings for projects under construction and/or other key unfunded priorities under consideration on the Bruce Highway. The federal/state investment commitment on the Bruce Highway at the

end of the 10-year $8.5B agreement in 2023–24 assumes an estimate of ongoing Bruce Highway Trust commitments of $1B per annum (80:20 federal:state sharing arrangement).

Diagram 4 also illustrates in the outer years (2022–23 onwards) a scenario (the total of which is $3B on the previous TIPPS) where a modest increase (approximately 4 per cent of TIPPS 2018-28) in revenue could allow additional investment options. This is detailed in section 10 as scenarios for some Investment Programs (Maintenance, Preservation and Environment; Road Operations; State Road Network Upgrades; Passenger Transport Infrastructure Improvements; Marine Infrastructure; and Active Transport), outlining the likely allocation and its contribution to strategic outcomes.

The 2017 Election Commitment reflected additional funding of approximately $1.68B to the TIP funding envelope 2018–28. This additional funding has been reflected in Diagram 4 as a standalone item to show the magnitude of the increase and included within each of the impacted Investment Program profiles.

9.1 Portfolio Investment Summary

The TIPPS 2018-28 outlines a scenario of a reasonable level of investment that will begin to address the most critical maintenance, preservation and upgrade investments to the transport network. This is not the complete transport infrastructure investment need to sustain the transport network, but rather a level of funding to begin to address the highest and most critical network requirements, within a fiscally-challenged environment. TMR considers this is a reasonable level of investment for the 10-year period from 2018 to 2028 and would meet government strategic outcomes including:

- targeted growth towards maintenance, preservation and operation of the existing network and a continuation of the reinstatement of the funds ($60M per annum) that were previously diverted to partly fund the natural disaster restoration works. An additional $100M per annum has also been re-prioritised from 2021-22 to address the safety, reliability and resilience of the State Controlled Road (SCR) network
- national commitments (state) – generally to match Australian Government commitments on the National Land Transport Network (primarily on an 80:20 federal: state contribution), noting the $8.5B commitment to the Bruce Highway upgrade over 10 years from 2013–14. This investment supports economic productivity and the global competitiveness of Queensland industries
- Queensland Government election commitments (for example, Building Our Regions project commitments). This includes a TIDS funding allocation increase from $40M to $70M per annum until 2019–20 to support integration of transport infrastructure across all levels of government (TMR will be seeking an extension of the extra $30M TIDS commitment in the 2018–19 budget process)
- moderate growth for highest priority state road network safety initiatives. This investment on the state-controlled road network is focused on safety improvements on the existing asset (small-value, high-benefit initiatives). It includes an additional forward forecast increase in Camera Detected Offences revenue of $355.6M over the Forward Estimates period, invested predominantly in Mass Action programs
- moderate growth for highest priority state road network upgrade initiatives. This investment on the state-controlled road network is focused on upgrades to the existing asset (small-value, high-benefit initiatives) to improve capacity and supply chain integration. It includes a State Road Network Upgrades funding allocation of $150M per annum from 2021–22 onwards
- moderate ongoing growth for cycling infrastructure. This includes additional funding to support the 10-year Queensland Cycling Infrastructure Investment Strategy and Business Case (approved by IIC on 30 November 2016), including $18.8M per annum for Cycling Grants (which is matched by local governments), and $51.57M for asset maintenance for the state's existing cycle network from 2016–17 to 2027–28. This supports an integrated, multi-modal transport network connecting communities

- moderate growth of $30M for the Marine Infrastructure Fund capital works to deliver new and upgraded recreational boating infrastructure under a two-year extension to the capital program, from July 2018. This is supplemented with the operational works for boating facility maintenance and dredging, with funding of approximately $10M per annum. Added to this is $4.25M per annum for maritime dredging since 2016–17.
- focused investment in passenger transport initiatives to address travel time reliability and improved connectivity that makes public transport a more attractive option for more people. This includes Transitway projects ($75M) and a park 'n' ride expansion package at bus stations ($25M) /rail stations ($88M).

The **2021–22 funding** allocation is significant as it becomes the rollover year for the next iteration of QTRIP development in 2018. The indicative 2021–22 funding envelope for the transport infrastructure portfolio is $2,748B (excluding Queensland Rail, Gold Coast Waterways Authority, School Bus Upgrade Scheme, Passenger Transport Accessible Infrastructure and Maritime Safety Queensland programs capital funding), with Australian Government funding accounting for $551M (approximately 20 per cent).

The 2021–22 portfolio allocations apply escalation to the Maintenance, Preservation, and Environment, Road Operations, State Road Network Upgrades, Passenger Transport Infrastructure Improvement and Transport System Planning Investment Programs of the portfolio, consistent with the mandated rate of escalation for federally-funded projects of 3.1 per cent for 2021-22 and then 2.9 per cent from 2022-23 onwards.

Of the many priorities for the limited 2021–22 funds, these are directed towards:

- continuing the reinstatement of the Maintenance, Preservation and Environment investment that was directed to fund the Queensland Government's 25 per cent contribution to natural disaster events ($60M plus escalation of 3.1 per cent in 2021–22) and an additional $80M to address the maintenance backlog
- continuing the increase in funding for Roads Operations investment with an additional $20M to address incident field services and maintenance of Intelligent Transport Systems (ITS) and signals
- sustaining the focus on Targeted Road Safety Program funding, noting that the Camera Detected Offence revenue base for *Safer Roads Sooner* and *Mass Action* has been maintained at $109M (2021–22), and the state-funded base for Road Safety Minor Works is retained ($15.8M in 2021–22)
- targeting State Road Network Upgrades such as minor intersection improvements, pavement strengthening and widening, bridge and culvert upgrades ($164M)
- maintenance of cycling infrastructure (additional $3.46M for off-road cycleways)
- ongoing state-wide recreational boat harbour and channel dredging ($4.25M).

The 2021–22 funding allocation demonstrates funding priority towards maintenance and operations of the existing network, incremental upgrades to existing assets to improve network performance and road safety.

The 2021–22 analysis of portfolio allocation has made no allowance for:

- future Natural Disaster Relief and Recovery Arrangements (NDRRA) events, noting Queensland Treasury has indicated that, from its perspective, TMR will carry the risk and will fund any future matching requirements
- Queensland Government 2017 election commitments
- further stages of the Gold Coast Light Rail network (Stage 3)
- State matching funding requirements for further investments announced by the Australian Government on the Bruce Highway (beyond contingencies/savings reallocations) or the National Land Transport Network.

The detailed portfolio investment schedule outlining funding profile and assumptions over the 10-year period for each Investment Program is in Appendix 2.

10. Investment Program Summaries

The following section provides a summary for each Investment Program.

Each investment summary is presented as follows:

- a brief **description** of the Investment Program, with some additional **background,** if necessary
- the **vision** of the future that will be delivered by the Investment Program
- the **scope** of the Investment Program
- the **outcomes** each Investment Program is seeking to achieve or deliver
- the **10 year investment funding profile** summarising a 10-year view for each Investment Program
- **Current Priority Projects** showing the Investment Program's current focus
- **Top 10 unfunded priorities** what additional outputs / outcomes will be achieved by *increasing* funding above the indicative allocation level (that is, what are the next highest priority projects for funding).

10.1 Maintenance, Preservation and Environment

10.1.1 Background

The Maintenance, Preservation and Environment (MPE) Investment Program has been established to coordinate and manage investment in maintenance, preservation and environmental management of the SCR network. The MPE Investment Program focuses on the long-term sustainability of transport infrastructure assets.

10.1.2 Vision

The vision of the MPE Investment Program is *"sustainable TMR transport infrastructure assets that meet safety, preservation and environmental obligations".*

10.1.3 Scope

The maintenance of the entire SCR Network (including the National Land Transport Network) is managed through the MPE Investment Program. The Investment Program also covers maintenance and renewal activities of the 29 km of designated busway network.

The scope of the MPE Investment Program includes:

- Programmed Maintenance (surfacing treatments, skid resistance management)
- Rehabilitation (pavement rehabilitation, bridge and culvert rehabilitation, batter slope management)
- Routine Maintenance (routine maintenance, unsealed road re-sheeting)
- Grids, Guidance and Delineation (management of grids, roadside signing, roadside and surface delineation)
- Corridor Management (nature conservation, road traffic noise management, contaminated areas, degraded areas, heritage preservation, declared pest species, fire risk management roadside landscape)
- Data collection.

10.1.4 Outcomes

The outcomes of the MPE Investment Program are:

- an ***Efficient*** and ***Reliable*** transport network through maintaining existing transport infrastructure and ensuring system operation and reliability
- a ***Safe*** and ***Secure*** transport network by reducing transport-related fatalities and serious injuries through regular maintenance and renewal of roads, structures and the adjacent corridor
- an ***Integrated*** transport network through maintaining access and connectivity.

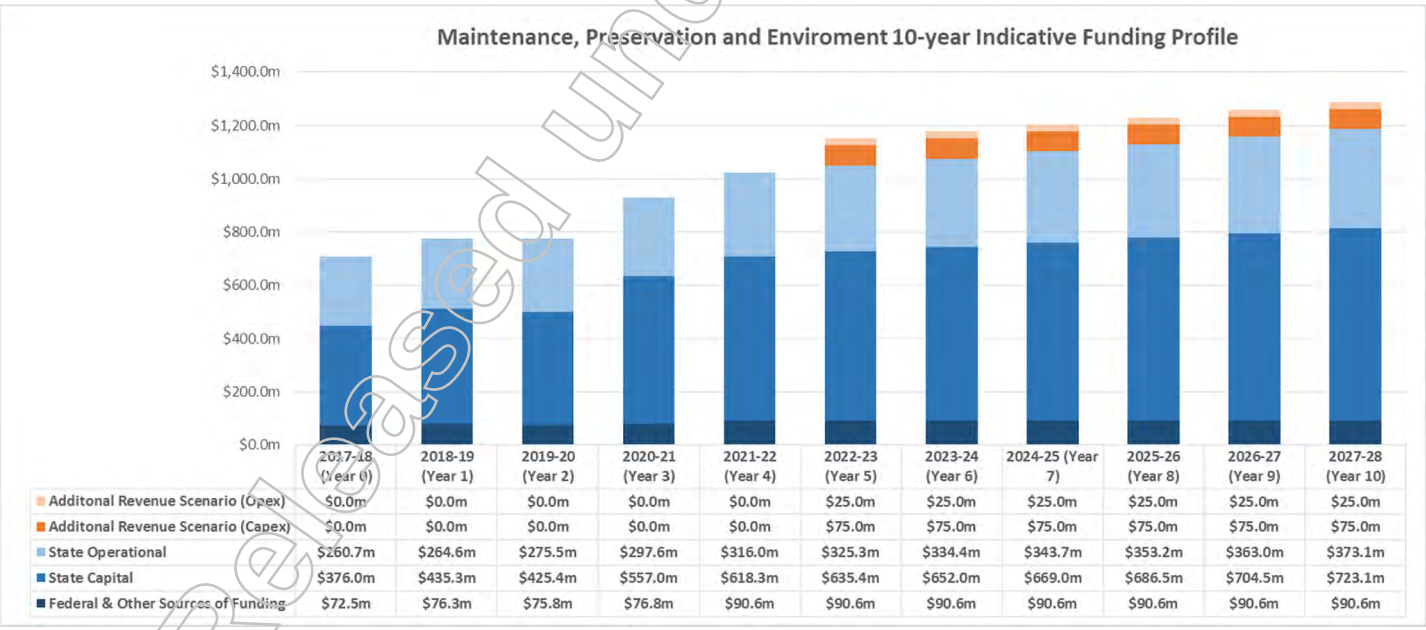
The maintenance and preservation Elements aim to deliver long-term asset sustainability by ensuring an agreed level of service at minimum life cycle cost. The benefits these investments deliver are:

- Maintain economic efficiency by ensuring the agreed level of service (for example pavement roughness) is maintained for road users particularly freight vehicles
- Maintain road safety by ensuring the agreed level of service (for example pavement edge break and bridge condition) is maintained for road users.

The environmental elements aim to ensure TMR manages the SCR corridor in an environmentally sustainable manner and meets the requirements of environmental legislation. The benefits these elements deliver include:

- Managing road noise levels
- Maintaining fauna and flora diversity
- Managing the fire risk associated with road corridors.

10.1.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
Additonal Revenue Scenario (Opex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$25.0m	$25.0m	$25.0m	$25.0m	$25.0m	$25.0m
Additonal Revenue Scenario (Capex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$75.0m	$75.0m	$75.0m	$75.0m	$75.0m	$75.0m
State Operational	$260.7m	$264.6m	$275.5m	$297.6m	$316.0m	$325.3m	$334.4m	$343.7m	$353.2m	$363.0m	$373.1m
State Capital	$376.0m	$435.3m	$425.4m	$557.0m	$618.3m	$635.4m	$652.0m	$669.0m	$686.5m	$704.5m	$723.1m
Federal & Other Sources of Funding	$72.5m	$76.3m	$75.8m	$76.8m	$90.6m	$90.6m	$90.6m	$90.6m	$90.6m	$90.6m	$90.6m

Note1: State Capital from 2017-18 includes $60M (plus escalation) repayment for funding previously reprioritised to fund Natural Disaster Relief and Recovery Arrangement (NDRRA) works.
Note 2: Includes $80M from 2021-22 onwards, re-directed from State Road Network Upgrades (SRNU) Investment Program to address critical shortfalls impacting the safety, reliability and resilience of the SCR network.
Note 3: Includes a scenario where a modest revenue increase could allow additional investment of $100M per annum from 2022-23 and beyond to maintain the transport asset in a safe and serviceable condition.

10.1.6 Priority Projects

The proposed forward program of work is contained within a District's Tactical Asset Management Plan. The MPE Investment Program is managed with the use of Investment Sub-Programs introduced to provide surety from a planning perspective that appropriate funding is directed and invested in key activities (for example, renewal, reactive, corridor management) and flexibility from a delivery perspective to manage allocations across a group of like Elements to deliver program outcomes.

The priority areas of investment within the MPE Investment Program are routine maintenance, programmed maintenance, pavement rehabilitation and bridge/culvert rehabilitation.

10.1.7 Unfunded Priorities

The Program currently experiences critical shortfalls across the various Investment Subprograms, impacting the safety, reliability and resilience of the state-controlled road network. The key shortfalls include:

- Routine maintenance (*current allocations insufficient to address all defects*)
- Minor culverts (*limited funding to address renewal/replacement of minor culverts*)
- Pavement rehabilitation (*current funding only provides for 14 per cent of assessed need)*
- Steel culverts (*limited funding to replace failed/corroded steel culverts*).

10.2 Road Operations

10.2.1 Background

The Road Operations (RO) Investment Program was established to coordinate and manage investment in operational transport treatments and services on the SCR network. The RO Investment Program focuses on achieving optimal operation of the existing road transportation system. The RO Investment Program includes a very limited investment in lower-cost operational transport treatments on SCR network (where the capacity to fund exists) but excludes operational transport treatments where delivered as part of the scope of capital upgrade projects.

10.2.2 Vision

The vision of the RO Investment Program is: *"the safe, reliable and efficient operation of the TMR State-Controlled Road network".*

10.2.3 Scope

The operating the entire SCR Network (including the National Land Transport Network) is managed through the RO Investment Program. The Investment Program also covers maintenance and renewal activities of the 29 km of designated busway network.

The scope of the RO Investment Program includes:

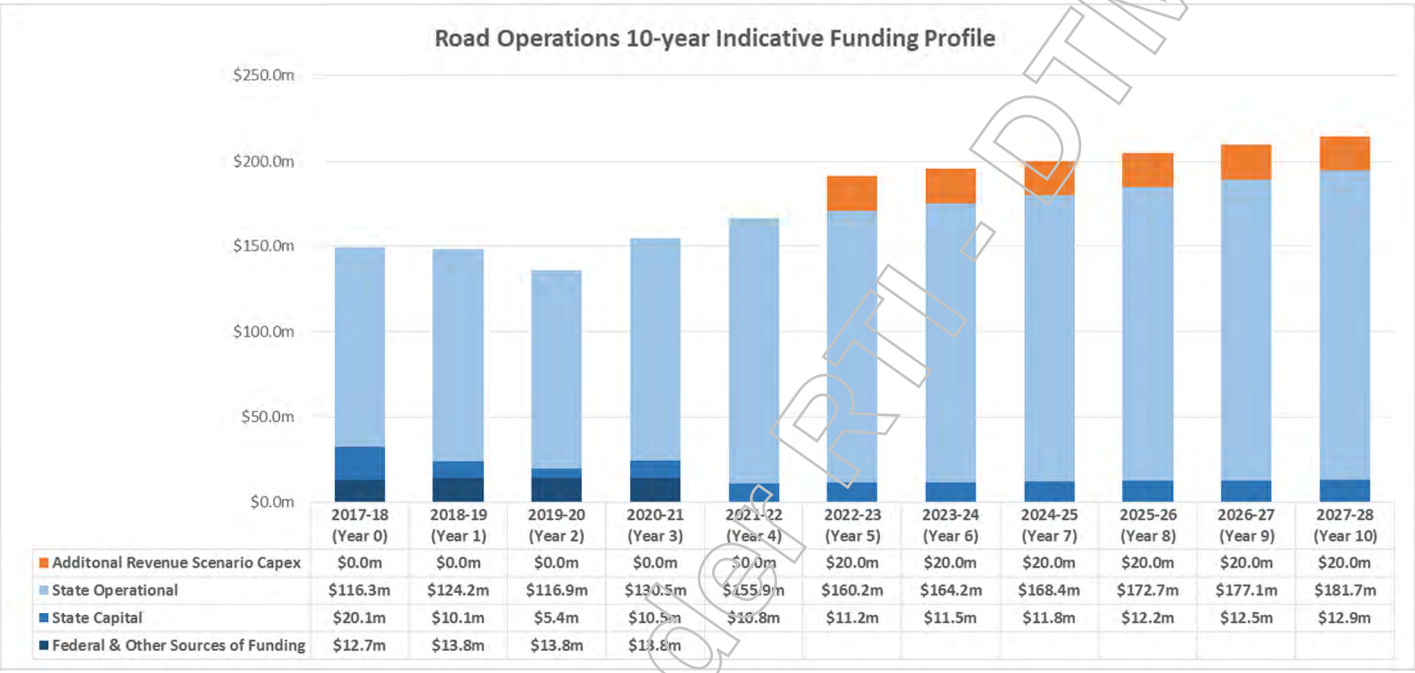
- Operational services (traffic incident field services, traffic management centre operations)
- Maintenance of intelligent transport systems
- Road lighting
- Maintenance and operation of the busway network.

10.2.4 Outcomes

The outcomes of the RO Investment Program are to ensure that:

- Customers receive a seamless experience across the 'one network'
- Customers are empowered through access to trusted and timely travel information
- Customers experience efficient, safe and reliable road network operational performance
- Impacts from planned incidents, road works and events are minimised.

10.2.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
Additonal Revenue Scenario Capex	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$20.0m	$20.0m	$20.0m	$20.0m	$20.0m	$20.0m
State Operational	$116.3m	$124.2m	$116.9m	$130.5m	$155.9m	$160.2m	$164.2m	$168.4m	$172.7m	$177.1m	$181.7m
State Capital	$20.1m	$10.1m	$5.4m	$10.5m	$10.8m	$11.2m	$11.5m	$11.8m	$12.2m	$12.5m	$12.9m
Federal & Other Sources of Funding	$12.7m	$13.8m	$13.8m	$13.8m							

Note 1: Includes Special Initiative allocation for the Emergency Vehicle Priority System rollout 2015–16 to 2019–20 ($13.5M).
Note 2: An additional $20M has been re-directed from SRNU from 2021-22 onwards to address a shortfall against the cost of maintaining existing service levels of incident field services and maintenance of Intelligent Transport Systems (ITS) and signals.
Note 3: Includes a scenario where a modest revenue increase could allow additional investment of $20M per annum from 2022-23 and beyond in ITS renewal.

10.2.6 Priority Projects

The RO Investment Program is managed through the Element Management framework, which provides surety from a planning perspective, that appropriate funding is directed and invested in key activities (for example, traffic management, route lighting, vehicle monitoring systems and other transport infrastructure maintenance).

The investment focus is on funding non-discretionary activities to ensure a safe and available to use road network. Such activities include routine electrical inspections and make safe work, operational services, systems and core staff fixed costs.

10.2.7 Unfunded Priorities

The program has limited capacity to fund services and treatments which sustain and improve network efficiency and reliability. The following are key funding shortfalls for the investment program:

- Renewal of legacy road lighting luminaires with LED technology - $71M
- End of life replacement of traffic signal controllers - $61M
- End of life replacement of various low unit cost ITS devices - $16M

- Operational and maintenance of all inoperable Weigh in Motion (WiM) and heavy vehicle interception sites - $15M
- Deployment of new ITS to enhance road network efficiency and reliability - $21M *(conservative estimate)*
- Provision of best practice traffic signal optimisation business capability - $32M
- Operational systems enhancements - $20M
- End of life replacement of traffic data collection infrastructure - $3M.

10.3 Bruce Highway Upgrade

10.3.1 Background

The Bruce Highway is Queensland's major north-south freight and commuter road corridor, connecting coastal population centres from Brisbane to Cairns over a length of 1,677 kilometres. It is also a vital part of the NLTN providing linkages for west-east freight networks connecting the significant resource sector, and inland agriculture production areas to 11 coastal ports, and is also a major tourism route. The Bruce Highway has more than 1,150 intersections and 30 interchanges and carries in excess of seven M tonnes of freight per year.

The Bruce Highway Upgrade Investment Program (BHUIP) will reduce the current state of deficiency on the Bruce Highway, through improvements to safety, capacity and flood immunity. Investments on the Bruce Highway focus on:

- improved safety by implementing a range of low-cost treatments, including wide-centre line treatments, roadside hazard clearing, as well as constructing additional overtaking lanes, safety barriers and undertaking critical strengthening and widening and upgrading of structures
- improved flood immunity by raising bridges and sections of highway subject to frequent flooding
- improved capacity by investing in duplication of lanes, intersection upgrades, including new interchanges, bypasses (to remove traffic, including freight vehicles, from built environments)
- the introduction of intelligent traffic management systems.

10.3.2 Vision

The BHUIP vision is 'to deliver and maintain a critical piece of infrastructure that operates at the level expected of a national highway in Queensland's principal north-south transport corridor', noting the Bruce Highway Action Plan (BHAP) vision for the Bruce Highway is 'a safe, flood proof and efficient national highway'.

10.3.3 Scope

The BHUIP was developed based on three key principles, including:

- improved safety
- reduced flooding delays and damage
- enhanced traffic capacity.

The BHUIP continues to prioritise investment candidates on the basis of fitness-for-purpose that a project presents to addressing safety, flooding, network capacity or resilience issues and the value-for-money the projects will achieve in terms of the relative benefit for the proposed cost of the solution.

10.3.4 Outcomes

The objectives of the BHUIP are to:

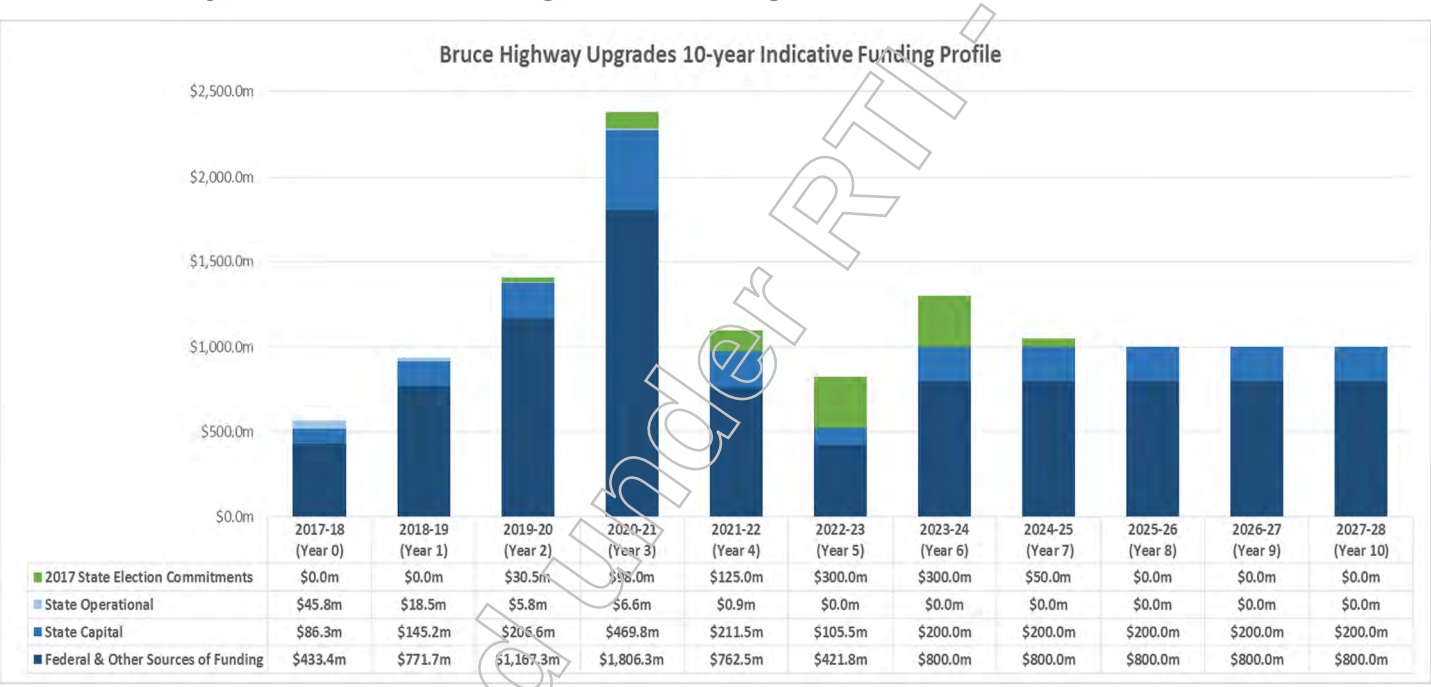
- enhance the safety of the Bruce Highway through the provision of wide-centre line treatments, intersection improvements, and safety barriers to reduce the risk of fatal and serious injury crashes for the safety of all road users

- enhance the efficiency of the Bruce Highway through improved flood immunity for each section of the highway to above a specified minimum standard. While it may not be feasible at this time to provide an entirely flood-free route, roads are assessed to ensure a consistent standard is provided for that specific network link. Different standards have been adopted depending on traffic demands, flood severity and extent, and community expectations
- enhance economic opportunity through improved level of service on the Bruce Highway. This will be achieved by the provision of capacity improvement projects, such as additional lanes, managed motorways, grade separation and intersection upgrades.

The BHUIP provides investment in capital projects that contribute to achieving the program benefits of:

- improved safety
- improved flood immunity
- improved network capacity
- increasing the condition of the asset.

10.3.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$0.0m	$0.0m	$30.5m	$98.0m	$125.0m	$300.0m	$300.0m	$50.0m	$0.0m	$0.0m	$0.0m
State Operational	$45.8m	$18.5m	$5.8m	$6.6m	$0.9m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Capital	$86.3m	$145.2m	$206.6m	$469.8m	$211.5m	$105.5m	$200.0m	$200.0m	$200.0m	$200.0m	$200.0m
Federal & Other Sources of Funding	$433.4m	$771.7m	$1,167.3m	$1,806.3m	$762.5m	$421.8m	$800.0m	$800.0m	$800.0m	$800.0m	$800.0m

Note1: Reflects the Australian Government election commitment of $6.7B towards an $8.5B program over 10 years from 2013–14 (state contribution $1.8B).
Note 2: The 2020–21 investment outlook is a culmination of the 2017 Federal Budget to accelerate a number of projects as well as allocate a portion of identified savings to bring forward delivery of other key unfunded priorities on the Bruce Highway.
Note 3: The federal/state investment commitment on the Bruce Highway is expected to stabilise at $1B ($800M Federal: $200M State) per annum under the “Bruce Highway Trust” election commitment made by the Queensland Government from 2023-24 (the end of the 10-year $8.5B agreement).
Note 4: 2017 Election Commitments of $903.5M in additional state funding, includes Boosting the Bruce ($450M), Bruce Productivity Program ($175M), Cooroy to Curra – Section D ($210M), accelerating Townsville Ring Road Stage 5 ($36M), and Safety treatments ($30M). Additional federal matching funds will be required.

10.3.6 Priority Projects

Significant investments committed in 2017-18, generally on an 80:20 basis with the Australian Government as part of the $8.5B, 10-year (2013-14 to 2022-23) commitment to upgrade the Bruce Highway include:

- Bruce Highway Safety Package (approximately $1B has been allocated for safety upgrades along the corridor from Brisbane to Cairns)
- Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway (total project cost $929.3M)
- Mackay Ring Road Stage 1 (total project cost $497.3M)
- Cattle and Frances Creeks upgrade (total project cost $118.9M)
- Mackay Northern Access Upgrade (total project cost $80M)
- Bruce Highway (Cooroy to Curra) - Section D (plan and preserve) (total project cost $65M)
- Sandy Gully bridge and approaches upgrade (total project cost $57M)
- Tinana Interchange upgrade (total project cost $38M).

10.3.7 Unfunded Priorities

In January 2017, the Queensland Government submitted a proposal to the Australian Government to reallocate $625M of program contingency (realised savings) within the jointly funded $8.5B, 10-year (2022-23 to 2022-23) commitment to upgrade the Bruce Highway. Based on existing 80:20 (federal:state) funding arrangements, the proposed Bruce Highway unfunded priorities included:

- $200M Safety and Critical Asset Renewal package of works – in addition to the current approved/committed safety and overtaking lanes packages
- $200M Bridge and Culvert Safety and Productivity package of works – focused on strengthening ageing structures to maintain access and connectivity for freight vehicles
- $200M Targeted Capacity Upgrades package of works – focused on relatively lower cost (less than $50M) priority projects
- $25M Capacity and Flooding Upgrades (planning) package of works – to fast-track planning and business case development for potential major projects (valued at greater than $50M).

On 9 May 2017, the 2017 Federal Budget reallocated $182.6M of federal funding towards an Additional Safety Works package (total estimated project cost $228.2M), which was to deliver on these priorities. Subsequently, a Project Proposal Report (PPR) has been developed and submitted to progress planning on these unfunded priorities. As planning is completed, subsequent PPRs will be developed to seek construction funding to progress construction of these projects.

10.4 National Land Transport Network

10.4.1 Background

The NLTN provides national and inter-regional connectivity to major population and economic centres and nationally-significant transport intermodal facilities and gateways, supporting the movement of people and freight. The network forms the backbone of Queensland's state-controlled road network, carrying a large proportion of the state's traffic. The objectives and visions for the network are set at both the national level, by the Australian Government, and at the state level, by the Queensland Government.

The NLTN Upgrade Investment Program (NLTNUIP) focusses on 3,314 kilometres of the road component of the NLTN, excluding the Bruce Highway and franchised roads (such as the Gateway and Logan Motorways and Port Drive at the Port of Brisbane).

The NLTN is jointly-funded by the Australian and Queensland Governments generally based on 80:20 funding arrangements. The Australian Government has primary funding responsibility for the NLTN. However, securing adequate funding has become increasingly difficult, leading to the Queensland Government increasing its funding for the network. The NPA outlines funding commitments for the Australian and Queensland Governments. The current NPA, covering 2014-15 to 2018-19, sets out federal and state funding on the NLTN and defines the roles and responsibilities of each party.

The NLTNUIP manages over $2.56B of investment within the QTRIP 2017-18 to 2020-21, across the 3,314 kilometres of the road component of the NLTN, excluding maintenance activity on the network which comes under the scope of the MPE Investment Program.

10.4.2 Vision

The NLTNUIP vision is to provide: "*a sustainable and safer NLTN that contributes to the state's and the nation's social, economic and environmental wellbeing and is consistent with, and performs at the same standard as, similar links on the NLTN nationwide*".

10.4.3 Scope

The NLTNIP comprises capital upgrade projects, including a variety of work types to increase the capacity, safety and resilience of the road component of the NLTN, excluding the Bruce Highway and franchised roads (such as the Gateway and Logan Motorways and Port Drive at the Port of Brisbane).

10.4.4 Outcomes

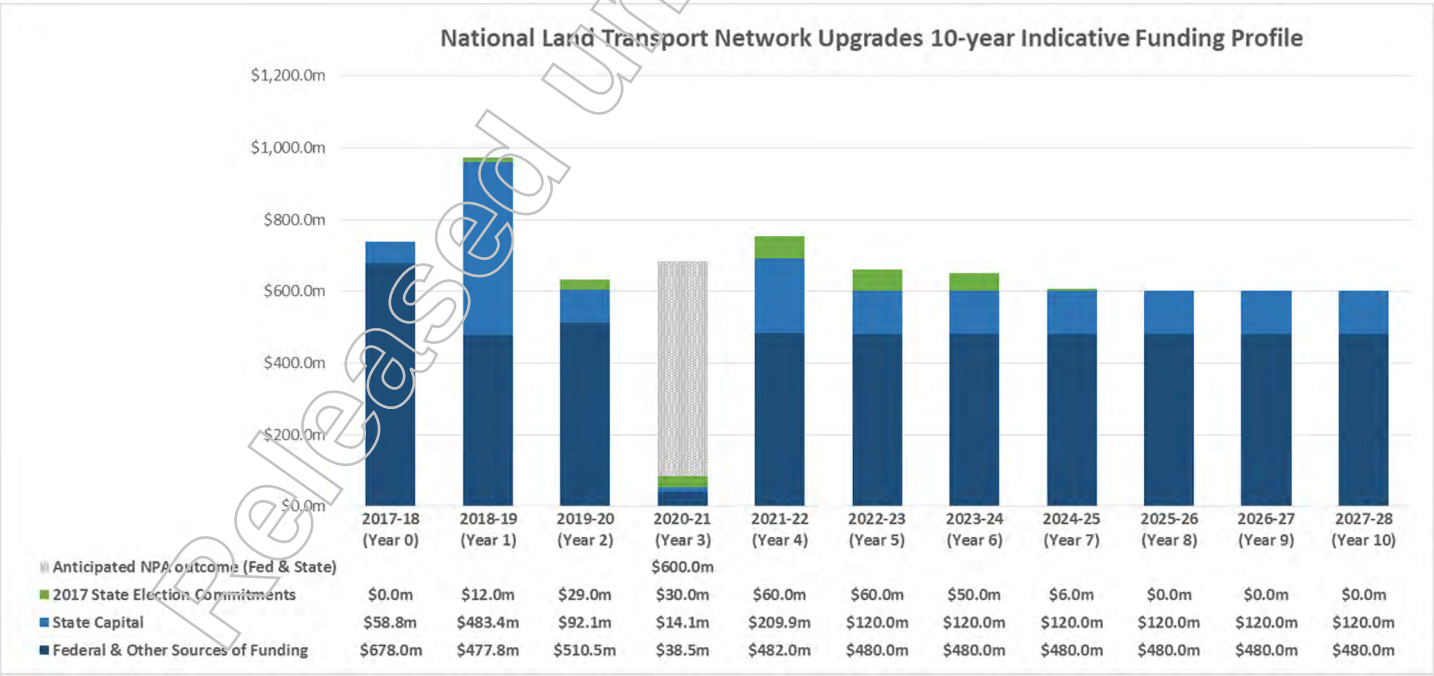
The outcomes of the NLTNUIP will be for Queensland to have an NLTN that is:

- productive and reliable, supporting national, inter-regional and international logistics and trade
- resilient to planned and unplanned events
- smoother to travel and sustainable to manage and maintain
- accessible (fit-for-purpose) as part of the nationally-accredited Key Freight Route network
- safe to enable viable, long-term economic and social outcomes.

The management of benefits will be conducted in accordance with *the NLTNUIP Benefits Realisation Plan*. The *NLTNUIP Benefits Realisation Plan* details the agreed benefits the NLTNUIP plans to achieve and how these will be measured, monitored and reported at key milestones during the program lifecycle.

The Warrego Highway Upgrade Program (WHUP), which forms part of the NLTNUIP, has a number of its own governance documents, including a *WHUP Benefits Realisation Plan*.

10.4.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
Anticipated NPA outcome (Fed & State)				$600.0m							
2017 State Election Commitments	$0.0m	$12.0m	$29.0m	$30.0m	$60.0m	$60.0m	$50.0m	$6.0m	$0.0m	$0.0m	$0.0m
State Capital	$58.8m	$483.4m	$92.1m	$14.1m	$209.9m	$120.0m	$120.0m	$120.0m	$120.0m	$120.0m	$120.0m
Federal & Other Sources of Funding	$678.0m	$477.8m	$510.5m	$38.5m	$482.0m	$480.0m	$480.0m	$480.0m	$480.0m	$480.0m	$480.0m

Note 1: Significant investment within the Forward Estimates period is due to federally-funded projects such as Toowoomba Second Range Crossing, Warrego Highway Upgrade Program and Gateway Upgrade North.

Note 2: Outer-year funding profile contains additional investment in the order of $480M (Federal) and $120M (State) per annum from 2021-22, which is likely required for new commitments on the Pacific Motorway, Gore/Leichhardt, Landsborough, Cunningham, Flinders/Barkly and New England Highways.
Note 3: The lack of funding in 2020-21 reflects the end of the Warrego Highway Upgrade package, the Gateway Motorway North and M1 Pacific Motorway (Mudgeeraba to Varsity Lakes) Projects and no new National Partnership Agreement being in place, at this point in time. It is assumed funding of approximately $600M of Federal and State funding will be agreed to for 2020-21 under the new NPA.
Note 4: 2017 Election Commitments of $247M in additional state funding towards projects (the M1 Action Plan), includes Varsity Lakes and Tugun ($206M), Exit 57 at Oxenford ($25M), and business case for Eight Mile Plains - the Logan Motorway ($16M). Additional Federal matching funds will be required.

Key funded projects in the current NPA covering 2014-15 to 2018-19 period include:

- Gateway Motorway: Gateway Upgrade North ($1,142M) – federal component
- Pacific Motorway: Gateway Merge ($195M)
- Pacific Motorway: Mudgeeraba to Varsity Lakes ($180M)
- Warrego Highway: Warrego Highway Upgrade Program – Toowoomba to Miles ($635M)
- Warrego Highway: Toowoomba Second Range Crossing ($1,606M)
- National Highway Upgrade Program ($62M)

10.4.6 Unfunded Priorities

The following projects/initiatives are identified as unfunded priorities:

- Pacific Motorway: Varsity Lakes to Tugun – 6 lanes ($1,030M)
- Pacific Motorway: Eight Mile Plains to Daisy Hill – 8 lanes ($749M)
- Warrego Highway: Ipswich to Helidon Spa Planning and Corridor Preservation ($54M)
- Warrego Highway: Ipswich to Toowoomba Safety Package ($107M)
- Warrego Highway: Haigslea Upgrade ($263M)
- Warrego Highway: Toowoomba to Oakey Stage 3 ($115M)
- Cunningham Highway: Flinders to Yamanto ($338M)
- Cunningham Highway: Yamanto to Ebenezer ($352M)
- New England Highway: Pavement widening ($50M)
- Gore Highway: Pavement widening ($50M)
- Flinders Highway: Pavement widening ($50M)
- Landsborough Highway: Pavement widening ($50M)
- NLTN safety upgrade packages ($210M)

10.5 State Road Network Upgrade

10.5.1 Background

The State Road Network Upgrades Investment Program (SRNU) includes 28,381 kilometres of the state-controlled road network, which made up of 4,109 kilometres of state strategic roads and 24,250 kilometres of

regional and district roads. It carries 80 per cent of road traffic in the state ranging from urban arterials to rural two-lane roads to un-sealed roads carrying traffic volumes, with daily traffic less than 50 to more than 140,000 vehicles.

The SRNU was established to facilitate better governance and prioritisation of investments on the SCR network and includes upgrades and other minor and major projects on the SCR network, excluding the NLTN. Approximately $2.1B is programmed to the SRNUIP within the QTRIP 2017-18 to 2020-21.

The SRNU Investment Program includes investments on the state-controlled Priority Road Network (PRN), and the lower order road networks where specific purpose funding opportunities arise.

The SRNU has three main sources of funding being: National Capital, State Capital and State Special Initiatives. Funding allocated from National Capital and State Special initiatives is tied to specific federal and state government commitments and is not considered to be discretionary for programming purposes.

Queensland Government matching commitments for federal funding on the SCR network are included in the Investment Program. The SRNU includes some investment on higher-cost projects on the state-controlled Local Roads of Regional Significance (LRRS) network, but excludes local-government controlled LRRS and other LRRS funding through the Roads and Transport Alliance.

10.5.2 Vision

Vision for the SRNU is *"an efficient, integrated and productive state-controlled road network that connects Queenslanders to support prosperity, economic growth, regional development and liveable and safe communities."*

10.5.3 Scope

The SRNU comprises of capital upgrade projects, including a variety of work types to increase the capacity, safety and resilience of the 28,381 kilometres SCR network, including the PRN 1-3 Roads, as well as investments on the lower order road networks.

10.5.4 Outcomes

The outcomes of the SRNU are to achieve across the SCR network:

- improved capacity
- improved safety
- improved resilience.

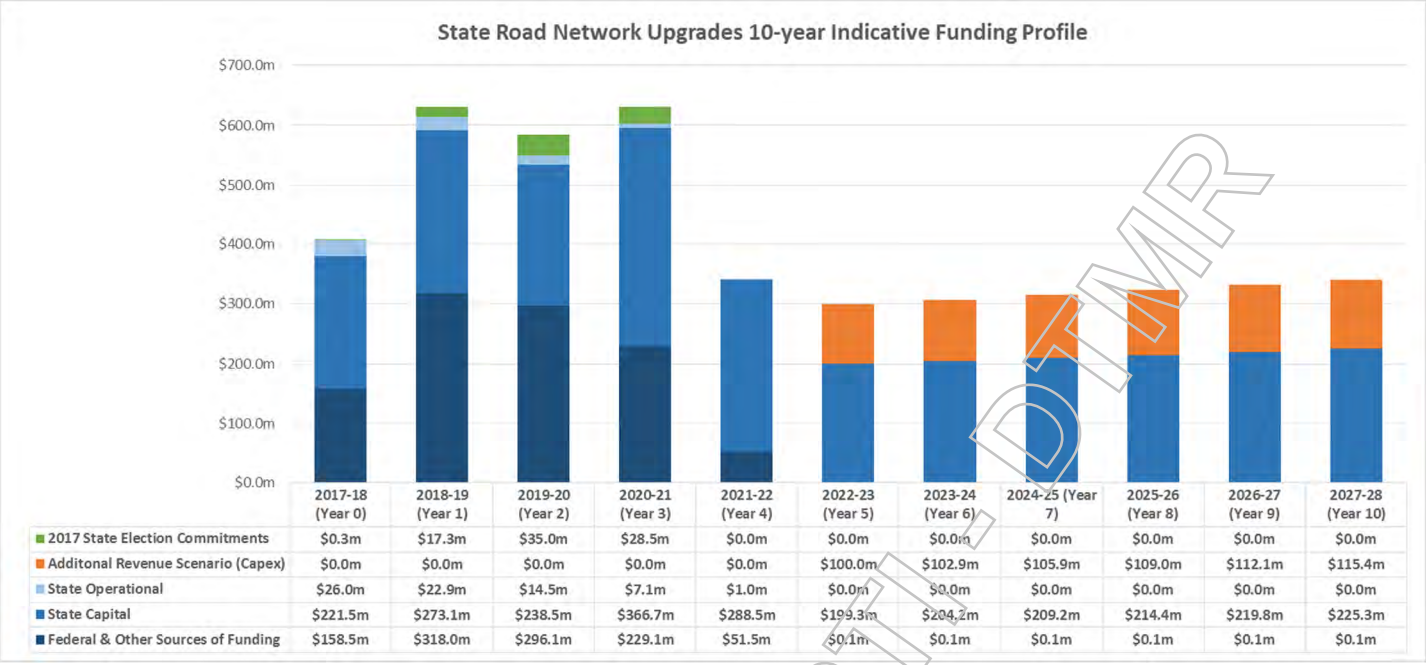
The identification of investment candidates to deliver these outcomes is weighted towards achieving capacity outcomes, such as improved productivity and access for freight and other road users.

10.5.5 Priority Projects

Key funded projects in the current QTRIP covering the 2017-18 to 2020-21 period include:

- Cunningham Arterial Road (Ipswich Motorway) Upgrade, Rocklea to Darra Stage 1 (Granard Road to Oxley Road) ($400M)
- Peak Downs Highway (Nebo - Mackay), Eton Range, improve safety and realign ($189M)
- Peak Downs Highway (Walkerston Bypass) ($150M)
- Capricorn Highway (Rockhampton - Duaringa), duplication from two to four lanes ($75M)
- Kennedy Developmental Road (Hann Highway), Northern Australia Roads Programme pave and seal ($50M)

10.5.6 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$0.3m	$17.3m	$35.0m	$28.5m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Additonal Revenue Scenario (Capex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$100.0m	$102.9m	$105.9m	$109.0m	$112.1m	$115.4m
State Operational	$26.0m	$22.9m	$14.5m	$7.1m	$1.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Capital	$221.5m	$273.1m	$238.5m	$366.7m	$288.5m	$199.3m	$204.2m	$209.2m	$214.4m	$219.8m	$225.3m
Federal & Other Sources of Funding	$158.5m	$318.0m	$296.1m	$229.1m	$51.5m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m

Note 1: Program contains significant Australian Government expenditure in Forward Estimates requiring state matching (for example, Cape York Regional Package, Ipswich Motorway: Rocklea to Darra, Heavy Vehicle Safety and Productivity Programme).
Note 2: Includes $164M per annum from 2021-22 (escalation compounding) to begin addressing decline in the network condition by focusing on relatively small project interventions, such as minor intersection improvements, and pavement strengthening and widening.
Note 3: $100M per annum has been redirected to Maintenance Preservation and Operations (MPE and RO) from 2021-22 onwards to address critical shortfalls impacting the safety, reliability and resilience of the SCR network.
Note 4: Includes a scenario where a modest revenue increase could allow the return of investment of $100M to a base level of $250M per annum to address network condition on the priority road network.
Note 5: 2017 Election Commitments of $81M in additional state funding includes Everton Park Link Road ($26M), Mount Lindsay Highway ($20M), Ruthven Street and North Street intersection ($6M), and approaches to the Rothwell Street Intersection ($6M).

10.5.7 Top 10 Unfunded Priorities

The aim of the SRNU is to develop a transparent, repeatable prioritisation methodology and sanctioned candidate investment, in consultation with key stakeholders, for the endorsement of the SRNU Steering Committee and the Senior Responsible Officer (SRO). Based on the application of the prioritisation methodology, a statewide prioritised list of investment candidates will be approved by the SRO for future funding opportunities. On identification of a funding source, the Investment Program Manager (Strategy) will moderate the investment candidate lists for each sub-program, to determine suitable candidates for funding submissions.

SRNU sub-programs are:

- Statewide Structures upgrades
- Safety Widening and Pavement Strengthening upgrades
- South East Queensland (SEQ) Minor Intersections
- SEQ Capacity upgrades
- Regional Capacity
- Resilience and Reliability
- Low Volume Roads
- State Special Initiatives.

10.6 Targeted Road Safety Program

10.6.1 Background

TMRs investment in road infrastructure specifically targeting safety improvements to the network is delivered through the Targeted Road Safety Program (TRSP) Investment Program. TRSP purpose is to achieve targeted benefits by providing safety interventions to improve the safety of Queensland's roads and roadsides. This investment is primarily focussed on treating locations with known fatal and serious injury crashes. TRSP is funded predominantly from revenue collected through the Camera Detected Offence Program (CDOP), and funding provided by the Australian Government for the Black Spot Programme.

TRSP currently comprises 15 separate sub-programs to ensure program objectives and manage funding and reporting requirements. Significant sub-programs actively being programmed include: Black Spot Programme; Flashing School Zone Signs; Road Safety Minor Works; Route actions; Safer Roads Sooner; Targeted Safety interventions; and Vulnerable Users.

The TRSP sub-programs are programmed to focus on specific safety issues that deliver high-benefit cost-effective projects tailored to the objectives of the sub-program. Specific initiatives currently incorporated into TRSP include:

- Flashing School Zone Signs initiative
- High Risk Roads (HRR) initiative
- Township Entry Treatment (TET) mass action program.

10.6.2 Vision

The vision for the TRSP is **"***Coordinating our investment in road safety to deliver infrastructure and technology treatments to effectively reduce the risk of road trauma on Queensland's road network*".

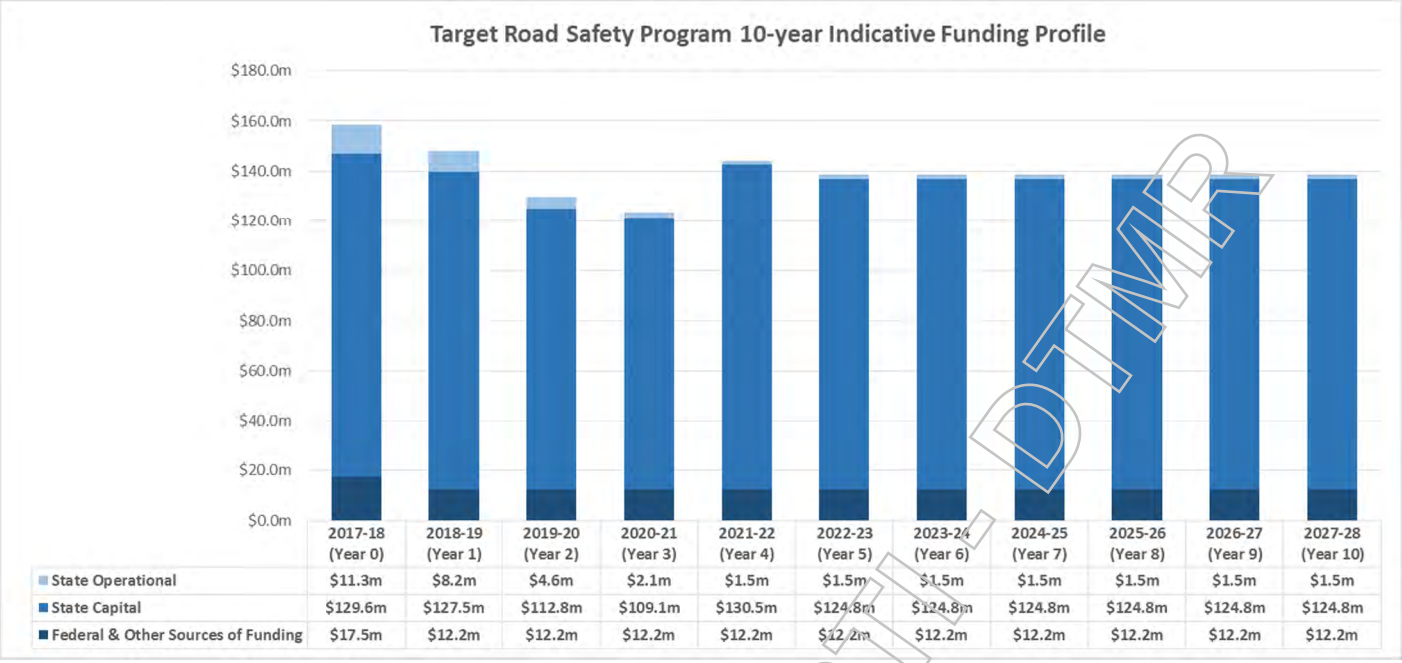
10.6.3 Scope

The TRSP Investment Program is primarily comprised of capital upgrade projects to the road network specifically to address identified safety issues. TRSP directs the greater part of funding to the state-controlled network, but also provides funding for projects on the local government network through the Black Spot Programme.

10.6.4 Outcomes

Underpinned by a vision to reduce road trauma, the outcomes of TRSP are to achieve targeted benefits by coordinating safety interventions and providing a clear line of sight from the *Safer Roads, Safer Queensland: Queensland's Road Safety Strategy 2015-21* and *Queensland's Road Safety Action Plan 2017-19* to the delivery of a safer road environment.

10.6.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
State Operational	$11.3m	$8.2m	$4.6m	$2.1m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m	$1.5m
State Capital	$129.6m	$127.5m	$112.8m	$109.1m	$130.5m	$124.8m	$124.8m	$124.8m	$124.8m	$124.8m	$124.8m
Federal & Other Sources of Funding	$17.5m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m	$12.2m

Note 1: The TRSP is primarily funded from revenue collected through the Camera Detected Offence program. There is currently $30M per annum for Safer Roads Sooner; $35M per annum for Safer Mass Actions; $4M for Flashing School Zones; $4M for High Risk Roads and intersections; $7M for Cooperative and Automate Vehicle Imitative; $2M for Crash Analytics and Reporting System; and $3.35M for Enforcement Capital and Maintenance. In addition, there is base funding of $15.8M per annum in other state funding and $12M per annum in federal funding (Black Spot Programme).

10.6.6 Priority Projects

The TRSP currently consists of 905 projects, 244 grants (Black Spot projects for local governments). The top ten major projects (by total budget with a cost of $10M or greater) are listed below:

- Burpengary-Caboolture Road and Beerburrum Road, High Risk Road Route Safety Project
- Captain Cook Highway (Cairns - Mossman) road safety enhancement works
- Pacific Motorway, Loganholme, barrier installation
- Gladstone - Benaraby Road, various safety treatments
- Mount Lindesay Highway, various safety treatments
- Maryborough - Hervey Bay Road, Urraweeen Road, intersection signalisation
- Beaudesert - Beenleigh Road, various safety treatments
- Mount Glorious Road and Samford-Mount Glorious Road, High Risk Road Route Safety Project
- Warrego Highway (Ipswich - Toowoomba), Tallegalla Road and Lowood - Minden Road intersection improvements
- Piloting Future Technologies (Intelligent Transport System Pilot Program).

10.6.7 Unfunded Priorities

The major unfunded priorities identified for the TRSP are shortfalls in overall funding for:

- Local government roads to address “black spots” as evidenced by high priority sites with crash history that are unable to be funded through current funding under the Black Spot Programme.
- The High Risk Roads initiative currently has approximately $150m in unfunded priorities.

10.7 Passenger Transport Infrastructure Improvements

10.7.1 Background

The Passenger Transport Infrastructure Investment Program (PTIIP) facilitates better governance and prioritisation of infrastructure investments on the Passenger Transport (PT) network. It includes upgrades and other minor and major projects on the PT network, excluding the rail and light rail networks.

The PTIIP comprises of five investment sub-programs, as well as containing approximately $178M of investment in QTRIP in 2017-18 to 2020-21 and infrastructure which supports the 189.25M customer trips taken annually on passenger transport services (TMR Annual Report 2016-17).

10.7.2 Vision

Vision for the PTIIP is 'Enable a connected, integrated network that makes passenger transport a more attractive option for more people"

10.7.3 Scope

The scope of PTIIP projects includes:

- Stops, stations and facilities – projects for new or upgraded stops, stations, and facilities, such as drivers' amenity and layover facilities, kiss 'n' ride or taxi facilities. This also includes strategic property and transit-oriented developments.
- Busway and priority measures – projects for new or upgraded right-of-way infrastructure, such busways, transitways, green links, bus lanes, bus signals or other passenger transport priority measures.
- Park 'n' Ride – projects for new, expanded or upgraded park 'n' ride facilities.
- Signage, wayfinding and technology – projects which install, replace and or upgrade existing signage, wayfinding and other facilities related to technology improvements for passenger transport services and infrastructure.

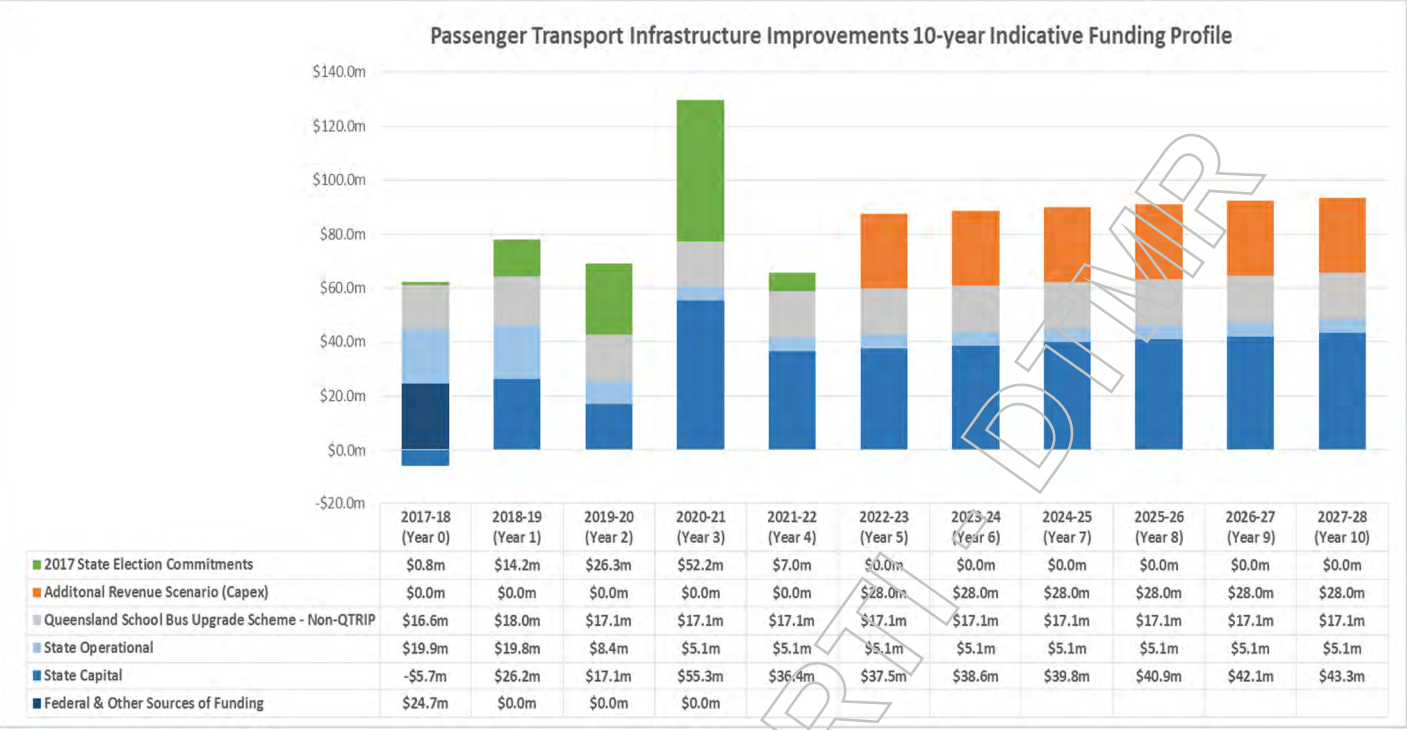
Grants – upgrades to existing passenger transport infrastructure to meet accessibility standards within legislated timeframes. This investment sub-program includes capital grants to assist local governments in upgrading their passenger transport infrastructure to meet the required standards within legislated timeframes. This includes ferries and jetties, coaches' infrastructure, service infrastructure improvements and infrastructure carried out by local council on their assets.

10.7.4 Outcomes

The primary objectives of the PTIIP are to improve economic, social, environmental development and the quality of life of Queenslanders by:

- upgrading the capacity of the passenger transport to address current and future demand whilst ensuring safety as a priority
- improving productivity and safety, while ensuring that the existing assets can sustain functionality for purpose
- enhancing the passenger transport network to improve resilience against increasing demand.

10.7.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$0.8m	$14.2m	$26.3m	$52.2m	$7.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Additonal Revenue Scenario (Capex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$28.0m	$28.0m	$28.0m	$28.0m	$28.0m	$28.0m
Queensland School Bus Upgrade Scheme - Non-QTRIP	$16.6m	$18.0m	$17.1m	$17.1m	$17.1m	$17.1m	$17.1m	$17.1m	$17.1m	$17.1m	$17.1m
State Operational	$19.9m	$19.8m	$8.4m	$5.1m	$5.1m	$5.1m	$5.1m	$5.1m	$5.1m	$5.1m	$5.1m
State Capital	-$5.7m	$26.2m	$17.1m	$55.3m	$36.4m	$37.5m	$38.6m	$39.8m	$40.9m	$42.1m	$43.3m
Federal & Other Sources of Funding	$24.7m	$0.0m	$0.0m	$0.0m							

Note 1: The state capital profile consists of smaller scale construction and upgrades of bus stations / stops, park 'n' rides, and driver facilities, along with some minor construction works at key bus interchanges, under the Passenger Transport Facilities Program.
Note 2: Funding for the School Bus Upgrade Scheme and Passenger Transport Accessibility Improvement Program is included in the profile outlined above. The School Bus Upgrade Scheme is currently outside of the QTRIP funding allocation, but within other departmental funding profiles.
Note 3: Includes a scenario where a modest revenue increase could allow additional investment of $28M per annum from 2022-23 and beyond for passenger transport integration initiatives, such as bus/rail interchanges, car parks and ITS measures.
Note 4: 2017 Election Commitments of $100.5M in additional state funding includes the Northern Transitway ($53M), Eastern Transitway ($22M), Park 'n' Ride expansions ($25.5M).

10.7.6 Priority Projects

Key funded projects in the current QTRIP include:

- Helensvale Bus Facility Upgrade which includes new bus station, layover and drivers' facility, being delivered ahead of the 2018 Commonwealth Games
- Mains Road Park 'n' Ride Upgrade of strategically located park 'n' ride, in partnership with Stadiums Queensland's State Netball Centre development
- Townsville City Bus Station which includes a new bus station, layover and driver's facility to improve Passenger Transport services and customer access
- Murarrie / Cannon Hill / Eight Mile Plains Park 'n' Rides expansion of facilities
- Passenger Transport Accessibility Improvement Program which includes Capital grants to assist local governments in upgrading their passenger transport infrastructure to meet the required standards within legislated timeframes.

10.7.7 Unfunded Priorities

The following projects/initiatives are identified as unfunded priorities:

- Sunnybank Bus Station ($22M)

- Butterfield St Bus Layover ($16.5M)
- Garden City Bus Layover ($3.3M)
- Chermside Bus Station southbound platform ($11M)
- Chermside Bus Station northbound platform ($16.5M)
- Chermside Bus Station Bus Layover ($11M)
- Cannon Hill bus station ($3.3M)
- Indooroopilly bus facility ($1.7M)
- Mackay Canelands Station ($4.9M)
- Toombul bus facility ($3.3M)
- Strathpine bus facility ($4.4M)
- Brookside bus facility ($2.7M)
- Hervey bay bus facility ($3.3M)
- Sir Fred Schonell Drive bus priority ($12.1M)
- Moggill Ferry Mooring Point ($1.1M)

*Indicative Design and Construction Costs only

10.8 Active Transport

10.8.1 Background

TMR has established the Active Transport Investment program (ATIP) to encourage all forms of active transport as part of an integrated land use and transport system for Queensland.

The ATIP currently delivers on cycling-related investment through five sub-programs:

- Cycling Works: capital funding for the development of cycling infrastructure on the state-controlled road network
- Cycling Grants: capital grant funding for local governments provided on a dollar for dollar matched basis (50 per cent)
- Cycling Operations: funding for program management and technical support, including funding the delivery of priority actions from the Queensland Cycling Strategy (QCS)
- Cycling Maintenance: funding for programmed maintenance and rehabilitation of off-road cycle infrastructure on TMR owned assets
- Cycling Rail Trails: funding for the upgrade and development of existing rail trails on disused, state-owned corridors.

Cycling infrastructure is also provided through a range of other TMR investment programs providing new or upgraded transport infrastructure.

10.8.2 Vision

The Program's vision is: "*More cycling, more walking, more often across Queensland*".

10.8.3 Scope

The scope of the ATIP includes:

- investment in capital or supporting infrastructure for Active Transport (cycling, walking and other physically active ways of travelling that can be undertaken alone or combined with public transport or

other modes). This includes planning, design, program management and administration costs required to deliver and fund Active Transport investments

- investment in projects and activities that deliver on strategic frameworks such as the QCS.

The ATIP is a state-wide program. Cycling Works and Cycling Grants investment sub-programs are targeted at select geographical areas with an approved Principal Cycle Network Plan (PCNP).

10.8.4 Outcomes

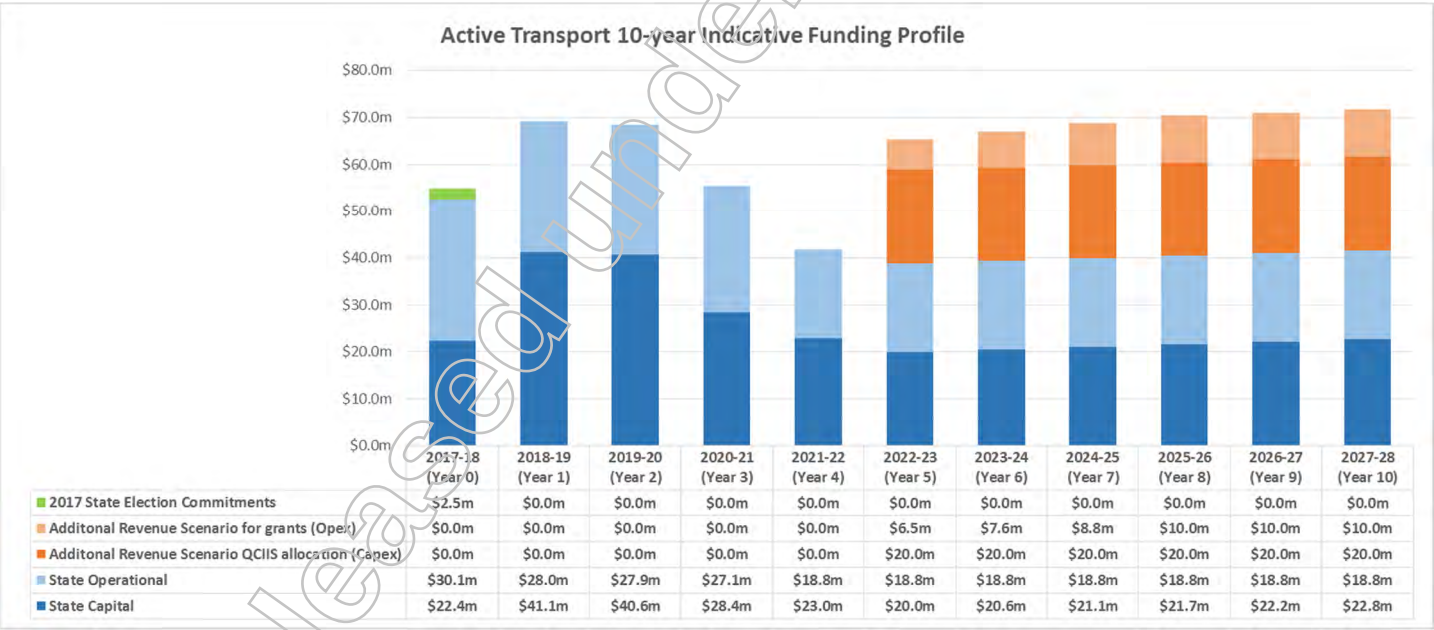
The outcomes of the ATIP are:

- Queensland has a safe, direct and connected cycle network
- Queenslanders of all ages and abilities can make the choice to cycle for transport, recreation and health
- Cycling is supported by all levels of governments and the community.

Table 5: ATIP benefits:

TMR Strategic Benefits	Program Benefits
SB1. An efficient and reliable transport system	B4. Increased number of people cycling
B2. An integrated transport system	B3. Improved access to employment, education & services by bicycle
SB3. A safe and secure transport system	B1. Improve public perception of cycling and cycling safety
	B2. Reduced rate of cycling safety incidents/fatalities

10.8.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$2.5m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Additonal Revenue Scenario for grants (Opex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$6.5m	$7.6m	$8.8m	$10.0m	$10.0m	$10.0m
Additonal Revenue Scenario QCIIS allocation (Capex)	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$20.0m	$20.0m	$20.0m	$20.0m	$20.0m	$20.0m
State Operational	$30.1m	$28.0m	$27.9m	$27.1m	$18.8m	$18.8m	$18.8m	$18.8m	$18.8m	$18.8m	$18.8m
State Capital	$22.4m	$41.1m	$40.6m	$28.4m	$23.0m	$20.0m	$20.6m	$21.1m	$21.7m	$22.2m	$22.8m

Note 1: 2017–18 onwards include an additional $3M for the *Cycling Grants Program* and an additional $2M per annum for the *Cycling Works Program* (capital).

Note 2: State Capital from 2017–18 onwards includes funding for maintenance of TMR off-road cycleways.

Note 3: Includes a scenario where a modest revenue increase could allow additional investment of $20M per annum to meet the 10-year goal of the Queensland Cycling Infrastructure Investment Strategy (QCIIS) from 2022-23 and beyond to deliver 100 per cent of the Highest Priority Routes statewide.

Note 5: 2017 Election Commitments of $2.5M towards the Queensland Walking Strategy in the AT Investment Program have been added to the profile.

10.8.6 Priority Projects

The top 10 projects to be delivered over the next 5 years are:

- Veloway 1 Stage E
- North Brisbane Bikeway Stage 2 and 3
- Kangaroo Point Bikeway Stage 1
- North Brisbane Bikeway, Stages 3A and 4
- V1 Cycleway (Springwood) Logan Road - Paradise Road
- V1 Cycleway- Levington Road (Gateway Motorway) - Kingston Road
- Bohle River Bridge and Approaches
- Mooloolaba to Minyama Cycleway (Mayes Canal Bridge)
- Caboolture to Wamuran Rail Trail
- New England Highway (Toowoomba CBD – Highfields) Cycleway
- O'Keefe Street Bridge ($15.7M)

10.8.7 Unfunded Priorities

Current unfunded priorities for the program include:

- Brisbane-Beenleigh Road ($2.7M)
- Paradise Road ($3.45M)
- Kessels Road ($2M)
- Birdwood Road Grade Separation ($18.9M)*
- V1 Lower River Terrace Grade Separation ($18.9M)*

**Rough estimate only, business case to be developed*

10.9 Marine Infrastructure

10.9.1 Background

TMR works in partnership with local government and port/water authorities to provide new and improved recreational boating facilities throughout Queensland. Under these longstanding arrangements, TMR builds the in-water components of a facility and councils and port/water authorities provide the land-based components, and then manage the whole facility when completed.

Queensland has some of the best waterways and beaches in the country, and many residents and visitors enjoy boating throughout the state. It is only fitting that the large (and ever-growing) boatie population has safer, upgraded facilities such as boat ramps, floating walkways and pontoons that are capable of handling increased demand well into the future.

10.9.2 Vision

The vision of the Marine Infrastructure Investment Program (MIIP) is *"to provide safe, reliable and efficient recreational boating infrastructure to the people of Queensland that optimises access to the water by trailer boats, and on the water for both trailer boats and deep-draught vessels"*.

10.9.3 Scope

The MIIP delivers the following types of infrastructure works:

- boat ramps
- floating walkways
- dredged channels
- breakwaters
- pontoons.

The scope of work may include the delivery of new infrastructure, redevelopment of end-of-asset life assets, upgrade or refurbishment works, and demolition.

Capital projects are funded through the Marine Infrastructure Fund (MIF), which is the capital component of the MIIP.

The MIF and MIIP fund:

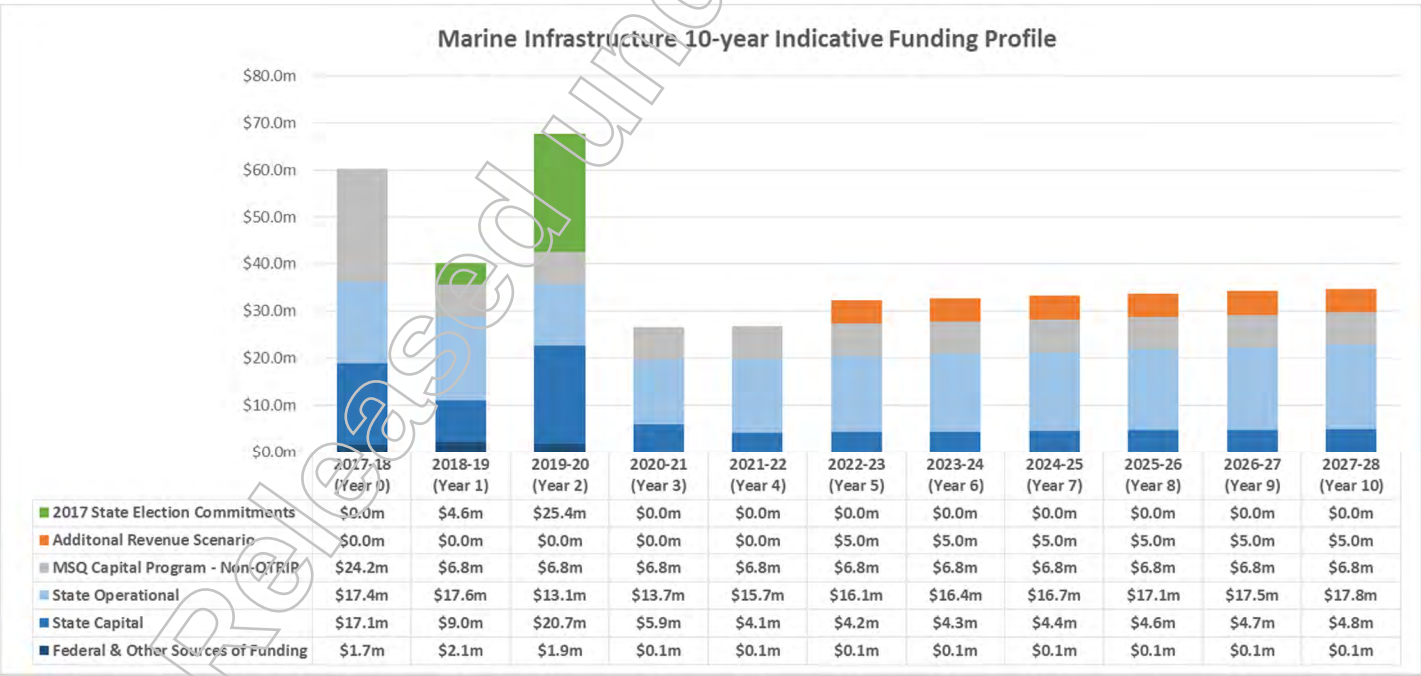
- public recreational boating facilities for launching and retrieving recreational trailer boats
- maintaining depths in state boat harbours and selected high-use channels to ensure access to the busiest recreational boating facilities
- pontoons and jetties for deeper-draught vessels such as yachts and powerboats, for pick-up and set-down of passengers and supplies, and limited commercial use.

The MIIP does not support marine infrastructure or services not directly related to recreational use, such as commercial marine infrastructure where the recreational usage is less than 50 per cent. However, Boating Infrastructure Unit staff may provide services for delivery of marine infrastructure of a public transport or commercial nature funded from non-MIIP sources.

10.9.4 Outcomes

The intended outcome for the MIIP is to provide an all-tide or near all-tide boating facility within one hour drive from significant population centres along the Queensland coast.

10.9.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$0.0m	$4.6m	$25.4m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Additonal Revenue Scenario	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$5.0m	$5.0m	$5.0m	$5.0m	$5.0m	$5.0m
MSQ Capital Program - Non-QTRIP	$24.2m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m	$6.8m
State Operational	$17.4m	$17.6m	$13.1m	$13.7m	$15.7m	$16.1m	$16.4m	$16.7m	$17.1m	$17.5m	$17.8m
State Capital	$17.1m	$9.0m	$20.7m	$5.9m	$4.1m	$4.2m	$4.3m	$4.4m	$4.6m	$4.7m	$4.8m
Federal & Other Sources of Funding	$1.7m	$2.1m	$1.9m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m	$0.1m

Note 1: The Marine Infrastructure Fund (MIF) (capital component of the Marine Infrastructure Capital and Maintenance Program (MICMP)) was extended by $30M for the two years 2016-17 and 2017–18. The Funding Profile includes 2017 Election Commitments for the MIF $30M extension 2018-19 to 2019-20, after which it will revert to its base funding allocation of $5.477M.
Note 2: In 2020–21 an additional funding of $17M for maintenance dredging was programmed for future reallocation at $4.25M per year from 2017–18 to 2020–21. 2021-22 onwards now includes $4.25M per year for maintenance dredging.

Note 3: The Maritime Safety Queensland program funds for marine safety minor works are included in the 10-year profile outlined above. Its $6.49M per annum base funding is focused on minor works and ongoing structural maintenance of: Aids to Navigation; Beacon Reinstatement; Vessel Traffic Services; Vessels; Pollution Response Equipment; Hydrographic Equipment; and Base Operations. These items currently sit outside the QTRIP funding allocation, but within other departmental funding profiles.
Note 4: Includes a scenario where a modest revenue increase could allow additional investment of $5M per annum for grants to local governments for land based elements of recreational boating infrastructure from 2022-23 and beyond.

10.9.6 Priority Projects

QTRIP 2017-18 to 2020-21 has funding for a number of individual capital marine projects. Marine projects (a cost of $1M or greater) as listed below:

- Cairns Area boating facilities upgrage (proposal at Yorkey's Knob)
- Wharf Street, Port Douglas, boat harbour dredging
- Banksia Road, Stanage Bay, boat ramp upgrade
- Robert Clark Drive (North Rockhampton), boat ramp and floating walkway
- Proserpine River, Conway Road, additional two lanes to upstream side floating walkway
- Brighton Road, Macleay Island Boat ramp, construction
- Uhlmann Road, Burpengary, floating walkway
- Bullock Point Road (Inskip), boat ramp and floating walkway

10.9.7 Unfunded Priorities

TMR conducted a *Recreational Boating Facilities Demand Forecasting Study 2016* that was completed by GHD Pty Ltd in December 2016. This study is one tool used by delivery agencies including port authorities, councils, Gold Coast Waterways Authority and TMR in selecting and prioritising sites for development.

The Queensland Government has committed to a $30M 2-year extension of the MIF running from July 2018 to June 2020 to provide new and upgraded recreational boating facilities. After June 2020 and without a further 'top-up' from the state government a number of unfunded priorities have been identified. Identified projects currently unfunded include:

- Captain Cook Drive boat ramp, 1770 upgrade boat ramp to 4 lanes with a floating walkway
- Goondiwindi, Marshall Street boat ramp installation of a pontoon
- Noel Kelly Drive, Goodna rebuild/reorient boat ramp and add floating walkway
- Murray Creek, Horeshoe Bend boat ramp upgrade to 2-lanes and add floating walkway
- Campwin Beach regrade boat ramp and add additional floating walkway.

10.10 Local Government Grants

10.10.1 Background

Local government and the State, through the TMR, have a legislative responsibility to manage their respective road and transport networks and collaborate to deliver a safe and reliable network for Queensland communities.

The *Transport Infrastructure Act 1994* makes provision for state road funding to be spent off the state-controlled road network, especially where this improves the performance of the network.

TMR established the TIDS under this authority in the mid 1990's to enable the department to provide funding for local government road and transport related initiatives which supported state government objectives.

In 2002, the Roads and Transport Alliance (the Alliance) was established to create a more strategic approach to regional road and transport management, specifically to administer TIDS and help deliver projects across both levels of government in Queensland. Under the Alliance, local governments voluntarily collaborate with

TMR districts to form 17 Regional Roads and Transport Groups (RRTGs) across the State, representing 65 of Queensland's 77 councils.

Since 2015, the State Budget has included an increased TIDS funding allocation of $30M per annum (above the $40M from 2012). Provided under the Building our Regions Regional Infrastructure Fund, the additional funding is applied to the Alliance (RTA) TIDS category only, bringing RTA TIDS to $61.2M, originally in 2015-16 to 2016-17.

Further State budgets have maintained this funding including the 2017 State Budget, which further extended the additional funding through to 2020-21.

10.10.2 Vision

As the mechanism to administer TIDS funding, the Roads and Transport Alliance's vision is of:

"*An integrated road and transport system which helps grow the Queensland and national economy through strategic regional collaboration and decision-making across all levels of government*".

10.10.3 Scope

TIDS Local Government Grants provide funding to local governments each year through two distinct funding programs:

Roads and Transport Alliance (RTA) TIDS provides for:

- construction or upgrade of transport infrastructure with regional significance, such as Local Roads of Regional Significance (LRRS)
- development of cycling facilities
- provision/upgrade of works to improve the safety of children travelling to and from school
- enhancing the safety and accessibility of regional/remote airports
- development and maintenance of land-based marine infrastructure
- transport planning activities
- initiatives that develop and improve RRTGs transport infrastructure stewardship capabilities.

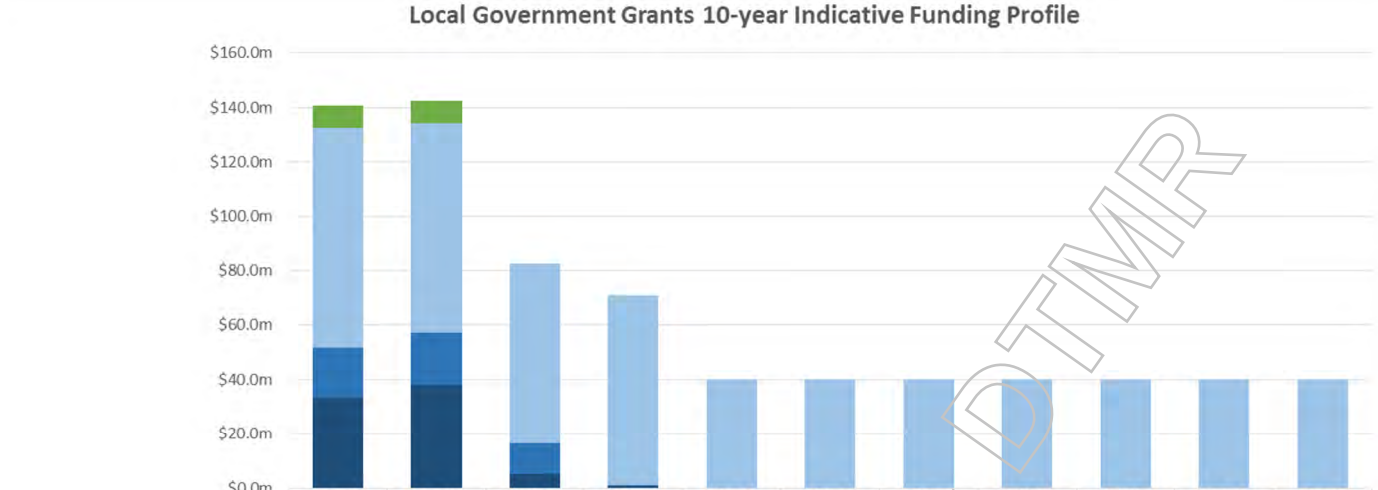
TIDS State-wide Capability Development Fund (SCDF) is an application-based program of funding that seeks to improve RRTG capabilities in stewardship areas such as asset management, program development and road safety.

Note: Those discrete funding programs or special initiatives for local government administered by TMR on behalf of the Queensland and Australian Governments are not included in this summary.

10.10.4 Outcomes

The Local Government Grants program outcomes include: increased overall investment in Queensland's road and transport infrastructure; increased stewardship and delivery capability of local government; increased collaboration between the tiers of government and overall improved safety performance of Queensland's road and transport network.

10.10.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$8.0m	$8.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Operational	$80.9m	$77.0m	$66.0m	$69.8m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m
State Capital	$18.4m	$19.5m	$11.1m	$0.2m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Federal & Other Sources of Funding	$33.4m	$37.9m	$5.3m	$0.8m							

Note 1: In 2021–22 onwards, the allocation of funds for TIDS revert to their base level of funding ($40M) but may notionally increase by $30M if the Building Our Regions initiative is extended.
Note 2: State Capital funds 2017–18 to 2020–21 consist of Building Our Regions program funds managed by the DSDMIP but administered by TMR where initiatives are directed to local government transport improvements. This also includes RRTG funded initiatives on the state-controlled road network.
Note 3: Federal funds in 2017–18 to 2019–20 relate to the Australian Government's Bridges Renewal Programme, Heavy Vehicle Safety and Productivity Programme and the Cape York Region Package component for priority community infrastructure on the local government road network.
Note 4: 2017 Election Commitment of $16M in additional state funding for Pasha Road resealing and drainage.

10.10.6 Priority Projects

RRTGs use a robust program development process to determine a four year works program – two years fixed, two years indicative – in line with QTRIP development timeframes and ideally based on regional priorities.

10.10.7 Unfunded Priorities

This Investment Program has consistently been oversubscribed in response to the TIDS.

10.11 Corridor Preservation

10.11.1 Background

The Corridor Preservation Investment Program (the Program) seeks to enhance planning and delivery of transport infrastructure across the state, by supporting relevant corridor preservation activities such as land acquisition and disposal of surplus land. Without an ability to acquire land required for future construction, the department would not be able to deliver an efficient and integrated transport network.

The current focus of the Program is on delivering best value-for-money outcomes through the acquisition of land and/or disposal of surplus land. The Program:

- preserves transport corridors to support land use planning and future transport infrastructure initiatives
- supports TMR transport planning policies that provide confidence and direction on protected corridors and when land may be required

- minimises future financial costs of delivering infrastructure, while providing fair compensation to impacted land and business owners
- achieves return on investment by deriving an income from properties that have been acquired well in advance of construction
- derives revenue by disposing of surplus land that would otherwise be unusable by TMR.

The Program is fully-funded by Queensland Government funding through QTRIP's State Capital Base funding, and is currently exempted from benefits management and benefits realisation.

10.11.2 Vision

The Program vision is "*Buy and sell land at the right time for protected transport corridors*" and recognises that corridor preservation activities are vital to ensuring the future transport network supports economic growth, regional development and liveable communities.

10.11.3 Scope

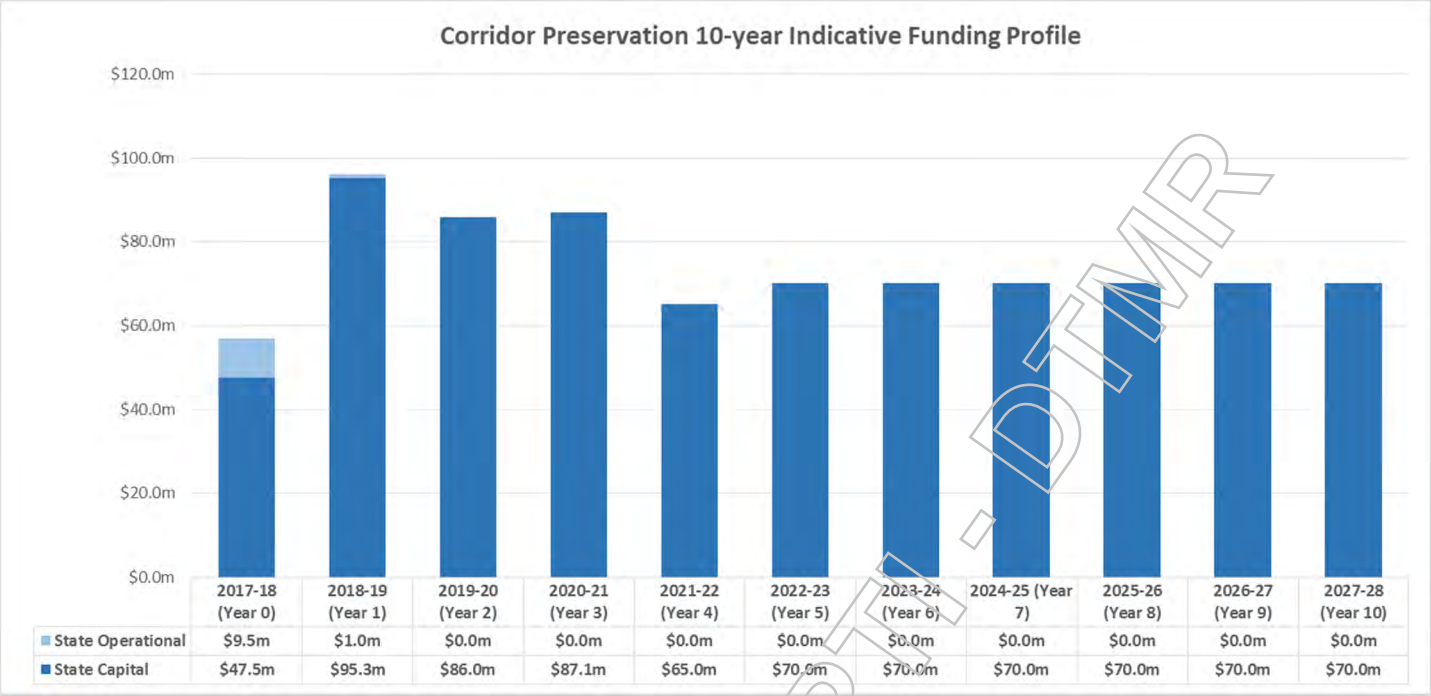
The Program has four distinct Investment Sub-programs established on the underlying frameworks and policies that drive the related outcome, namely:

- Early Acquisitions (Pre-construction) – Manages funding associated with the Transport Corridor Acquisition Fund (TCAF) for approved early (hardship) acquisitions where alternate funds are not available.
- Outstanding Acquisitions (Post-construction) – Manages outstanding land acquisitions for state-funded construction projects at the finalisation phase, but which have outstanding property liabilities as the only costs remaining.
- Outstanding Acquisitions (Legacy Arrangements) – Manages funding for outstanding property acquisitions for construction projects at the finalisation phase and closed in program management systems prior to the establishment of *TMR's Operating Framework: Management of Outstanding Property Liabilities related to Finalised Projects (2014)*.
- Disposal of Surplus Land (Post-construction) – Manages funding for costs associated with the disposal of surplus land such as real estate agent's commission, marketing and advertising costs, legal fees, Strategic Property Management unit (SPM) commission.

10.11.4 Outcomes

The outcomes to be achieved from the Program are that TMR has acquired required land in advance of transport infrastructure being delivered; impacted land and business owners have been fairly compensated; TMR has achieved return on investment for properties acquired well in advance of construction; and TMR has derived revenue for surplus land not required.

10.11.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
State Operational	$9.5m	$1.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Capital	$47.5m	$95.3m	$86.0m	$87.1m	$65.0m	$70.0m	$70.0m	$70.0m	$70.0m	$70.0m	$70.0m

Note 1: The Transport Corridor Acquisition Fund (TCAF) has no escalation applied but reverts to base funding of $70 M from 2022-23 onwards.
Note 2: State Operational relates to disposal of surplus land post construction.

10.11.6 Priority Projects

The Program comprises over $300M of investment within the QTRIP 2017-18 to 2020-21. The majority of funding within the Program is associated with the Early Acquisitions (Pre-construction) Investment Sub-program which manages funding associated with TCAF.

The Program is unique in nature, whereby projects are classified as 'ongoing' and not necessarily sequenced or managed consistent with other Investment Programs. For this reason, there are no specific priority projects that require prioritisation.

Allocating assumed funding to corridor preservation priorities over the forward estimates and beyond is based on the level of transport planning scheduled to be undertaken by TMR through the Transport System Planning Program, analysis of historical trends on prior year expenditure, as well as information of anticipated property settlements from TMR's SPM and potential future land acquisitions as advised by TMR infrastructure delivery and planning areas.

Under the *TMR Early Acquisition Policy*, the department is committed to funding early acquisitions where land owners are impacted. This means that, if the financial need arises, TMR will make available sufficient funding for required early acquisitions.

10.11.7 Unfunded Priorities

Not applicable for this Program. While the arrangements of the *TMR Approved Planning Policy* should provide the Program with a more long-term view of potential funding requirements related to the Early Acquisitions (Pre-construction) Investment Sub-program (or TCAF), prioritisation is difficult because the early acquisition process is initiated by property owners that are impacted by TMR land requirements, and is largely dependent upon the negotiation process between TMR and property owners.

10.12 Transport System Planning Program

10.12.1 Background

The Transport System Planning Program (TSPP) is a program of “one integrated transport system” planning and investment proposal activities that drive better transport outcomes for Queensland, better returns on investments and shapes tomorrow’s transport system today.

In particular, the TSPP is a rolling program of planning projects across all modes and all regions with projects ranging from strategic, state-wide planning through to business case development. The program includes:

- transport planning aimed at defining the integrated transport system priority needs across Queensland
- investment proposal development aimed at appraisal and selection of the best value investment options including business case decisions
- contributions to whole of government planning.

10.12.2 Vision

The TSPP vision is: *“Planning an integrated transport system that promotes the right investment at the right time and drives better transport outcomes for Queensland”*

The TSPP vision statement is aligned to the current objectives of TMR, as encompassed by TMR's *Strategic Plan 2016-2020* vision: "Creating a single integrated transport network accessible to everyone". The vision for the TSPP recognises that an efficient, safe and resilient transport network plays a vital role in ensuring that Queensland communities support regional development and liveability.

10.12.3 Scope

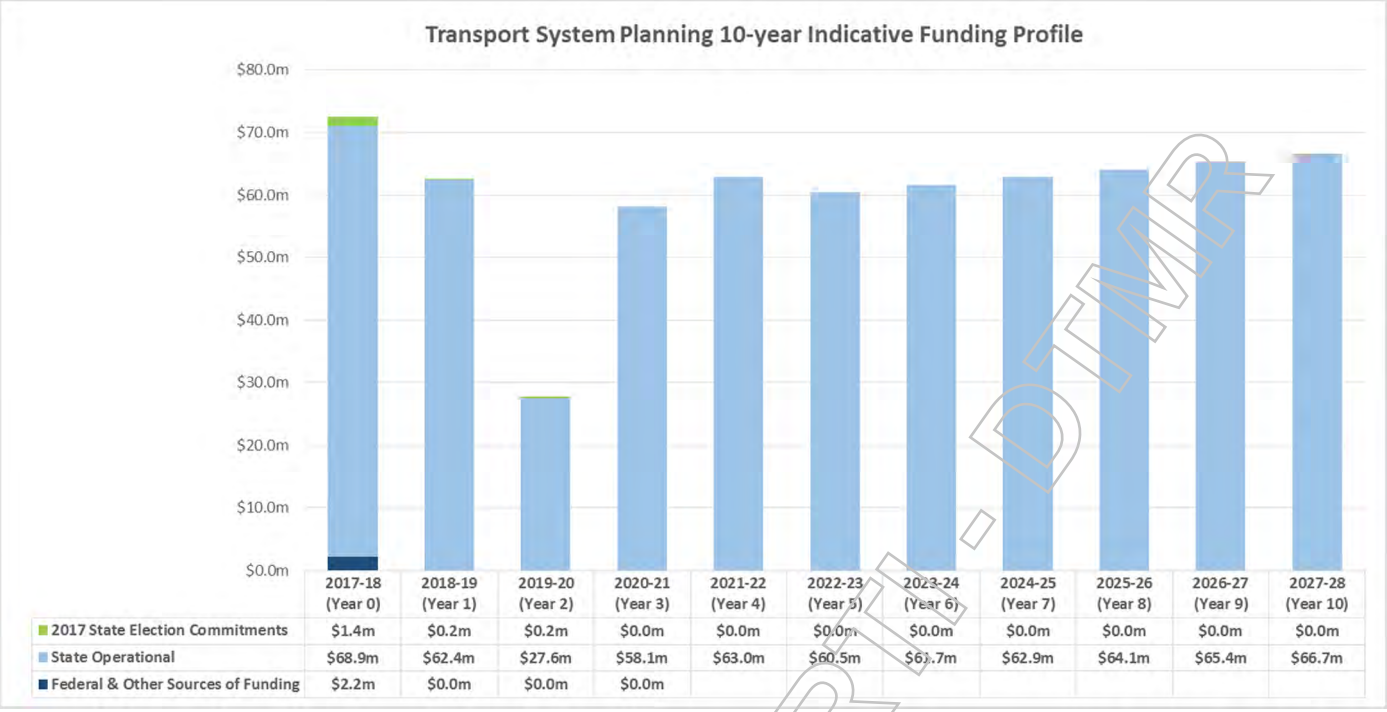
The TSPP consists of strategic, detailed and investment planning projects. This includes network, area, corridor, data, modelling, route, link, operations and node planning; corridor protection; OnQ project proposal, options analysis and Business Case; as well as PAF Strategic Assessment of Service Requirement, Preliminary Evaluation and Business Case.

10.12.4 Outcomes

The desired outcomes of the TSPP for 2017 are to:

- fund a pipeline of quality Business Cases available to inform detailed planning, particularly projects in PIP priority investment programs
- provide innovative, collaborative, value for money, one network solutions to transport system issues
- produce strategies and planning that ensure effective integration of land use and transport planning
- effectively and efficiently secure the land required for current and planned transport purposes.

10.12.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$1.4m	$0.2m	$0.2m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Operational	$68.9m	$62.4m	$27.6m	$58.1m	$63.0m	$60.5m	$61.7m	$62.9m	$64.1m	$65.4m	$66.7m
Federal & Other Sources of Funding	$2.2m	$0.0m	$0.0m	$0.0m							

Note 1: State funding in 2019–20 was brought forward into 2017–18 and prior years to progress planning for identified priority projects.
Note 2: 2017 Election Commitments of $1.8M in additional state funding includes the Coopers Plain Level Crossing Business Case ($0.8M), Beams Road Level Crossing Feasibility Study ($0.4M), and Kurilpa Traffic Management Plan ($0.6M).

10.12.6 Priority Projects

Priority projects include planning for:

- Regional Transport Plans - the ongoing program of RTPs will define the priorities for the transport system in each of TMR's 12 districts
- Pacific Highway, various projects including Varsity Lakes to Tugun, Eight Mile Plains to Daisy Hill, Daisy Hill to Loganholme, managed motorways and various interchange planning
- Bruce Highway, various projects including Foster Road overpass, Townsville Ring Road Stage 5, Gympie Arterial to Dohles Rocks Rd, and Dohles Rocks Rd to Plantation Rd
- Intra Regional Transport Corridor – Carrara to Coomera (Coomera Connector) – SASR
- Various rail projects including Inland Rail, Kuraby to Beenleigh, Springfield Rail extension, Dutton Park to Salisbury Preservation, North Coast Line Action Plan, SEQ Rail investment and Performance Strategy
- Gold Coast Light Rail stage 3 - planning and business case development between Broadbeach South and Burleigh Heads
- Peninsula Developmental Road - Project Evaluation and strategy in response to Federal funding to seal the Peninsula Developmental Road
- Bridge Network Management Planning - preparation of SASRs for future bridge strengthening and replacements
- Centenary Highway Planning – Sumners Road Interchange, and Sumners Road to Moggill Road Corridor
- Heavy Vehicle Network Plan.
- Linkfield Road/Gympie Arterial Interchange.

10.12.7 Unfunded Priorities

Following the current focus on investment planning and with Regional Transport Plans scheduled to be complete early 2018, the next stage of focus for the TSPP will be planning along key corridors and routes, and also ensuring a network optimisation approach.

Corridor, route and link planning will need to be balanced with continuing investment planning and strategic planning to achieve the objectives of the Transport Coordination Plan and longer term transport policies.

10.13 Natural Disaster Program

10.13.1 Background

Due to the significant weather events that occurred in Queensland from 2009 to 2013, TMR established the Transport Network Reconstruction Program (TNRP) to manage NDRRA-funded projects. The program was delivered by December 2014 for $6.472B, of which the Queensland Government-funded component was approximately $1.507B, with an additional $411M for complementary works.

Reconstruction works on state-controlled roads following subsequent natural disaster events are overseen by the NDRRA Program Team in Program Delivery and Operations, through the Natural Disaster Investment Program. The program returns the network to its pre-disaster condition by reinstating roads to a safe and trafficable condition, reconnecting communities, supporting regional economies and restoring amenity.

The Commonwealth Government is the principal funder of this program. Investment decisions therefore need to meet federal funding guidelines, as outlined in the *NDRRA Determination*.

The program is managed by event year (the financial year in which the events occurred). The 2016 events program budget is $17.93M. The 2017 events program budget is $465M.

A number of factors may influence the future shape, outcomes and scale of the program including:

- **Commonwealth natural disaster funding model reforms** – reimbursement will be based on estimated costs rather than actual costs, with savings retained by the state and cost overruns borne by the state. The model is being tested prior to implementation from 1 July 2018
- **Weather** – impact of climate change on severity and frequency of disaster events
- **Queensland State Budget** – availability of funding for betterment/resilience
- **Network changes** – impact of improvements, expansion or technological changes.

10.13.2 Vision

The vision for the Natural Disaster Investment Program is ‘Reconnecting Queenslanders after natural disasters’. Damage to Queensland’s state transport network as a result of activated natural disasters will be restored or replaced to its pre-disaster standard when the program is completed.

10.13.3 Scope

The Natural Disaster Investment Program includes eligible works to repair the state-controlled road network in Queensland following natural disasters activated under the NDRRA. This includes:

- completion of emergent works to reopen roads to a safe and trafficable condition
- completion of reconstruction works to enable a pre-event level of service to be reinstated
- reconstruction of assets to the appropriate design and engineering standards.

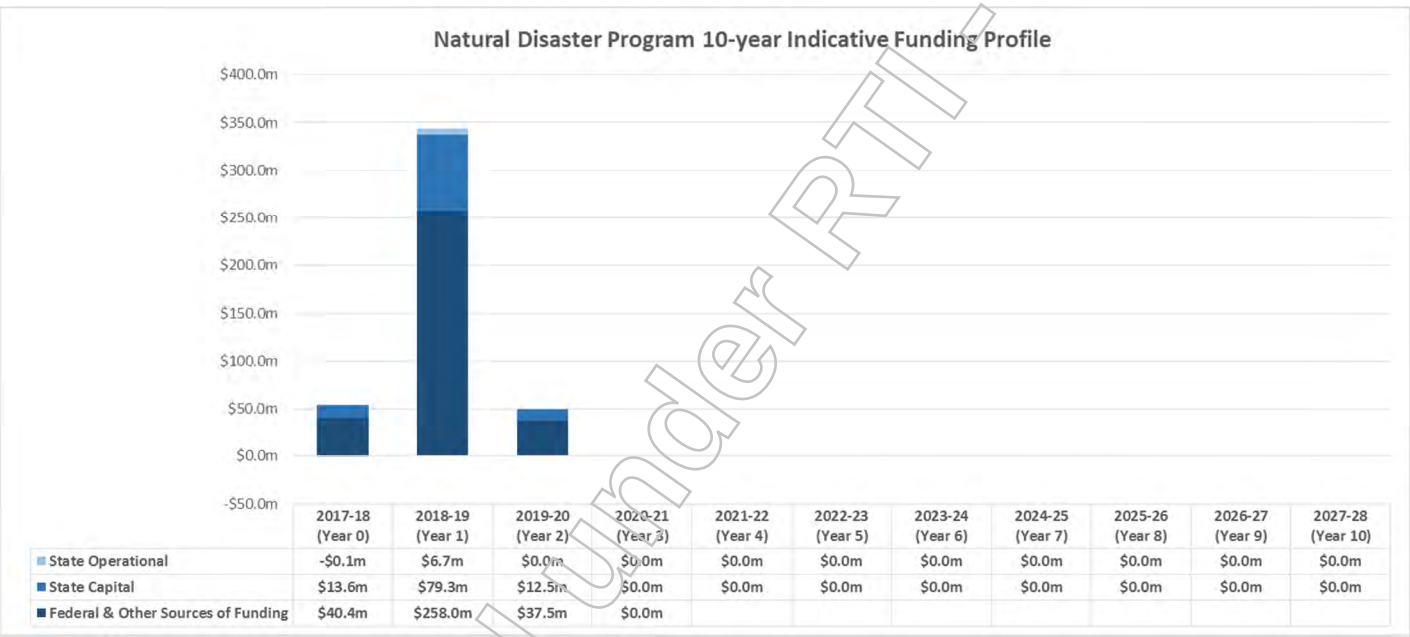
10.13.4 Outcomes

The Natural Disaster Investment Program aims to deliver the following outcomes:

- communities reconnected and economic recovery supported by restoring the state-controlled road network to its pre-disaster standard following natural disasters.
- improved efficiencies in delivery of repairs following natural disasters through the application of technology and program learnings.
- where complementary funding is available, improved resilience and flood immunity at key sites subject to frequent flooding.

Learnings from each event year are transitioned to business as usual to achieve network and process benefits. Sites affected by 2017 events will be monitored to assess their resilience in future events, including road closure times and extent of damage.

10.13.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
State Operational	-$0.1m	$6.7m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
State Capital	$13.6m	$79.3m	$12.5m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Federal & Other Sources of Funding	$40.4m	$258.0m	$37.5m	$0.0m							

Note 1: Funding is only allocated to meet existing natural disaster events on at 75:25 (federal: state) funding arrangement.

10.13.6 Priority Projects

A budget of $465M was allowed for the 2017 events program, based on early estimates, with the revised program value expected to be approximately $246.7M. The most significant projects in the current Natural Disaster Investment Program are listed below.

Table 6: Significant 2017 Disaster Event Projects

Project site	Works	Estimated value ($m)
Marlborough–Sarina Road (Sarina Range)	Geotechnical slope repairs	55.9
Lamington National Park Road	Geotechnical slope repairs	23.7
Gold Coast–Springbrook Road	Geotechnical slope repairs	14.5
Nerang–Murwillumbah Road	Geotechnical slope repairs	11.0
Tomewin Mountain Road	Geotechnical slope repairs	7.0

Beechmont Road	Geotechnical slope repairs	5.7
Tamborine–Oxenford Road (John Muntz Causeway)	Embankment repairs	4.5
Pine Creek Road	Embankment repairs	3.0

10.14 Rail Infrastructure Improvements

10.14.1 Background

The Rail Infrastructure Improvements (RII) Investment Program oversees investment in rail infrastructure improvement and efficiency projects funded and managed as part of Transport and Main Roads (TMR) capital controlled budget. This oversight includes TSPP planning projects that will be taken through the Project Assurance Framework (PAF) with a view to being delivered in the next 10 years.

Actions in response to the Queensland Rail train crewing practices commission of inquiry 2017 (the Strachan Inquiry) will have a significant impact on the program. This summary reflects the status quo and will be updated as actions are undertaken.

10.14.2 Vision

To facilitate the delivery of safe, equitable and sustainable rail solutions, in the right place at the right time.

10.14.3 Scope

In Scope is:

- rail infrastructure including rail track, structures, stations, rolling stock and light rail
- rail network improvement and efficiency projects on the TSPP that will be taken through the PAF process with a view to delivery in the next 10 years.

Out of Scope is:

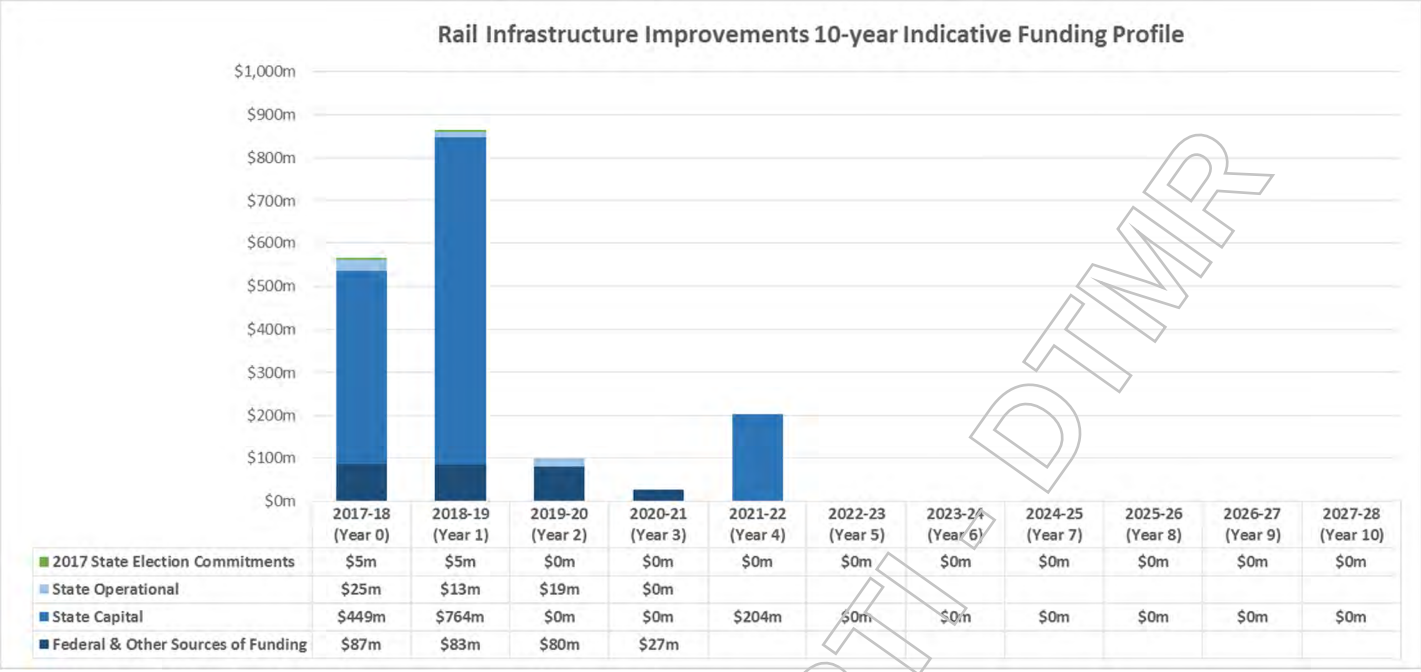
- Rail Maintenance and Growth and Renewal Projects under the Transport Service Contract
- construction or upgrade of rail infrastructure on the rail network under the Transport Service Contract
- rail infrastructure managed by other organisations, such as Aurizon and Pacific National.

10.14.4 Outcomes

The outcomes of the RII Investment Program are for rail transport to:

- meet the needs of Queensland, now and into the future
- connect communities to employment and vital services
- facilitate the efficient movement of people and freight to grow Queensland's economy
- be safe and secure for customers and goods.

10.14.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$5m	$5m	$0m	$0m	$0m	$0m	$0m	$0m	$0m	$0m	$0m
State Operational	$25m	$13m	$19m	$0m							
State Capital	$449m	$764m	$0m	$0m	$204m	$0m	$0m	$0m	$0m	$0m	$0m
Federal & Other Sources of Funding	$87m	$83m	$80m	$27m							

Note 1: Accounting treatments under Public Private Partnerships (PPP) arrangements result in the New Generation Rollingstock project and the Gold Coast Light Rail project arrangements being administered outside of the QTRIP allocation.
Note 2: Funding outlined in the graph refers to New Generation Rollingstock and Gold Coast Light Rail (Stage 2) funding that remains in the QTRIP allocation only.
Note 3: 2017 Election Commitment of $10M in additional state funding towards the Townsville Eastern Access Rail Corridor.

10.14.6 Priority Projects

Key funded projects in the current QTRIP include:

- New Generation Rollingstock
- Gold Coast Light Rail (Stage 2)
- Townsville Eastern Access Rail Corridor preservation

The Cross River Rail is being delivered by the Cross River Rail Delivery Authority and is not included within the Transport Infrastructure Portfolio.

10.14.7 Unfunded Priorities

The following projects/initiatives are identified as unfunded priorities:

- Gold Coast Infill stations
- Kuraby to Beenleigh Triplication
- Beerburrum to Nambour Rail Upgrade
- North Coast Line Action Plan
- Townsville Eastern Access Rail Corridor
- Salisbury to Beaudesert Rail Line
- Gold Coast Light Rail (Stage3).

10.15 Queensland Rail (Transport Services Contract)

10.15.1 Background

This Investment Program includes both below rail infrastructure maintenance and upgrades, and above rail operations (including Rollingstock and Stations) administered by Queensland Rail.

10.15.2 Vision

Queensland Rail's vision is "*to connect communities through modern, world-class rail services*".

10.15.3 Scope

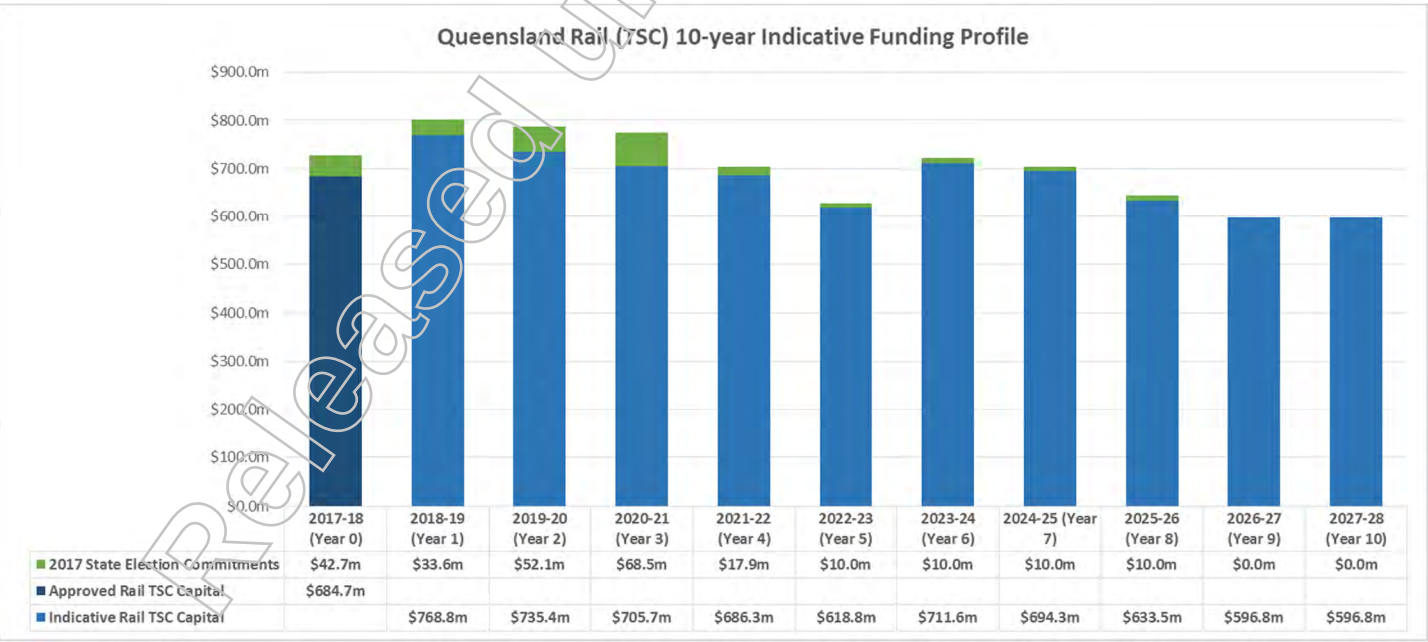
TMR and Queensland Rail (QR) have agreed to a rail capital works program, as part of the Rail Transport Service Contract which commenced in July 2015. This program covers:

- below rail infrastructure
- Citytrain above rail infrastructure and rollingstock
- Traveltrain above rail infrastructure and rollingstock
- corporate infrastructure, enabling and ICT projects.

10.15.4 Outcomes

This Investment Program aims to oversee investments funded under the QR Capital Program. Continuous capital investment and maintenance of the rail network, associated infrastructure and rollingstock must be undertaken in order to ensure that the asset base is maintained to a fit-for-purpose standard. The program also includes some network capacity upgrades (such as Lawnton to Petrie and Coomera to Helensvale Duplication) and station accessibility upgrades to ensure Disability and Discrimination Act compliance.

10.15.5 10-year Indicative Program Funding Profile



	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
2017 State Election Commitments	$42.7m	$33.6m	$52.1m	$68.5m	$17.9m	$10.0m	$10.0m	$10.0m	$10.0m	$0.0m	$0.0m
Approved Rail TSC Capital	$684.7m										
Indicative Rail TSC Capital		$768.8m	$735.4m	$705.7m	$686.3m	$618.8m	$711.6m	$694.3m	$633.5m	$596.8m	$596.8m

Note 1: 2017-18 is approved Rail Transport Service Contract (TSC) capital expenditure. 2018–19 onwards is not yet approved under the current Rail TSC, which expires in June 2018.

Note 2: 2017 Election Commitments of $254M in additional state funding includes the Mount Isa Rail Line Upgrades ($50M), Yeppoon Rail Line ($4.1M), South East Queensland Rail Station Accessibility Upgrades ($135.2M), Rail Station Park 'n' Ride upgrades ($44M) and Springfield Central Park 'n' Ride expansion ($44M).

10.15.6 Priority Projects

QR's business-as-usual activities (maintenance, preservation and operation) are expected to continue to be funded through the Rail Transport Service Contract. QR's indicative 10-year capital plan provides for investment in the following categories:

- Citytrain (includes above and below rail)
- Regional Rail infrastructure (below rail infrastructure outside SEQ)
- Traveltrain (above rail operations).

The Rail Transport Service Contract capital program includes an allocation towards network upgrade/extension (growth projects). The Rail Transport Service Contract capital program includes the following growth projects:

- Gold Coast line (Coomera to Helensvale) rail duplication and signals upgrade ($163.1M)
- Lawnton to Petrie Third Rail Track ($187M including upgrade of North Pine River Bridge)
- Station Accessibility Upgrade Program, with five stations complete (Alderley, Newmarket, Graceville, Dinmore, Nambour), five stations under planning (Strathpine, Boondall, Morayfield, Dakabin and Auchenflower), and future upgrades to be determined on a priority basis
- New Generation Rollingstock Stabling – provision of additional train stabling facilities and associated operational infrastructure ($126M)
- North Coast Line Capacity Improvement – identify and implement an optimised mix of capacity-enhancing infrastructure upgrades on the North Coast Line ($100M)
- Toowoomba Range Clearance Upgrade – undertaking tunnel floor lowering works through 11 tunnels in the Toowoomba and Little Liverpool Ranges ($47.5M)
- European Train Control System Level 2 implementation within the Inner City between Northgate – Milton – Park Road ($634m).

10.15.7 Unfunded Priorities

Unfunded priorities support new and existing infrastructure, and include (but are not limited to):

- Caboolture Feeder Station Renewal (total indicative capital cost $20M)
- European Train Control System Regional Network Migration (total indicative cost up to $145M)
- Traveltrain midlife overhaul (total indicative capital cost $42M)
- Cross River Rail Station Upgrades (total indicative capital cost $90M).

Appendix 1 – Glossary

Term, abbreviations and acronyms	Definition
Benefit	The improvement resulting from an outcome, which is perceived as positive by a stakeholder and will normally have a tangible value expressed in monetary or resource terms.
Benefits Management	The identification, definition, tracking, realisation and optimisation of benefits within and beyond a program.
Forward Estimates (FE)	Funding relating to investment in the current period of the published QTRIP 2014-15 to 2017-18.
Funding envelope	This is a conservative forecast level of funding the portfolio will be required to operate within, apportioned annually at the Investment Program level for the next 10 years.
Governance	From a TMR transport portfolio management perspective, governance is the accountability framework for selecting and managing investments across the portfolio and providing clear direction and guidance for the decision-making process.
IIC	Infrastructure Investment Committee.
Investment Program	Subsets of the transport infrastructure portfolio. To facilitate planning, prioritisation and delivery activities, the current portfolio is divided into Investment Programs. Each investment program consists of many projects.
Major Project Gating	A process of phased decision making through a series of decision points (gates).
NDRRA	National Disaster Relief and Recovery Arrangements.
PIP	TMR's Portfolio Investment and Programming Branch
Portfolio Management	A coordinated collection of strategic processes and decisions that together enable the most effective balance of organisational change and business as usual
Portfolio Management Office (PfMO)	The Portfolio Management Office (PfMO) is situated in the Portfolio Investment and Programming Branch within the Strategic Investment and Asset Management unit. The PfMO is responsible for coordinating, managing, prioritising and monitoring the department's Transport Infrastructure Portfolio and Governance, as well as providing input into Strategic Transport Policy and Planning.
Program Management	The coordinated organisation, direction and implementation of a set of related projects and transformation activities to achieve outcomes and realise benefits of strategic importance. The focus is on the continuous and proactive management of value.
Project	A temporary endeavour undertaken to create a unique product, service or result. It has a clearly defined start and end time, a structured set of activities and tasks, a budget and a specified business case. It is developed to achieve a unique and well-defined product, service or objective or deliver well-defined benefits and is managed according to a specific project management methodology.
QTRIP	Queensland Transport and Roads Investment Program
Senior Responsible Owner (SRO)	The Senior Responsible Owner (SRO) is the individual who is ultimately accountable for a program and for ensuring that it meets its objectives and realises the expected benefits. The SRO will guide the Investment Program Leadership Team in ensuring successful performance of the Investment Program.
Transport Infrastructure Portfolio	• All transport planning and policy studies with significant cost and asset implications • Maintenance, preservation and operation of existing transport infrastructure assets • Investment in new transport infrastructure assets • Initiatives relevant to the management of existing and future transport corridors.
TIPPS	Transport Infrastructure Portfolio Plan and Schedule. TIPPS aims to translate TMR's policy, strategy and long-term planning outputs into a ten year portfolio investment view, within an indicative but affordable funding envelope.
TMR	The Queensland Department of Transport and Main Roads

Appendix 2 – Portfolio Investment Schedule

Indicative 10-year Transport Infrastructure Portfolio view (by Investment Program)

Note: the below funding envelope includes the QTRIP allocation, and items that sit outside the QTRIP allocation, for the transport infrastructure portfolio split by Investment Program. Note also: Queensland Rail totals are for the Transport Services Contract capital program only. Also note that the 2021 -22 Investment Program allocations were endorsed by the IIC on 29 November 2017.

Total Transport Infrastructure Portfolio	October 2017 Review plus election commitments				Reasonable level of investment for 2021-22 to 2027-28 plus election commitments (excludes "specials")						
Investment Program	2017-18 (Year 0)	2018-19 (Year 1)	2019-20 (Year 2)	2020-21 (Year 3)	2021-22 (Year 4)	2022-23 (Year 5)	2023-24 (Year 6)	2024-25 (Year 7)	2025-26 (Year 8)	2026-27 (Year 9)	2027-28 (Year 10)
Maintenance, Preservation & Environment	$709.3m	$776.2m	$776.7m	$931.4m	$1,024.8m	$1,051.3m	$1,076.9m	$1,103.2m	$1,130.3m	$1,158.1m	$1,186.8m
Road Operations	$149.1m	$148.0m	$136.0m	$154.8m	$166.8m	$171.3m	$175.7m	$180.2m	$184.9m	$189.7m	$194.6m
Bruce Highway Upgrades	$565.5m	$935.3m	$1,410.1m	$2,380.8m	$1,099.9m	$827.3m	$1,300.0m	$1,050.0m	$1,000.0m	$1,000.0m	$1,000.0m
National Land Transport Network Upgrades	$736.8m	$973.2m	$631.6m	$82.5m	$691.9m	$660.0m	$650.0m	$606.0m	$600.0m	$600.0m	$600.0m
State Road Network Upgrades	$406.3m	$631.2m	$584.1m	$631.4m	$341.0m	$199.4m	$204.3m	$209.4m	$214.6m	$219.9m	$225.4m
Targeted Road Safety Programs	$158.4m	$148.0m	$129.6m	$123.4m	$144.2m	$138.5m	$138.5m	$138.5m	$138.5m	$138.5m	$138.5m
Rail Infrastructure Improvements	$566.0m	$864.9m	$98.7m	$27.0m	$203.8m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m
Passenger Transport Infrastructure Improvements	$39.7m	$60.2m	$51.8m	$112.6m	$48.5m	$42.6m	$43.7m	$44.8m	$46.0m	$47.2m	$48.4m
Active Transport	$54.9m	$69.1m	$68.5m	$55.5m	$41.8m	$38.8m	$39.4m	$39.9m	$40.5m	$41.0m	$41.6m
Marine Infrastructure	$36.2m	$33.3m	$61.0m	$19.7m	$20.0m	$20.4m	$20.9m	$21.3m	$21.8m	$22.3m	$22.8m
Local Government Grants	$140.6m	$142.4m	$82.5m	$70.8m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m	$40.0m
Corridor Preservation	$57.0m	$96.3m	$86.0m	$87.1m	$65.0m	$70.0m	$70.0m	$70.0m	$70.0m	$70.0m	$70.0m
Transport System Planning Program	$72.4m	$62.6m	$27.8m	$58.1m	$63.0m	$60.5m	$61.7m	$62.9m	$64.1m	$65.4m	$66.7m
Natural Disaster Program	$53.9m	$344.0m	$50.0m								
Additonal Revenue Scenario	$0.0m	$0.0m	$0.0m	$0.0m	$0.0m	$279.5m	$283.5m	$287.7m	$292.0m	$295.1m	$298.4m
Total Portfolio (excludes Queensland Rail (TSC))	**$3,746.2m**	**$5,284.8m**	**$4,194.6m**	**$4,735.1m**	**$3,950.5m**	**$3,599.8m**	**$4,104.6m**	**$3,854.0m**	**$3,842.6m**	**$3,887.2m**	**$3,933.2m**
Queensland Rail (TSC)	$727.4m	$802.4m	$787.5m	$774.2m	$704.3m	$628.8m	$721.6m	$704.3m	$643.5m	$596.8m	$596.8m
Total Transport Infrastructure Portfolio	**$4,473.6m**	**$6,087.2m**	**$4,982.0m**	**$5,509.3m**	**$4,654.8m**	**$4,228.6m**	**$4,826.2m**	**$4,558.3m**	**$4,486.1m**	**$4,484.0m**	**$4,530.0m**

1. 10-year Transport Infrastructure Portfolio Funding Assumptions (by Investment Program)

Escalation (beyond Forward Estimates period)

An escalation rate is applied to indicative out-year transport infrastructure allocations. The funding envelope for the 10-year TIP investment will assume 3.1 per cent growth in 2021-22 and 2022-23, then 2.9 per cent from 2023-24 onwards, in line with the mandated rate of escalation for federally-funded projects for the period. This rate is reflective of the economic environment for transport infrastructure construction, and was produced on behalf of the Australian Government by BIS Shrapnel.

The current registration revenue forecasts show growth over the forward estimates period of 4.2% in 2017-18 and 2018-19 and about 3.6% per annum thereafter. A price increase of 2.5% has been factored in for registration fee increases in accordance with the government indexation policy (light vehicles only as heavy vehicle registration increases are determined by the National Transport Commission). Factors impacting on registration revenue growth are the challenges facing the Heavy Vehicle Pricing Determination (Heavy Vehicle Registration Revenue is currently frozen), increasing amounts of concessions being granted to eligible holders of pension and seniors cards as the baby boomer generation retires, a switch from six to four cylinder vehicles and reduced population growth.

Investment Program assumptions

Maintenance, Preservation & Environment	1. ***Australian Government funding beyond FE period:*** equal to current annual allocation of $90.56M per annum ($49M capital $41.56M operating). 2. ***Queensland Government capital funding beyond FE period:*** equal to 2020–21 investment level, plus escalation as per the Federal Escalation rates from 2021-22 onwards. 3. ***Queensland Government capital funding beyond FE period:*** Ongoing $60M state capital (escalated) plus escalation as per the Federal Escalation rates from 2021-22 onwards, to repay MPE investment that was previously diverted to fund the State's 25 per cent contribution to natural disaster works. $65M per annum redirected from SRNU to address critical shortfalls impacting the safety, reliability and resilience of the SCR network. 4. ***Queensland Government operational funding beyond FE period:*** equal to 2020–21 investment level, plus escalation as per as per the Federal Escalation rates from 2021-22 onwards and includes $5.6M in ongoing funding for the Centre of Excellence. Includes $15M per annum redirected from SRNU to address critical shortfalls impacting the safety, reliability and resilience of the SCR network.
Road Operations	5. ***Queensland Government capital funding beyond FE period:*** equal to 2020–21 investment level, plus escalation per annum as per the Federal Escalation rates from 2021-22 onwards. 6. ***Queensland Government operational funding beyond FE period:*** equal to 2020–21 investment level, plus escalation as per the Federal Escalation rates from 2021-22 onwards. Includes additional $20M per annum re-directed from SRNU to address a shortfall against the cost of maintaining existing service levels of incident field services and maintenance of Intelligent Transport Systems (ITS) and signals.
Bruce Highway Upgrades	7. ***Australian Government funding beyond FE period:*** 2021–22 and 2022–23 aligned to the Australian Government 10-year Bruce Highway commitment. "Fix the Bruce" $6,695M. 2023-24 and beyond matches the "Bruce Highway Trust" 8. ***Queensland Government funding beyond FE period:*** assumed matching for "Fix the Bruce Commitments. Note – this includes the remaining $500M of the $1B 10-year State Election commitment ($150M per annum to 2020–21 and $50M in 2021–22). 2023-24 and beyond matches the "Bruce Highway Trust"

National Land Transport Network Upgrades	9. ***Australian Government funding beyond FE period:*** additional investment in the order of $480M per annum beyond 2021–22, which is likely required for new commitments on the Pacific Motorway, Gore, Landsborough, Cunningham, etc. Highways. 10. ***Queensland Government capital funding beyond FE period:*** Additional state-matching capital in the order of $120M per annum beyond 2021–22, which is likely required for new commitments on the Pacific Motorway, Gore, Landsborough, Cunningham, etc. Highways. Nil funds are available in 2020–21 for new State matching.
State Road Network Upgrades	11. ***Queensland Government capital funding beyond FE period:*** State capital investment in 2021–22 and beyond of $150M for works on state roads (escalated at the Federal Escalation rates). This relates to minimum level of investment to undertake minor improvement and bridge asset management works on the state road network. $100M per annum has been redirected to MPE and RO from 2021-22 to address critical shortfalls impacting the safety, reliability and resilience of the SCR network.
Targeted Road Safety Programs	12. ***Queensland Government capital funding beyond FE period:*** 2021–22 and beyond equal to $15.8M per annum (*Road Safety Minor Works and Safety Mass Actions*), no escalation from 2021–22 onwards. 13. ***Queensland Government capital funding beyond FE period:*** 2021–22 and beyond assumes Camera Detected Offence (CDO) revenue at $109M per annum. No Escalation. 14. ***Australian Government funding beyond FE period:*** 2021–22 and beyond set at $12M per annum (*Black Spot* program).
Passenger Transport Infrastructure Improvements	15. ***Queensland Government capital funding beyond FE period:*** $36.4M in 2021–22 plus escalation at the Federal Escalation rates from 2021–22 onwards. 16. ***Queensland Government operational funding beyond FE period:*** capital grants base funding $5M per annum from 2021–22 onwards under the Passenger Transport Accessible Infrastructure. 17. ***Funding outside QTRIP allocation:*** This investment program also includes funding for the School Bus Upgrade Scheme.
Active Transport	18. ***Queensland Government capital funding within FE period:*** 2021–22 to 2027–28 includes $44.64M for maintenance of TMR off-road cycleways. 19. ***Queensland Government capital funding beyond FE period:*** 2020–21 capital works base funding, plus escalation at the Federal Escalation rates from 2021–22 onwards. Plus $2M per annum additional cycling capital with no escalation. 20. ***Queensland Government operational funding within FE period:*** 2017–18 includes additional $3M for the Cycling Grants Program and from 2017–18 to 2020–21 an additional $7.67M per annum. 21. ***Queensland Government operational funding beyond FE period:*** 2021–22 capital grants base funding, per annum from 2021-22 onwards.
Marine Infrastructure	22. ***Queensland Government capital funding beyond FE period:*** 2020–21 boating infrastructure program baseline level, plus escalation at the Federal Escalation rates from 2021–22 onwards. 23. ***Queensland Government operational funding beyond FE period:*** 2020–21 boating maintenance program investment baseline level, plus escalation at the Federal Escalation rates from 2021–22 onwards. 24. ***Queensland Government operational funding beyond FE period:*** 2021–22 boating maintenance dredging program investment baseline level ($4.25M), no escalation from 2021–22 onwards. 25. ***Queensland Government operational funding beyond FE period:*** 2021–22 and beyond equal to boating capital grants (no escalation), and additional boating fee revenue. 26. ***Funding outside QTRIP allocation:*** This investment program also includes funding for Gold Coast Waterway Authority and Marine Safety Minor works (MSQ).

Local Government Grants	27. ***Queensland Government operational funding beyond FE period:*** 2021–22 equal to the Transport Infrastructure Development Scheme baseline levels $40M.
Corridor Preservation	28. ***Queensland Government capital funding beyond FE period:*** 2021–22 is equal to $65M for the Transport Corridor Acquisition Fund with no escalation in 2021–22. Returns to $70M base level from 2022-23.
Transport System Planning Program	29. ***Queensland Government previous capital funding beyond FE period:*** 2020–21 investment baseline level, plus escalation at the Federal Escalation rate from 2021–22 onwards. 30. ***Queensland Government operational funding beyond FE period:*** 2020–21 investment baseline level, no escalation.
Natural Disaster Program	31. ***Queensland Government capital funding beyond FE period:*** 2020–21 and beyond levels are nil.
Rail Infrastructure Improvements	32. ***Queensland Government capital funding beyond FE period:*** *Nil from 2022–23*.
Queensland Rail (Transport Services Contract)	33. ***Queensland Rail capital funding beyond FE period:*** investment includes ongoing Transport Services Contract capital funding. Funding is outside the QTRIP allocation. Funding for 2018-19 onwards is not yet approved under the current Rail TSC, which expires in June 2018.

Queensland Road System Performance Plan

2018-19 to 2021-22

22 March 2018

Queensland Government

Creative Commons information

Document control options

Departmental approvals

Refer to the appropriate Risk Assessment Tool for relevant reviewer and approver

Date	Name	Position	Action required *(Review/endorse/approve)*	Due
	Mohan Sharma	Manager (Network Analysis & Moderation)	Update	19 October 2017
	Andrew Golding	Director (Transport System Asset Management)	Review	26 October 2017
	Maintenance, Preservation & Operations (MPO) Steering Committee		Endorse draft	2 November 2017
	Andrew Golding	Director (Transport System Asset Management)	Update following District QRSPP consultation workshops	13 March 2018
	Maintenance, Preservation & Operations (MPO) Steering Committee		Approved	20 March 2018

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1. What is the QRSPP?

Queensland's Road System Performance Plan (QRSPP) provides the milestones for road system investment to achieve between 2018-19 and 2021-22 in delivering Transport and Main Roads outcomes for the State-controlled road (SCR) network. This four-year view provides detailed direction for SCR network investment in Maintenance, Preservation and Environment (MPE) and Road Operations (RO) Investment Groups.

The plan includes:

- Four-year milestones for 23 MPE and RO Elements
- Four-year funding allocations by District to the 23 MPE & RO Elements by State and Federal funding source.

A list of MPE & RO Elements is contained within **Appendix 1**.

This investment plan seeks to address current and emerging deficiencies on the SCR network. It anticipates changes in transport demand and network condition, and allocates funding to existing and estimated likely deficiencies.

The QRSPP will guide distribution of available funding across all SCR sub-networks and takes into account restricted federal funding. This constrained funding is distributed according to the prioritisation of deficiencies identified by Element Leaders using network-level analysis methods described in the relevant element management plans.

The QRSPP has been approved by the Maintenance, Preservation and Operations Steering Committee and subsequently endorsed by the Infrastructure Investment Committee.

1.1 Background

The department must consistently manage road and transport assets and road operations across the state to support communities and achieve government outcomes.

The MPE and RO Investment Groups have been established to coordinate and manage investment in maintenance, preservation and environmental management of the State-Controlled Road Network (SCR). The MPE Investment Group focuses on the long term sustainability of transport infrastructure assets, whilst the RO Investment Group focuses on safe, reliable and efficient operation of the State-controlled road network.

The MPO Steering has been established to provide governance over the MPE and RO Investment Groups to drive and ensure the MPO Program delivers the agreed Strategic Asset Management Plans within the funding allocation approved by the IIC. Element needs are assessed through the MPO Steering Committee and moderated on the basis of cost, risk and performance and 4 year allocations determined by Element and District within the total funding allocation approved by IIC. Based on the available funding, performance targets and a prioritised list of works are provided to the Districts. The 4-year allocations and performance targets are documented in this plan.

1.2 Strategic Alignment

Queensland's State-Controlled Road Network comprises 33,353 km of roads, 29 km of busway, 3,078 bridges, 34 tunnels and 4,783 major culverts. The gross replacement value of the SCR network is $75.69 billion (as at 30 June 2017), making it the State's most valuable asset.

The MPE and RO Investment Groups align strongly to TMR's core strategies of providing:

an ***Efficient and Reliable transport network through:***

- maintaining the existing transport network infrastructure
- maintaining system operation and reliability

a ***Safe and Secure transport network through:***

- reducing transport-related fatalities and serious injuries.

an ***Integrated transport network through:***

- maintaining access and connectivity.

The MPE and RO Investment Groups strongly align to TMR's asset management approach. Effective asset management is a key priority of the current Queensland government. TMR is required to produce a Total Asset Management Plan as input to the State Infrastructure Plan. One of the key objectives outlined in the State Infrastructure Plan is to maximise the utility of existing infrastructure.

1.3 TMR Asset Management Policy

The TMR Asset Management Policy was approved by IIC in July 2012. It espouses sustainable management of the State-controlled road network. An update to the policy was presented to the IIC for their review and approved in March 2016.

QRSPP Principles

The principles that guide the development of the QRSPP are:

- Investments will comply with government directives, policies and commitments.
- Investments must be directly linked to the three road system outcomes in the TMR Transport Coordination and Delivery Plan
- Investments must contribute to achieving the draft 20-year performance targets defined for each Element
- Investments will deliver the four-year QRSPP milestones
- Minimum funding commitments established in the south-east Queensland Road Asset Management Contracts (RAMC) will be provided by the QRSPP
- QRSPP investment priorities will be sufficiently detailed to drive development of a comprehensive program of road projects.
- Investment needs for the total state-controlled network will be established and prioritised.
- Project development at the District level must be consistent with the QRSPP.

- The network will be risk-managed to affordable standards that are safe, “fit for purpose” or “sensitive to context”, ensuring best whole-of-life performance is delivered within available funding.

1.4 Investment Prioritisation

Investments will be prioritised as follows:

- Priority 1 – investing in Elements that manage or improve the condition of the State-controlled road network where that condition is contributing to the safety of road users.
- Priority 2 – investing in pavement resurfacing and rehabilitation, and bridge and culvert rehabilitation to preserve the increasing road asset.
- Priority 3 – funding environmental rehabilitation and management, and heritage management to meet legislative environmental requirements.
- Priority 4 – funding management of road use to ensure travel efficiency for freight and passenger vehicle users.
- Priority 5 – investing to improve access to rural and regional areas of the state.
- Priority 6 – investing in new (not committed) discretionary enhancements to improve efficiency and effectiveness by providing increased capacity in the network.

1.5 Predicted Funding Availability

The QRSPP allocates the planned state discretionary funds available for infrastructure maintenance, preservation and operations for the period 2018-19 to 2021-22. The QRSPP also includes Federal government maintenance funding.

1.6 Performance Targets

Performance targets (20-year) are aspirational levels of performance, established for each Element through the Element Management process. These targets are modest in nature (typically lower than those of other road agencies) and aim to provide a network which is at least in ‘Fair’ condition.

1.7 Four-year Milestones

On the basis of the funding distribution provided in this plan, affordable four-year milestones for each Element have been established. Progress in attainment of the QRSPP milestones will be assessed on an annual basis.

2. Investment Plan (2018-19 – 2021-22)

The planned MPE and RO allocation in the QRSPP is $3.969 billion (in outturn dollars) over four years. This includes an allowance of $360.57 million provided by the Australian government for maintenance of the National Land Transport Network. In addition, $51.25 million out of the state funding allocation has been brought forward to 2017-18 for two lots of MPO capital acceleration programs ($31.21m and $20.04m).

2.1 QRSPP Distribution

The distribution of the current allocations is shown in Figure 1.

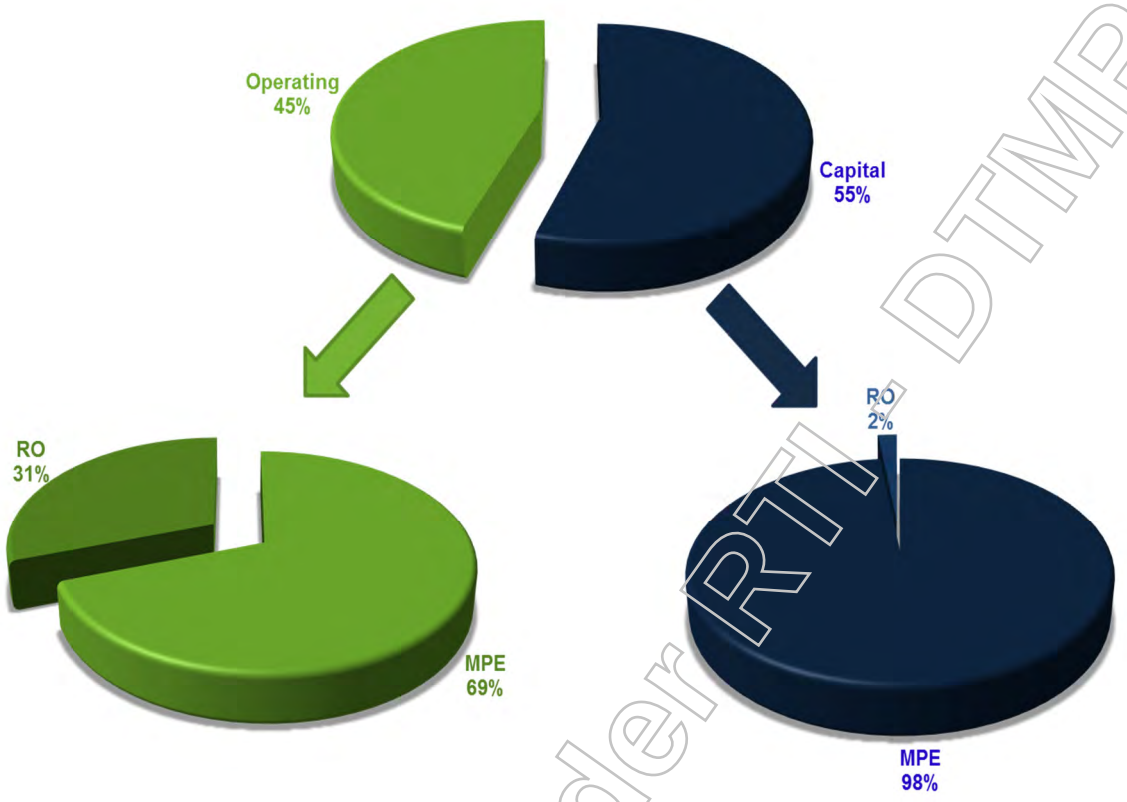


Figure 1: Current QRSPP Distribution

QRSPP allocations are managed within Investment Sub-programs. Each Investment Sub-program contains one or more related Elements. The funding for Capital and Operating Expenditure by Investment Sub-program and a comparison with the previously published QRSPP (2017-18 – 2020-21) is shown in Figure 2 and Figure 3 respectively.

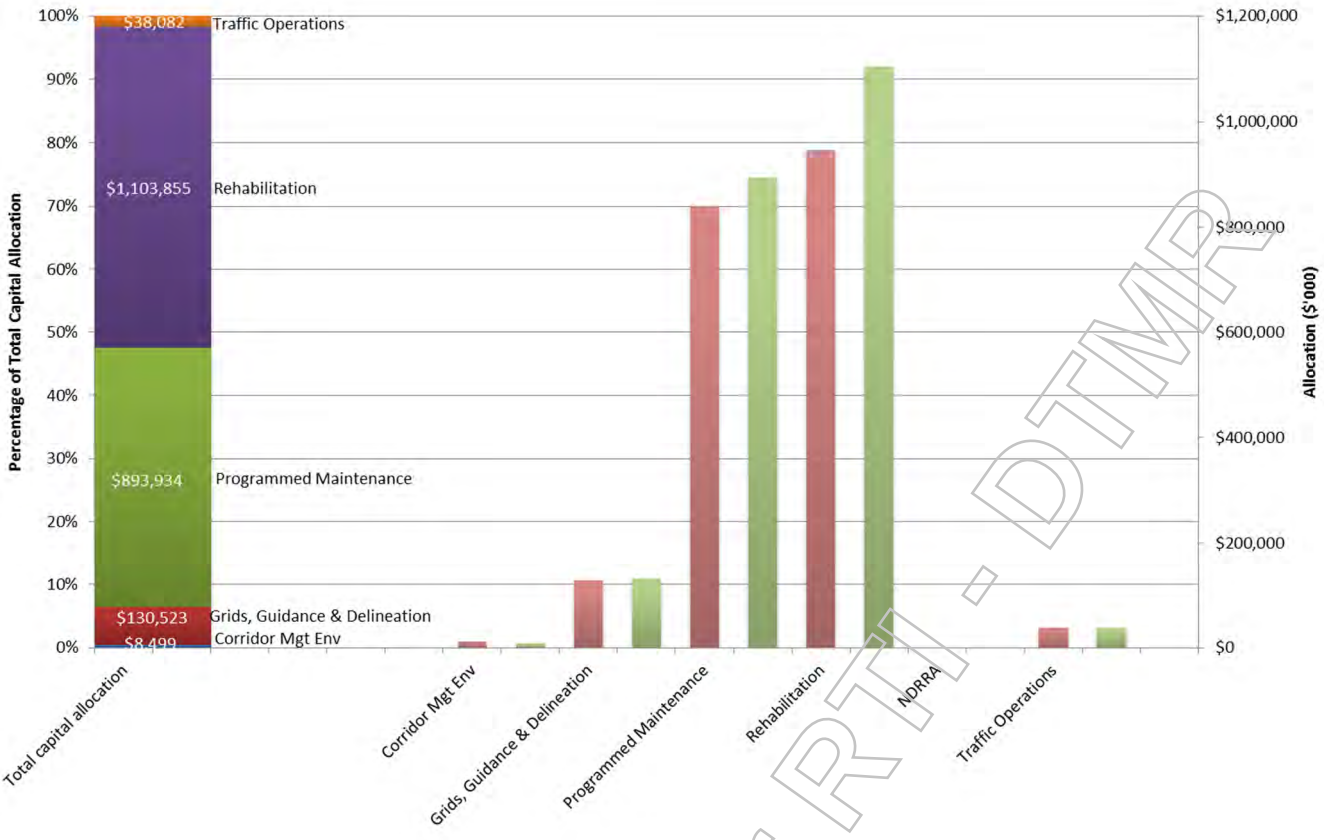


Figure 2: QRSPP Capital Funding by Investment Sub-program

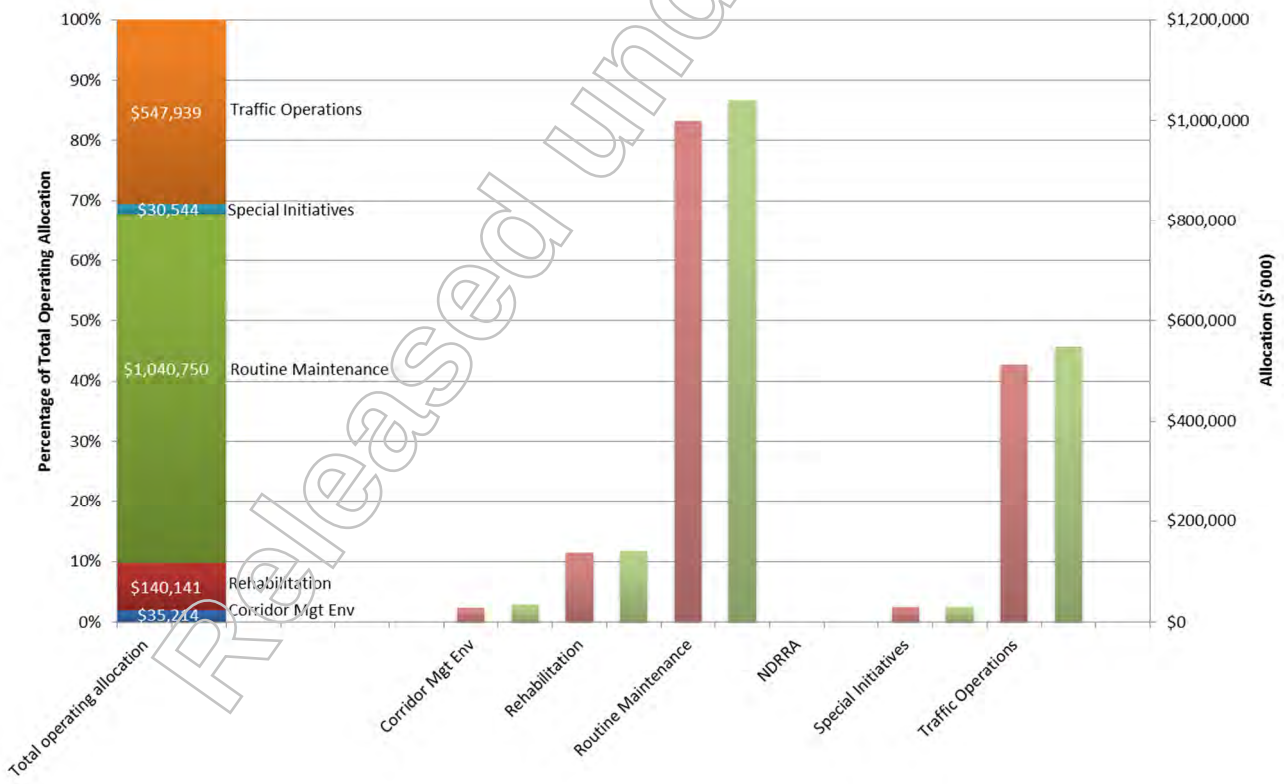


Figure 3: QRSPP Operating Funding by Investment Sub-program

3. Structure of this Report

This QRSPP contains the full four-year allocation (by District and by Element). It also contains a summary by Element outlining the QRSPP Performance Milestones and Output Reporting to be delivered during the QRSPP period.

3.1 QRSPP Allocations

A summary of the detail provided for in the QRSPP allocations is shown in Figure 4 below.

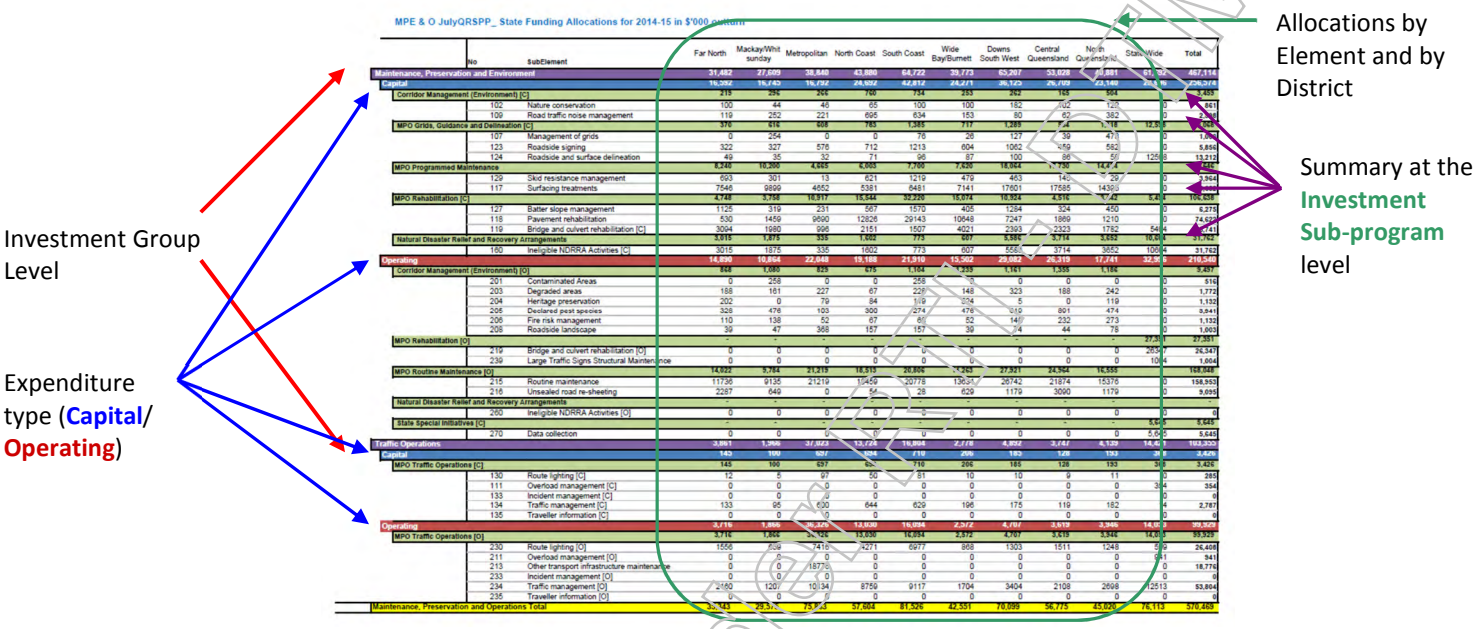


Figure 4: QRSPP allocation overview

3.2 Element Summary

A summary of the detail provided for each Element is contained in Figure 5. For further detailed information, please consult the relevant Element Management Plan.

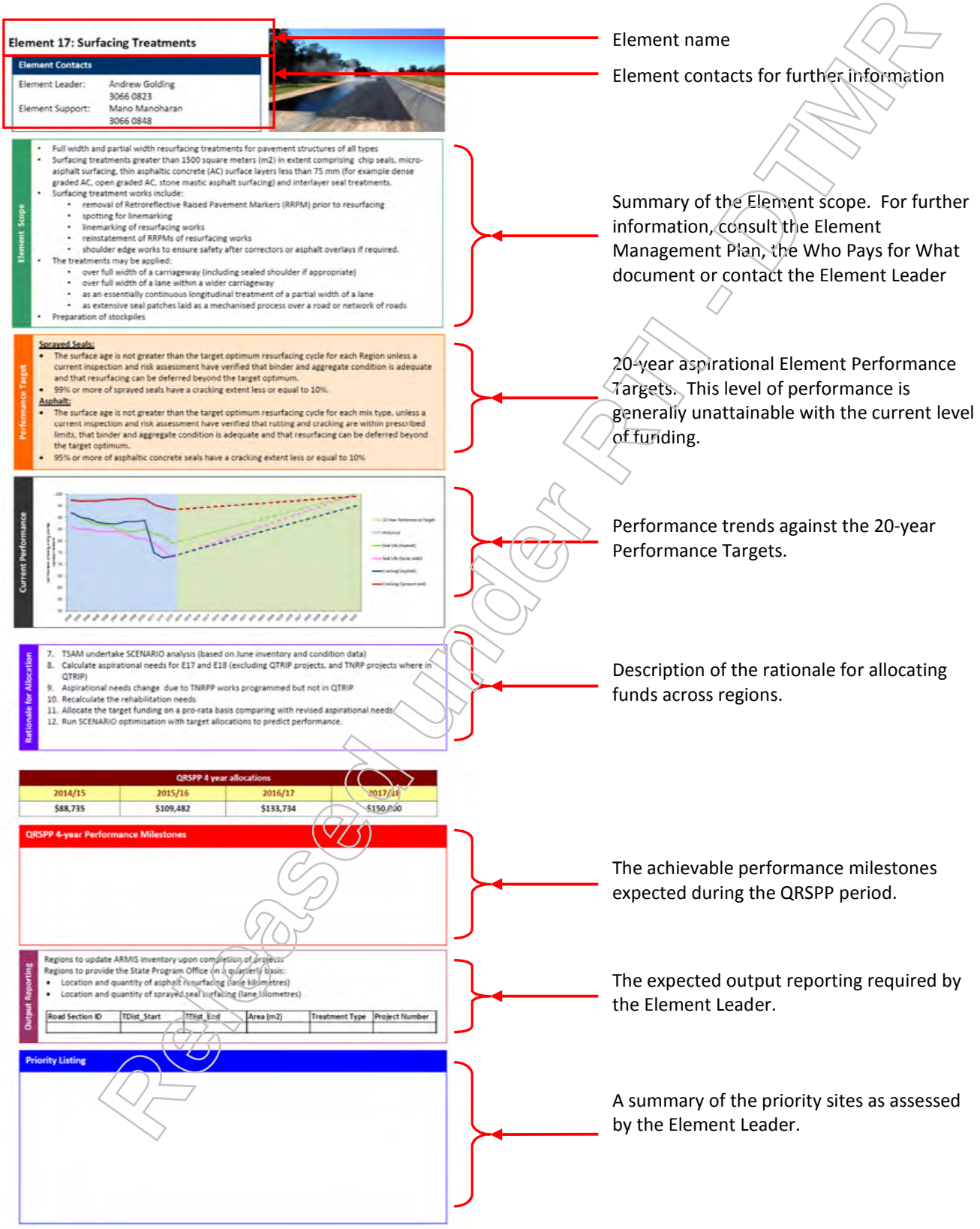


Figure 5: Element Summary Information

4. QRSPP Allocations (2018-19 to 2021-22)

- State 2018-19
- State 2019-20
- State 2020-21
- State 2021-22
- National 2018-19
- National 2019-20
- National 2020-21
- National 2021-22
- State & National 2018-19
- State & National 2019-20
- State & National 2020-21
- State & National 2021-22
- State four year total
- National four year total
- State & National four year total
- Element 117 and 215 sub-allocations

MPE & RO State Funding Allocations for 2018-19 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment		**44,622**	**72,927**	**55,687**	**62,032**	**45,427**	**74,274**	**81,938**	**29,359**	**33,686**	**53,778**	**37,864**	**54,138**	**64,659**	**710,390**
Capital		**25,493**	**48,394**	**33,341**	**41,047**	**29,128**	**54,262**	**64,405**	**20,251**	**17,684**	**36,465**	**18,552**	**34,628**	**22,511**	**446,163**
Corridor Management (Environment) [C]		**0**	**84**	**23**	**0**	**0**	**498**	**613**	**38**	**0**	**422**	**0**	**0**	**383**	**2,062**
109	Road traffic noise management	0	84	23	0	0	498	613	38	0	422	0	0	383	**2,062**
MPO Grids, Guidance and Delineation [C]		**1,031**	**832**	**679**	**1,224**	**891**	**2,271**	**2,042**	**356**	**318**	**1,710**	**841**	**946**	**16,678**	**29,819**
107	Management of grids	378	14	24	69	83	0	0	33	118	48	334	17	0	**1,167**
123	Roadside signing	590	713	469	749	460	2,098	1,862	207	139	1,573	385	700	870	**10,814**
124	Roadside and surface delineation	63	105	185	406	348	173	180	117	61	89	72	230	15,808	**17,837**
MPO Programmed Maintenance		**12,611**	**18,514**	**18,071**	**24,162**	**14,322**	**15,512**	**25,159**	**10,031**	**13,609**	**6,673**	**13,592**	**15,140**	**0**	**187,396**
129	Skid resistance management	130	416	328	412	238	936	1,021	428	124	1,332	156	430	0	**5,952**
117	Surfacing treatments	12,481	18,098	17,744	23,750	14,084	14,576	24,138	9,603	13,482	5,341	13,436	14,710	0	**181,444**
MPO Rehabilitation [C]		**11,852**	**28,964**	**14,568**	**15,660**	**13,915**	**35,980**	**36,590**	**9,825**	**3,761**	**27,661**	**4,119**	**18,542**	**5,450**	**226,887**
127	Batter slope management	154	247	256	310	280	321	870	257	215	322	271	102	5,350	**8,955**
118	Pavement rehabilitation	10,467	25,605	10,418	8,047	7,098	30,020	31,135	6,993	1,429	23,014	2,927	12,972	100	**170,226**
119	Bridge and culvert rehabilitation [C]	1,231	3,111	3,894	7,303	6,537	5,640	4,585	2,575	2,115	4,325	921	5,469	0	**47,706**
Operating		**19,129**	**24,533**	**22,346**	**20,985**	**16,299**	**20,012**	**17,533**	**9,408**	**16,002**	**17,313**	**19,312**	**19,510**	**42,148**	**264,227**
Corridor Management (Environment) [O]		**729**	**1,070**	**672**	**460**	**570**	**471**	**518**	**526**	**499**	**774**	**394**	**517**	**754**	**7,954**
201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
202	Nature conservation	87	107	121	60	64	122	54	31	58	118	83	62	0	**967**
203	Degraded areas	138	216	162	0	150	178	114	121	0	186	0	0	132	**1,398**
204	Heritage preservation	0	60	0	26	0	0	0	60	70	60	0	0	622	**898**
205	Invasive plants and animals	377	510	314	300	255	111	300	205	242	324	230	374	0	**3,542**
206	Fire risk management	127	177	76	74	101	60	50	109	129	86	81	81	0	**1,150**
MPO Rehabilitation [O]		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34,138**	**34,138**
219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	32,213	**32,213**
239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,925	**1,925**
MPO Routine Maintenance [O]		**18,400**	**23,463**	**21,673**	**20,525**	**15,728**	**19,540**	**17,015**	**8,582**	**15,503**	**16,539**	**18,917**	**18,993**	**0**	**214,879**
215	Routine maintenance	15,538	23,245	18,139	18,840	14,186	19,540	16,875	8,433	13,484	16,461	17,720	18,295	0	**200,758**
216	Unsealed road re-sheeting	2,862	218	3,534	1,685	1,542	0	140	148	2,018	78	1,197	698	0	**14,121**
State Special Initiatives [C]		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,256**	**7,256**
270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,256	**7,256**
Road Operations		**819**	**2,897**	**4,771**	**3,397**	**2,348**	**37,540**	**11,047**	**5,745**	**899**	**16,993**	**729**	**2,782**	**44,213**	**134,179**
Capital		**0**	**0**	**875**	**700**	**850**	**1,400**	**0**	**650**	**0**	**0**	**0**	**0**	**877**	**5,352**
MPO Traffic Operations [C]		**0**	**0**	**875**	**700**	**850**	**1,400**	**0**	**650**	**0**	**0**	**0**	**0**	**877**	**5,352**
130	Route lighting [C]	0	0	0	0	0	700	0	0	0	0	0	0	0	**700**
111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	342	**342**
134	Traffic management [C]	0	0	875	700	850	700	0	650	0	0	0	0	535	**4,310**
Operating		**819**	**2,897**	**3,896**	**2,697**	**1,498**	**36,140**	**11,047**	**5,095**	**899**	**16,993**	**729**	**2,782**	**43,336**	**128,827**
MPO Traffic Operations [O]		**819**	**2,897**	**3,896**	**2,697**	**1,498**	**36,140**	**11,047**	**5,095**	**899**	**16,993**	**729**	**2,782**	**43,336**	**128,827**
230	Route lighting [O]	0	206	739	525	615	2,475	1,940	1,659	135	3,186	0	386	21,197	**33,063**
211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,123	**1,123**
213	Other transport infrastructure maintenance	0	14	40	40	0	18,788	750	0	0	1,300	0	10	5,000	**25,942**
234	Traffic management [O]	819	2,677	3,117	2,133	883	14,877	8,356	3,436	764	12,507	729	2,386	16,016	**68,700**
Maintenance, Preservation and Operations Total		**45,441**	**75,824**	**60,458**	**65,429**	**47,775**	**111,814**	**92,985**	**35,104**	**34,585**	**70,771**	**38,593**	**56,920**	**108,872**	**844,569**

Notes: ***Road Operations elements statewide allocations contain the following amounts for electricity ($'000): E30 - 21,197, E13 - 5,000, E34 - 4,500, E11 - 100***
Element 213 allocation includes $7.6M + $930K for Eastern (Boggo Road) Busway maintenance and $225K for GCLR Park 'n' Ride maintenance
Portion of E17 allocation set aside for skid resistance improvement is shown in the "Subprogram detail" tab (last page of this spreadsheet)
E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)
Metropolitan Element 234 includes $1.2M for RAMC incident management Bruce Hwy south of Caboolture

MPE & RO State Funding Allocations for 2019-20 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**38,256**	**85,695**	**55,888**	**61,537**	**48,945**	**69,005**	**84,992**	**31,927**	**35,360**	**47,528**	**40,094**	**53,407**	**86,032**	**738,665**
Capital			**17,424**	**59,622**	**32,045**	**38,230**	**31,027**	**49,709**	**68,539**	**23,537**	**18,598**	**31,465**	**18,931**	**34,872**	**39,615**	**463,612**
Corridor Management (Environment) [C]			**0**	**78**	**0**	**0**	**0**	**522**	**620**	**0**	**0**	**487**	**0**	**0**	**354**	**2,062**
	109	Road traffic noise management	0	78	0	0	0	522	620	0	0	487	0	0	354	**2,062**
MPO Grids, Guidance and Delineation [C]			**593**	**1,240**	**766**	**955**	**916**	**1,726**	**1,559**	**597**	**615**	**1,467**	**552**	**989**	**12,892**	**24,866**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,167	**1,167**
	123	Roadside signing	525	1,125	585	555	555	1,560	1,380	480	555	1,380	480	765	870	**10,814**
	124	Roadside and surface delineation	68	115	181	400	361	166	180	117	60	87	72	224	10,855	**12,884**
MPO Programmed Maintenance			**8,532**	**21,636**	**17,302**	**25,549**	**16,276**	**9,051**	**28,418**	**9,153**	**13,374**	**7,989**	**13,051**	**14,669**	**11,107**	**196,108**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	5,952	**5,952**
	117	Surfacing treatments	8,532	21,636	17,302	25,549	16,276	9,051	28,418	9,153	13,374	7,989	13,051	14,669	5,155	**190,155**
MPO Rehabilitation [C]			**8,299**	**36,668**	**13,977**	**11,726**	**13,834**	**38,410**	**37,942**	**13,787**	**4,609**	**21,522**	**5,328**	**19,214**	**15,261**	**240,577**
	127	Batter slope management	179	521	352	177	205	272	425	165	145	878	64	223	5,350	**8,955**
	118	Pavement rehabilitation	6,871	33,573	13,550	8,336	8,894	33,793	34,674	10,978	2,456	19,039	4,428	17,847	0	**194,439**
	119	Bridge and culvert rehabilitation [C]	1,249	2,574	75	3,213	4,735	4,345	2,843	2,644	2,009	1,605	836	1,144	9,911	**37,183**
Operating			**20,832**	**26,073**	**23,843**	**23,307**	**17,918**	**19,296**	**16,453**	**8,390**	**16,762**	**16,063**	**21,163**	**18,535**	**46,417**	**275,053**
Corridor Management (Environment) [O]			**550**	**850**	**611**	**596**	**608**	**941**	**537**	**618**	**454**	**666**	**485**	**725**	**1,093**	**8,764**
	201	Contaminated Areas	0	0	0	0	0	502	64	0	0	0	64	156	0	**786**
	202	Nature conservation	87	107	121	60	64	122	54	31	58	118	83	62	0	**967**
	203	Degraded areas	0	216	162	33	150	178	114	121	112	186	79	0	133	**1,484**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	898	**898**
	205	Invasive plants and animals	402	407	264	408	274	66	251	350	190	247	196	404	22	**3,480**
	206	Fire risk management	62	120	64	95	120	74	84	116	94	115	63	103	40	**1,149**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34,174**	**34,174**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	32,213	**32,213**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,961	**1,961**
MPO Routine Maintenance [O]			**20,282**	**25,223**	**23,233**	**22,711**	**17,310**	**18,355**	**15,886**	**7,772**	**16,308**	**15,398**	**20,678**	**17,810**	**3,750**	**224,715**
	215	Routine maintenance	17,313	25,008	19,899	21,046	15,757	18,355	15,741	7,597	14,264	15,317	19,461	17,088	3,750	**210,594**
	216	Unsealed road re-sheeting	2,969	215	3,334	1,665	1,552	0	145	176	2,045	81	1,218	722	0	**14,121**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,400**	**7,400**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,400	**7,400**
Road Operations			**837**	**2,962**	**3,982**	**2,756**	**1,532**	**26,552**	**11,317**	**5,196**	**917**	**17,628**	**746**	**2,838**	**48,970**	**126,233**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,352**	**5,352**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,352**	**5,352**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	750	**750**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	342	**342**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	4,260	**4,260**
Operating			**837**	**2,962**	**3,982**	**2,756**	**1,532**	**26,552**	**11,317**	**5,196**	**917**	**17,628**	**746**	**2,838**	**43,618**	**120,881**
MPO Traffic Operations [O]			**837**	**2,962**	**3,982**	**2,756**	**1,532**	**26,552**	**11,317**	**5,196**	**917**	**17,628**	**746**	**2,838**	**43,618**	**120,881**
	230	Route lighting [O]	0	211	756	535	630	2,528	1,984	1,697	139	3,257	0	395	20,313	**32,444**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,123	**1,123**
	213	Other transport infrastructure maintenance	0	14	40	40	0	11,012	750	0	0	1,305	0	0	5,500	**18,661**
	234	Traffic management [O]	837	2,737	3,186	2,180	903	13,012	8,583	3,499	778	13,066	746	2,443	16,682	**68,652**
Maintenance, Preservation and Operations Total			**39,093**	**88,657**	**59,870**	**64,293**	**50,477**	**95,557**	**96,309**	**37,123**	**36,277**	**65,156**	**40,840**	**56,245**	**135,002**	**864,898**

Notes: ***Road Operations elements statewide allocations contain the following amounts for electricity ($'000): E30 - 20,313, E13 - 5,500, E34 - 4,500, E11 - 100***
Element 213 allocation includes $230K for GCLR Park 'n' Ride maintenance
Portion of E17 allocation set aside for skid resistance improvement is shown in the "Subprogram detail" tab (last page of this spreadsheet)
E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)

MPE & RO State Funding Allocations for 2020-21 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**47,825**	**88,333**	**61,155**	**65,208**	**50,063**	**63,140**	**91,268**	**31,848**	**37,887**	**61,674**	**41,748**	**57,707**	**94,899**	**792,755**
Capital			**25,930**	**61,190**	**36,417**	**40,996**	**31,428**	**45,763**	**73,146**	**23,076**	**20,436**	**43,664**	**19,850**	**38,611**	**46,343**	**506,849**
Corridor Management (Environment) [C]			**0**	**81**	**0**	**0**	**0**	**543**	**645**	**0**	**0**	**507**	**0**	**0**	**368**	**2,144**
	109	Road traffic noise management	0	81	0	0	0	543	645	0	0	507	0	0	368	**2,144**
MPO Grids, Guidance and Delineation [C]			**685**	**1,427**	**906**	**1,119**	**1,116**	**1,989**	**1,804**	**701**	**709**	**1,678**	**640**	**1,168**	**17,069**	**31,010**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,214	**1,214**
	123	Roadside signing	594	1,272	662	578	628	1,764	1,561	543	628	1,561	543	865	0	**11,197**
	124	Roadside and surface delineation	91	155	244	541	489	224	243	158	82	117	97	303	15,855	**18,600**
MPO Programmed Maintenance			**13,018**	**21,704**	**17,354**	**23,865**	**16,333**	**9,251**	**23,912**	**9,182**	**13,419**	**12,002**	**13,089**	**13,314**	**18,834**	**205,279**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	6,179	**6,179**
	117	Surfacing treatments	13,018	21,704	17,354	23,865	16,333	9,251	23,912	9,182	13,419	12,002	13,089	13,314	12,655	**199,100**
MPO Rehabilitation [C]			**12,226**	**37,977**	**18,158**	**16,012**	**13,978**	**33,979**	**46,786**	**13,193**	**6,307**	**29,477**	**6,121**	**24,129**	**10,072**	**268,415**
	127	Batter slope management	197	572	387	195	225	299	467	182	159	965	71	245	5,350	**9,314**
	118	Pavement rehabilitation	10,715	34,709	13,053	8,191	8,327	31,657	42,294	10,227	4,026	24,689	5,175	18,818	0	**211,882**
	119	Bridge and culvert rehabilitation [C]	1,314	2,696	4,718	7,626	5,426	2,023	4,025	2,784	2,123	3,823	875	5,065	4,722	**47,220**
Operating			**21,895**	**27,143**	**24,738**	**24,212**	**18,635**	**17,377**	**18,122**	**8,772**	**17,451**	**18,010**	**21,898**	**19,096**	**48,556**	**285,906**
Corridor Management (Environment) [O]			**838**	**906**	**645**	**641**	**641**	**448**	**532**	**658**	**480**	**702**	**448**	**608**	**1,104**	**8,650**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	90	111	125	63	67	127	56	33	60	123	87	64	0	**1,005**
	203	Degraded areas	247	225	168	35	156	185	119	126	116	194	82	0	138	**1,791**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	904	**904**
	205	Invasive plants and animals	436	442	287	443	298	71	272	380	207	268	213	438	24	**3,780**
	206	Fire risk management	65	127	65	100	120	65	85	120	97	117	66	105	38	**1,170**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35,662**	**35,662**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	33,501	**33,501**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	2,161	**2,161**
MPO Routine Maintenance [O]			**21,056**	**26,237**	**24,093**	**23,572**	**17,994**	**16,929**	**17,590**	**8,114**	**16,971**	**17,308**	**21,451**	**18,488**	**3,750**	**233,554**
	215	Routine maintenance	17,968	26,013	20,625	21,840	16,380	16,929	17,439	7,931	14,845	17,224	20,184	17,738	3,750	**218,868**
	216	Unsealed road re-sheeting	3,088	224	3,467	1,732	1,614	0	151	183	2,126	84	1,266	751	0	**14,686**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8,039**	**8,039**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	8,039	**8,039**
Road Operations			**875**	**3,093**	**4,159**	**2,880**	**1,600**	**28,384**	**11,820**	**5,399**	**953**	**18,883**	**779**	**2,967**	**49,676**	**131,466**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,566**	**5,566**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,566**	**5,566**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	780	**780**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	355	**355**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	4,431	**4,431**
Operating			**875**	**3,093**	**4,159**	**2,880**	**1,600**	**28,384**	**11,820**	**5,399**	**953**	**18,883**	**779**	**2,967**	**44,110**	**125,900**
MPO Traffic Operations [O]			**875**	**3,093**	**4,159**	**2,880**	**1,600**	**28,384**	**11,820**	**5,399**	**953**	**18,883**	**779**	**2,967**	**44,110**	**125,900**
	230	Route lighting [O]	0	219	789	560	656	2,640	2,072	1,772	144	3,401	0	412	20,659	**33,324**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,165	**1,165**
	213	Other transport infrastructure maintenance	0	15	43	43	0	11,559	760	0	0	1,321	0	0	6,000	**19,740**
	234	Traffic management [O]	875	2,859	3,327	2,277	944	14,185	8,988	3,627	809	14,161	779	2,555	16,286	**71,670**
Maintenance, Preservation and Operations Total			**48,700**	**91,426**	**65,314**	**68,088**	**51,663**	**91,524**	**103,088**	**37,247**	**38,840**	**80,557**	**42,527**	**60,674**	**144,575**	**924,221**

Notes: ***Road Operations elements statewide allocations contain the following amounts for electricity ($'000): E30 - 20,659, E13 - 6,000, E34 - 4,500, E11 - 100***
Element 213 allocation includes $236K for GCLR Park 'n' Ride maintenance
Portion of E17 allocation set aside for skid resistance improvement is shown in the "Subprogram detail" tab (last page of this spreadsheet)
E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)

MPE & RO State Funding Allocations for 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**50,684**	**90,343**	**62,926**	**71,275**	**52,680**	**75,842**	**97,904**	**32,714**	**39,300**	**61,487**	**44,108**	**60,690**	**96,191**	**836,144**
Capital			**27,917**	**62,031**	**37,265**	**46,122**	**33,279**	**57,359**	**78,961**	**23,556**	**21,132**	**42,608**	**21,338**	**40,737**	**47,231**	**539,537**
Corridor Management (Environment) [C]			**0**	**84**	**0**	**0**	**0**	**565**	**671**	**0**	**0**	**527**	**0**	**0**	**383**	**2,230**
	109	Road traffic noise management	0	84	0	0	0	565	671	0	0	527	0	0	383	**2,230**
MPO Grids, Guidance and Delineation [C]			**734**	**1,520**	**998**	**1,340**	**1,274**	**2,120**	**1,932**	**765**	**756**	**1,772**	**669**	**1,285**	**17,117**	**32,303**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,262	**1,262**
	123	Roadside signing	617	1,323	688	653	653	1,835	1,623	565	653	1,623	565	900	0	**11,697**
	124	Roadside and surface delineation	116	197	310	688	621	285	309	201	104	149	123	385	15,855	**19,344**
MPO Programmed Maintenance			**13,544**	**22,595**	**18,035**	**26,637**	**17,071**	**14,837**	**29,753**	**9,568**	**14,012**	**15,819**	**13,590**	**15,301**	**19,069**	**229,833**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	6,414	**6,414**
	117	Surfacing treatments	13,544	22,595	18,035	26,637	17,071	14,837	29,753	9,568	14,012	15,819	13,590	15,301	12,655	**223,419**
MPO Rehabilitation [C]			**13,639**	**37,831**	**18,231**	**18,145**	**14,934**	**39,838**	**46,606**	**13,223**	**6,363**	**24,489**	**7,060**	**24,151**	**10,661**	**275,171**
	127	Batter slope management	215	626	424	213	246	327	511	199	174	1,056	77	268	5,350	**9,686**
	118	Pavement rehabilitation	12,066	34,427	12,950	10,061	8,266	34,284	41,947	10,145	3,989	19,489	6,081	18,668	0	**212,372**
	119	Bridge and culvert rehabilitation [C]	1,358	2,778	4,858	7,871	6,422	5,227	4,147	2,879	2,200	3,945	902	5,215	5,311	**53,113**
Operating			**22,767**	**28,312**	**25,661**	**25,153**	**19,401**	**18,483**	**18,943**	**9,458**	**18,168**	**18,879**	**22,770**	**19,953**	**48,960**	**296,607**
Corridor Management (Environment) [O]			**904**	**1,019**	**673**	**684**	**693**	**875**	**603**	**688**	**506**	**733**	**514**	**758**	**1,194**	**9,846**
	201	Contaminated Areas	36	81	7	20	34	414	53	5	9	8	53	128	0	**850**
	202	Nature conservation	90	111	125	63	67	127	56	33	60	123	87	64	40	**1,046**
	203	Degraded areas	257	234	175	36	162	192	124	131	121	202	85	0	144	**1,863**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	940	**940**
	205	Invasive plants and animals	454	460	298	461	310	74	283	395	215	279	222	456	25	**3,931**
	206	Fire risk management	67	132	67	105	120	67	87	125	101	121	68	109	45	**1,216**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**36,167**	**36,167**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	34,841	**34,841**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,326	**1,326**
MPO Routine Maintenance [O]			**21,863**	**27,293**	**24,989**	**24,458**	**18,708**	**17,607**	**18,340**	**8,470**	**17,662**	**18,146**	**22,255**	**19,195**	**3,750**	**242,746**
	215	Routine maintenance	18,651	27,060	21,383	22,668	17,029	17,607	18,183	8,280	15,451	18,059	20,938	18,414	3,750	**227,473**
	216	Unsealed road re-sheeting	3,212	233	3,606	1,801	1,679	0	157	190	2,211	87	1,317	781	0	**15,273**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,848**	**7,848**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,848	**7,848**
Road Operations			**909**	**3,221**	**4,633**	**3,316**	**2,060**	**29,929**	**12,362**	**5,804**	**991**	**19,540**	**810**	**3,576**	**51,928**	**139,081**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,788**	**5,788**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5,788**	**5,788**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	811	**811**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	369	**369**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	4,608	**4,608**
Operating			**909**	**3,221**	**4,633**	**3,316**	**2,060**	**29,929**	**12,362**	**5,804**	**991**	**19,540**	**810**	**3,576**	**46,140**	**133,293**
MPO Traffic Operations [O]			**909**	**3,221**	**4,633**	**3,316**	**2,060**	**29,929**	**12,362**	**5,804**	**991**	**19,540**	**810**	**3,576**	**46,140**	**133,293**
	230	Route lighting [O]	0	228	821	583	683	2,746	2,155	1,843	149	3,537	0	429	21,092	**34,264**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,209	**1,209**
	213	Other transport infrastructure maintenance	0	20	45	45	0	12,191	780	0	0	1,342	0	0	6,500	**20,923**
	234	Traffic management [O]	909	2,973	3,768	2,689	1,377	14,992	9,428	3,962	841	14,661	810	3,147	17,339	**76,897**
Maintenance, Preservation and Operations Total			**51,593**	**93,564**	**67,559**	**74,591**	**54,740**	**105,771**	**110,266**	**38,518**	**40,291**	**81,027**	**44,918**	**64,266**	**148,119**	**975,225**

Notes: ***Road Operations elements statewide allocations contain the following amounts for electricity ($'000): E30 - 21,092, E13 - 6,500, E34 - 4,500, E11 - 100***
Element 213 allocation includes $242K for GCLR Park 'n' Ride maintenance
Portion of E17 allocation set aside for skid resistance improvement is shown in the "Subprogram detail" tab (last page of this spreadsheet)
E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)

MPE & RO Federal Funding Allocations for 2018-19 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**3,518**	**9,253**	**2,075**	**4,578**	**5,770**	**6,459**	**12,485**	**4,327**	**6,555**	**12,514**	**2,129**	**4,343**	**2,096**	**76,102**
Capital			**2,079**	**5,659**	**2,075**	**2,647**	**3,753**	**3,651**	**8,188**	**2,444**	**4,283**	**5,226**	**845**	**2,517**	**2,096**	**45,462**
Corridor Management (Environment) [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	109	Road traffic noise management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Grids, Guidance and Delineation [C]			**61**	**65**	**39**	**0**	**27**	**0**	**0**	**49**	**118**	**591**	**38**	**47**	**2,096**	**3,131**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	123	Roadside signing	61	65	39	0	27	0	0	49	118	591	38	47	0	**1,036**
	124	Roadside and surface delineation	0	0	0	0	0	0	0	0	0	0	0	0	2,096	**2,096**
MPO Programmed Maintenance			**1,321**	**1,843**	**835**	**1,146**	**2,111**	**1,510**	**3,905**	**1,147**	**2,625**	**1,872**	**196**	**907**	**0**	**19,417**
	129	Skid resistance management	18	61	20	33	30	39	54	48	18	150	6	73	0	**549**
	117	Surfacing treatments	1,303	1,782	816	1,113	2,080	1,471	3,851	1,099	2,607	1,722	190	834	0	**18,868**
MPO Rehabilitation [C]			**697**	**3,752**	**1,201**	**1,501**	**1,615**	**2,141**	**4,283**	**1,248**	**1,540**	**2,763**	**611**	**1,563**	**0**	**22,914**
	127	Batter slope management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	118	Pavement rehabilitation	474	3,320	700	709	1,025	1,795	3,637	729	933	2,178	479	1,218	0	**17,198**
	119	Bridge and culvert rehabilitation [C]	223	432	500	792	590	346	646	519	607	585	131	344	0	**5,716**
Operating			**1,439**	**3,594**	**0**	**1,931**	**2,017**	**2,808**	**4,297**	**1,883**	**2,272**	**7,288**	**1,284**	**1,826**	**0**	**30,640**
Corridor Management (Environment) [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	203	Degraded areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	205	Invasive plants and animals	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	206	Fire risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Routine Maintenance [O]			**1,439**	**3,594**	**0**	**1,931**	**2,017**	**2,808**	**4,297**	**1,883**	**2,272**	**7,288**	**1,284**	**1,826**	**0**	**30,640**
	215	Routine maintenance	1,439	3,594	0	1,931	2,017	2,808	4,297	1,883	2,272	7,288	1,284	1,826	0	**30,640**
	216	Unsealed road re-sheeting	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Road Operations			**15**	**600**	**1,000**	**600**	**1,400**	**3,500**	**1,560**	**700**	**0**	**1,905**	**160**	**400**	**1,926**	**13,766**
Capital			**15**	**200**	**500**	**0**	**700**	**0**	**0**	**0**	**0**	**405**	**160**	**100**	**1,926**	**4,006**
MPO Traffic Operations [C]			**15**	**200**	**500**	**0**	**700**	**0**	**0**	**0**	**0**	**405**	**160**	**100**	**1,926**	**4,006**
	130	Route lighting [C]	0	0	500	0	0	0	0	0	0	0	0	100	1,800	**2,400**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	160	0	0	**160**
	134	Traffic management [C]	15	200	0	0	700	0	0	0	0	405	0	0	126	**1,446**
Operating			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
MPO Traffic Operations [O]			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
	230	Route lighting [O]	0	0	240	0	0	1,238	777	0	0	0	0	0	0	**2,255**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	213	Other transport infrastructure maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	234	Traffic management [O]	0	400	260	600	700	2,262	783	700	0	1,500	0	300	0	**7,505**
Maintenance, Preservation and Operations Total			**3,533**	**9,853**	**3,075**	**5,178**	**7,170**	**9,959**	**14,045**	**5,027**	**6,555**	**14,419**	**2,289**	**4,743**	**4,022**	**89,868**

Notes: ***E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)***

MPE & RO Federal Funding Allocations for 2019-20 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**4,118**	**9,284**	**1,921**	**4,879**	**6,251**	**6,443**	**12,838**	**4,490**	**6,329**	**10,236**	**2,212**	**4,171**	**2,645**	**75,816**
Capital			**2,537**	**5,268**	**1,816**	**3,071**	**4,040**	**3,827**	**8,884**	**2,415**	**3,841**	**3,458**	**709**	**2,493**	**2,645**	**45,062**
Corridor Management (Environment) [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	109	Road traffic noise management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Grids, Guidance and Delineation [C]			**55**	**117**	**61**	**58**	**58**	**162**	**144**	**50**	**58**	**144**	**50**	**80**	**2,096**	**3,131**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	123	Roadside signing	55	117	61	58	58	162	144	50	58	144	50	80	0	**1,036**
	124	Roadside and surface delineation	0	0	0	0	0	0	0	0	0	0	0	0	2,096	**2,096**
MPO Programmed Maintenance			**1,155**	**1,931**	**723**	**1,172**	**2,254**	**1,272**	**4,394**	**1,056**	**2,311**	**753**	**206**	**859**	**549**	**18,634**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	549	**549**
	117	Surfacing treatments	1,155	1,931	723	1,172	2,254	1,272	4,394	1,056	2,311	753	206	859	0	**18,085**
MPO Rehabilitation [C]			**1,328**	**3,220**	**1,033**	**1,841**	**1,728**	**2,392**	**4,346**	**1,309**	**1,472**	**2,561**	**513**	**1,554**	**0**	**23,297**
	127	Batter slope management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	118	Pavement rehabilitation	1,067	2,976	731	685	919	1,959	3,984	700	837	2,021	441	1,261	0	**17,581**
	119	Bridge and culvert rehabilitation [C]	260	244	302	1,157	809	433	362	609	635	540	72	293	0	**5,716**
Operating			**1,581**	**4,016**	**105**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**30,754**
Corridor Management (Environment) [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	203	Degraded areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	205	Invasive plants and animals	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	206	Fire risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Routine Maintenance [O]			**1,581**	**4,016**	**105**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**30,754**
	215	Routine maintenance	1,581	4,016	105	1,808	2,211	2,616	3,954	2,075	2,488	6,778	1,443	1,678	0	**30,754**
	216	Unsealed road re-sheeting	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Road Operations			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**4,006**	**13,766**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,200	**1,200**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	2,806	**2,806**
Operating			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
MPO Traffic Operations [O]			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
	230	Route lighting [O]	0	0	240	0	0	1,238	777	0	0	0	0	0	0	**2,255**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	213	Other transport infrastructure maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	234	Traffic management [O]	0	400	260	600	700	2,262	783	700	0	1,500	0	300	0	**7,505**
Maintenance, Preservation and Operations Total			**4,118**	**9,684**	**2,421**	**5,479**	**6,951**	**9,943**	**14,398**	**5,190**	**6,329**	**11,736**	**2,212**	**4,471**	**6,651**	**89,582**

Notes: ***E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)***

MPE & RO Federal Funding Allocations for 2020-21 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**4,118**	**9,284**	**2,895**	**4,879**	**6,251**	**6,443**	**12,838**	**4,490**	**6,329**	**10,236**	**2,212**	**4,171**	**2,645**	**76,790**
Capital			**2,537**	**5,268**	**1,816**	**3,071**	**4,040**	**3,827**	**8,884**	**2,415**	**3,841**	**3,458**	**709**	**2,493**	**2,645**	**45,062**
Corridor Management (Environment) [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	109	Road traffic noise management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Grids, Guidance and Delineation [C]			**55**	**117**	**61**	**58**	**58**	**162**	**144**	**50**	**58**	**144**	**50**	**80**	**2,096**	**3,131**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	123	Roadside signing	55	117	61	58	58	162	144	50	58	144	50	80	0	**1,036**
	124	Roadside and surface delineation	0	0	0	0	0	0	0	0	0	0	0	0	2,096	**2,096**
MPO Programmed Maintenance			**1,155**	**1,931**	**723**	**1,172**	**2,254**	**1,272**	**4,394**	**1,056**	**2,311**	**753**	**206**	**859**	**549**	**18,634**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	549	**549**
	117	Surfacing treatments	1,155	1,931	723	1,172	2,254	1,272	4,394	1,056	2,311	753	206	859	0	**18,085**
MPO Rehabilitation [C]			**1,328**	**3,220**	**1,033**	**1,841**	**1,728**	**2,392**	**4,346**	**1,309**	**1,472**	**2,561**	**513**	**1,554**	**0**	**23,297**
	127	Batter slope management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	118	Pavement rehabilitation	1,067	2,976	731	685	919	1,959	3,984	700	837	2,021	441	1,261	0	**17,581**
	119	Bridge and culvert rehabilitation [C]	260	244	302	1,157	809	433	362	609	635	540	72	293	0	**5,716**
Operating			**1,581**	**4,016**	**1,079**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,728**
Corridor Management (Environment) [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	203	Degraded areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	205	Invasive plants and animals	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	206	Fire risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Routine Maintenance [O]			**1,581**	**4,016**	**1,079**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,728**
	215	Routine maintenance	1,581	4,016	1,079	1,808	2,211	2,616	3,954	2,075	2,488	6,778	1,443	1,678	0	**31,728**
	216	Unsealed road re-sheeting	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Road Operations			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**4,006**	**13,766**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,200	**1,200**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	2,806	**2,806**
Operating			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
MPO Traffic Operations [O]			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
	230	Route lighting [O]	0	0	240	0	0	1,238	777	0	0	0	0	0	0	**2,255**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	213	Other transport infrastructure maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	234	Traffic management [O]	0	400	260	600	700	2,262	783	700	0	1,500	0	300	0	**7,505**
Maintenance, Preservation and Operations Total			**4,118**	**9,684**	**3,395**	**5,479**	**6,951**	**9,943**	**14,398**	**5,190**	**6,329**	**11,736**	**2,212**	**4,471**	**6,651**	**90,556**

Notes: ***E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)***

MPE & RO Federal Funding Allocations for 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**4,118**	**9,284**	**2,903**	**4,879**	**6,251**	**6,443**	**12,838**	**4,490**	**6,329**	**10,236**	**2,212**	**4,171**	**2,645**	**76,798**
Capital			**2,537**	**5,268**	**1,816**	**3,071**	**4,040**	**3,827**	**8,884**	**2,415**	**3,841**	**3,458**	**709**	**2,493**	**2,645**	**45,062**
Corridor Management (Environment) [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	109	Road traffic noise management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Grids, Guidance and Delineation [C]			**55**	**117**	**61**	**58**	**58**	**162**	**144**	**50**	**58**	**144**	**50**	**80**	**2,096**	**3,131**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	123	Roadside signing	55	117	61	58	58	162	144	50	58	144	50	80	0	**1,036**
	124	Roadside and surface delineation	0	0	0	0	0	0	0	0	0	0	0	0	2,096	**2,096**
MPO Programmed Maintenance			**1,155**	**1,931**	**723**	**1,172**	**2,254**	**1,272**	**4,394**	**1,056**	**2,311**	**753**	**206**	**859**	**549**	**18,634**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	549	**549**
	117	Surfacing treatments	1,155	1,931	723	1,172	2,254	1,272	4,394	1,056	2,311	753	206	859	0	**18,085**
MPO Rehabilitation [C]			**1,328**	**3,220**	**1,033**	**1,841**	**1,728**	**2,392**	**4,346**	**1,309**	**1,472**	**2,561**	**513**	**1,554**	**0**	**23,297**
	127	Batter slope management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	118	Pavement rehabilitation	1,067	2,976	731	685	919	1,959	3,984	700	837	2,021	441	1,261	0	**17,581**
	119	Bridge and culvert rehabilitation [C]	260	244	302	1,157	809	433	362	609	635	540	72	293	0	**5,716**
Operating			**1,581**	**4,016**	**1,087**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,736**
Corridor Management (Environment) [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	203	Degraded areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	205	Invasive plants and animals	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	206	Fire risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Routine Maintenance [O]			**1,581**	**4,016**	**1,087**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,736**
	215	Routine maintenance	1,581	4,016	1,087	1,808	2,211	2,616	3,954	2,075	2,488	6,778	1,443	1,678	0	**31,736**
	216	Unsealed road re-sheeting	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Road Operations			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**4,006**	**13,766**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,006**	**4,006**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,000	**1,000**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	3,006	**3,006**
Operating			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
MPO Traffic Operations [O]			**0**	**400**	**500**	**600**	**700**	**3,500**	**1,560**	**700**	**0**	**1,500**	**0**	**300**	**0**	**9,760**
	230	Route lighting [O]	0	0	240	0	0	1,238	777	0	0	0	0	0	0	**2,255**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	213	Other transport infrastructure maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	234	Traffic management [O]	0	400	260	600	700	2,262	783	700	0	1,500	0	300	0	**7,505**
Maintenance, Preservation and Operations Total			**4,118**	**9,684**	**3,403**	**5,479**	**6,951**	**9,943**	**14,398**	**5,190**	**6,329**	**11,736**	**2,212**	**4,471**	**6,651**	**90,564**

Notes: ***E15 allocation includes 10% of the resealing component of E17 allocation for reseal preparatory work. This is shown in the "Subprogram detail" tab (last page of this spreadsheet)***

MPE & RO State and Federal Funding Allocations for 2018-19 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**48,140**	**82,180**	**57,762**	**66,609**	**51,197**	**80,733**	**94,424**	**33,686**	**40,241**	**66,292**	**39,993**	**58,480**	**66,755**	**786,492**
Capital			**27,573**	**54,053**	**35,416**	**43,694**	**32,881**	**57,913**	**72,593**	**22,695**	**21,967**	**41,691**	**19,397**	**37,145**	**24,607**	**491,626**
Corridor Management (Environment) [C]			**0**	**84**	**23**	**0**	**0**	**498**	**613**	**38**	**0**	**422**	**0**	**0**	**383**	**2,062**
	109	Road traffic noise management	0	84	23	0	0	498	613	38	0	422	0	0	383	**2,062**
MPO Grids, Guidance and Delineation [C]			**1,092**	**896**	**718**	**1,224**	**918**	**2,271**	**2,042**	**405**	**436**	**2,300**	**879**	**994**	**18,774**	**32,950**
	107	Management of grids	378	14	24	69	83	0	0	33	118	48	384	17	0	**1,167**
	123	Roadside signing	651	777	508	749	487	2,098	1,862	256	257	2,164	423	747	870	**11,850**
	124	Roadside and surface delineation	63	105	185	406	348	173	180	117	61	89	72	230	17,904	**19,933**
MPO Programmed Maintenance			**13,932**	**20,357**	**18,907**	**25,309**	**16,433**	**17,022**	**29,064**	**11,178**	**16,234**	**8,545**	**13,787**	**16,047**	**0**	**206,813**
	129	Skid resistance management	148	477	347	445	269	975	1,075	476	142	1,482	162	502	0	**6,501**
	117	Surfacing treatments	13,784	19,880	18,559	24,863	16,164	16,047	27,989	10,702	16,089	7,063	13,626	15,544	0	**200,312**
MPO Rehabilitation [C]			**12,549**	**32,716**	**15,768**	**17,161**	**15,530**	**38,122**	**40,873**	**11,073**	**5,301**	**30,424**	**4,730**	**20,105**	**5,450**	**249,801**
	127	Batter slope management	154	247	256	310	280	321	870	257	215	322	271	102	5,350	**8,955**
	118	Pavement rehabilitation	10,941	28,925	11,118	8,756	8,123	31,815	34,771	7,722	2,363	25,192	3,406	14,190	100	**187,424**
	119	Bridge and culvert rehabilitation [C]	1,454	3,543	4,394	8,095	7,127	5,986	5,232	3,094	2,722	4,910	1,052	5,813	0	**53,422**
Operating			**20,567**	**28,127**	**22,346**	**22,915**	**18,316**	**22,820**	**21,831**	**10,691**	**18,274**	**24,601**	**20,596**	**21,335**	**42,148**	**294,866**
Corridor Management (Environment) [O]			**729**	**1,070**	**672**	**460**	**570**	**471**	**518**	**526**	**499**	**774**	**394**	**517**	**754**	**7,954**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	87	107	121	60	64	122	54	31	58	118	83	62	0	**967**
	203	Degraded areas	138	216	162	0	150	178	114	121	0	186	0	0	132	**1,398**
	204	Heritage preservation	0	60	0	26	0	0	0	60	70	60	0	0	622	**898**
	205	Invasive plants and animals	377	510	314	300	255	111	300	205	242	324	230	374	0	**3,542**
	206	Fire risk management	127	177	76	74	101	60	50	109	129	86	81	81	0	**1,150**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34,138**	**34,138**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	32,213	**32,213**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,925	**1,925**
MPO Routine Maintenance [O]			**19,839**	**27,057**	**21,673**	**22,456**	**17,776**	**22,349**	**21,312**	**10,465**	**17,775**	**23,827**	**20,201**	**20,819**	**0**	**245,518**
	215	Routine maintenance	16,977	26,839	18,139	20,770	16,204	22,349	21,172	10,316	15,756	23,749	19,004	20,121	0	**231,398**
	216	Unsealed road re-sheeting	2,862	218	3,534	1,685	1,542	0	140	148	2,018	78	1,197	698	0	**14,121**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,256**	**7,256**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,256	**7,256**
Road Operations			**834**	**3,497**	**5,771**	**3,997**	**3,748**	**41,039**	**12,607**	**6,445**	**899**	**18,898**	**889**	**3,182**	**46,139**	**147,945**
Capital			**15**	**200**	**1,375**	**700**	**1,550**	**1,400**	**0**	**650**	**0**	**405**	**160**	**100**	**2,803**	**9,358**
MPO Traffic Operations [C]			**15**	**200**	**1,375**	**700**	**1,550**	**1,400**	**0**	**650**	**0**	**405**	**160**	**100**	**2,803**	**9,358**
	130	Route lighting [C]	0	0	500	0	0	700	0	0	0	0	0	100	1,800	**3,100**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	160	0	342	**502**
	134	Traffic management [C]	15	200	875	700	1,550	700	0	650	0	405	0	0	661	**5,756**
Operating			**819**	**3,297**	**4,396**	**3,297**	**2,198**	**39,639**	**12,607**	**5,795**	**899**	**18,493**	**729**	**3,082**	**43,336**	**138,587**
MPO Traffic Operations [O]			**819**	**3,297**	**4,396**	**3,297**	**2,198**	**39,639**	**12,607**	**5,795**	**899**	**18,493**	**729**	**3,082**	**43,336**	**138,587**
	230	Route lighting [O]	0	206	979	525	615	3,712	2,717	1,659	135	3,186	0	386	21,197	**35,317**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,123	**1,123**
	213	Other transport infrastructure maintenance	0	14	40	40	0	18,788	750	0	0	1,300	0	10	5,000	**25,942**
	234	Traffic management [O]	819	3,077	3,377	2,733	1,583	17,139	9,139	4,136	764	14,007	729	2,686	16,016	**76,205**
Maintenance, Preservation and Operations Total			**48,974**	**85,677**	**63,533**	**70,606**	**54,945**	**121,772**	**107,031**	**40,131**	**41,140**	**85,190**	**40,882**	**61,662**	**112,894**	**934,437**

MPE & RO State and Federal Funding Allocations for 2019-20 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**42,374**	**94,980**	**57,810**	**66,415**	**55,195**	**75,447**	**97,830**	**36,416**	**41,688**	**57,763**	**42,306**	**57,578**	**88,677**	**814,482**
Capital			**19,961**	**64,890**	**33,861**	**41,301**	**35,066**	**53,535**	**77,423**	**25,951**	**22,439**	**34,922**	**19,699**	**37,365**	**42,260**	**508,675**
Corridor Management (Environment) [C]			**0**	**78**	**0**	**0**	**0**	**522**	**620**	**0**	**0**	**487**	**0**	**0**	**354**	**2,062**
	109	Road traffic noise management	0	78	0	0	0	522	620	0	0	487	0	0	354	**2,062**
MPO Grids, Guidance and Delineation [C]			**647**	**1,357**	**826**	**1,013**	**974**	**1,888**	**1,703**	**647**	**673**	**1,610**	**602**	**1,069**	**14,988**	**27,997**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,167	**1,167**
	123	Roadside signing	580	1,242	646	613	613	1,722	1,524	530	613	1,524	530	845	870	**11,850**
	124	Roadside and surface delineation	68	115	181	400	361	166	180	117	60	87	72	224	12,951	**14,980**
MPO Programmed Maintenance			**9,687**	**23,567**	**18,025**	**26,721**	**18,530**	**10,323**	**32,812**	**10,208**	**15,685**	**8,742**	**13,257**	**15,529**	**11,657**	**214,741**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	6,502	**6,502**
	117	Surfacing treatments	9,687	23,567	18,025	26,721	18,530	10,323	32,812	10,208	15,685	8,742	13,257	15,529	5,155	**208,240**
MPO Rehabilitation [C]			**9,627**	**39,889**	**15,010**	**13,567**	**15,561**	**40,802**	**42,288**	**15,096**	**6,081**	**24,083**	**5,841**	**20,768**	**15,261**	**263,874**
	127	Batter slope management	179	521	352	177	205	272	425	165	145	878	64	223	5,350	**8,955**
	118	Pavement rehabilitation	7,939	36,550	14,281	9,020	9,813	35,751	38,658	11,678	3,293	21,061	4,869	19,108	0	**212,020**
	119	Bridge and culvert rehabilitation [C]	1,510	2,819	377	4,369	5,544	4,779	3,205	3,253	2,644	2,144	908	1,437	9,911	**42,899**
Operating			**22,413**	**30,090**	**23,949**	**25,114**	**20,129**	**21,912**	**20,407**	**10,465**	**19,249**	**22,841**	**22,607**	**20,213**	**46,417**	**305,807**
Corridor Management (Environment) [O]			**550**	**850**	**611**	**596**	**608**	**941**	**537**	**618**	**454**	**666**	**485**	**725**	**1,093**	**8,764**
	201	Contaminated Areas	0	0	0	0	0	502	64	0	0	0	64	156	0	**786**
	202	Nature conservation	87	107	121	60	64	122	54	31	58	118	83	62	0	**967**
	203	Degraded areas	0	216	162	33	150	178	114	121	112	186	79	0	133	**1,484**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	898	**898**
	205	Invasive plants and animals	402	407	264	408	274	86	251	350	190	247	196	404	22	**3,480**
	206	Fire risk management	62	120	64	95	120	74	84	116	94	115	63	103	40	**1,149**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**34,174**	**34,174**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	32,213	**32,213**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,961	**1,961**
MPO Routine Maintenance [O]			**21,863**	**29,240**	**23,338**	**24,518**	**19,521**	**20,971**	**19,840**	**9,847**	**18,796**	**22,176**	**22,121**	**19,488**	**3,750**	**255,469**
	215	Routine maintenance	18,893	29,024	20,004	22,853	17,968	20,971	19,695	9,672	16,751	22,095	20,904	18,766	3,750	**241,348**
	216	Unsealed road re-sheeting	2,969	215	3,334	1,665	1,552	0	145	176	2,045	81	1,218	722	0	**14,121**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,400**	**7,400**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,400	**7,400**
Road Operations			**837**	**3,362**	**4,482**	**3,356**	**2,232**	**30,052**	**12,877**	**5,896**	**917**	**19,128**	**746**	**3,138**	**52,976**	**139,999**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,358**	**9,358**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,358**	**9,358**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,950	**1,950**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	342	**342**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	7,066	**7,066**
Operating			**837**	**3,362**	**4,482**	**3,356**	**2,232**	**30,052**	**12,877**	**5,896**	**917**	**19,128**	**746**	**3,138**	**43,618**	**130,641**
MPO Traffic Operations [O]			**837**	**3,362**	**4,482**	**3,356**	**2,232**	**30,052**	**12,877**	**5,896**	**917**	**19,128**	**746**	**3,138**	**43,618**	**130,641**
	230	Route lighting [O]	0	211	996	535	630	3,766	2,761	1,697	139	3,257	0	395	20,313	**34,699**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,123	**1,123**
	213	Other transport infrastructure maintenance	0	14	40	40	0	11,012	750	0	0	1,305	0	0	5,500	**18,661**
	234	Traffic management [O]	837	3,137	3,446	2,780	1,603	15,274	9,366	4,199	778	14,566	746	2,743	16,682	**76,157**
Maintenance, Preservation and Operations Total			**43,211**	**98,342**	**62,292**	**69,771**	**57,427**	**105,499**	**110,707**	**42,312**	**42,605**	**76,891**	**43,052**	**60,716**	**141,653**	**954,481**

MPE & RO State and Federal Funding Allocations for 2020-21 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**51,942**	**97,617**	**64,051**	**70,087**	**56,313**	**69,583**	**104,106**	**36,338**	**44,216**	**71,909**	**43,960**	**61,878**	**97,544**	**869,544**
Capital			**28,467**	**66,458**	**38,234**	**44,067**	**35,467**	**49,589**	**82,030**	**25,491**	**24,277**	**47,121**	**20,619**	**41,104**	**48,988**	**551,911**
Corridor Management (Environment) [C]			**0**	**81**	**0**	**0**	**0**	**543**	**645**	**0**	**0**	**507**	**0**	**0**	**368**	**2,144**
	109	Road traffic noise management	0	81	0	0	0	543	645	0	0	507	0	0	368	**2,144**
MPO Grids, Guidance and Delineation [C]			**740**	**1,545**	**967**	**1,176**	**1,174**	**2,151**	**1,947**	**751**	**767**	**1,822**	**650**	**1,248**	**19,164**	**34,142**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,214	**1,214**
	123	Roadside signing	648	1,389	723	635	685	1,927	1,704	593	685	1,704	593	945	0	**12,233**
	124	Roadside and surface delineation	91	155	244	541	489	224	243	158	82	117	97	303	17,951	**20,696**
MPO Programmed Maintenance			**14,173**	**23,635**	**18,077**	**25,037**	**18,587**	**10,523**	**28,307**	**10,238**	**15,730**	**12,755**	**13,295**	**14,173**	**19,383**	**223,913**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	6,728	**6,728**
	117	Surfacing treatments	14,173	23,635	18,077	25,037	18,587	10,523	28,307	10,238	15,730	12,755	13,295	14,173	12,655	**217,185**
MPO Rehabilitation [C]			**13,554**	**41,197**	**19,190**	**17,854**	**15,706**	**36,371**	**51,132**	**14,502**	**7,781**	**32,038**	**6,634**	**25,683**	**10,072**	**291,712**
	127	Batter slope management	197	572	387	195	225	299	467	182	159	965	71	245	5,350	**9,314**
	118	Pavement rehabilitation	11,783	37,685	13,784	8,876	9,246	33,616	46,278	10,927	4,863	26,710	5,616	20,079	0	**229,462**
	119	Bridge and culvert rehabilitation [C]	1,575	2,940	5,020	8,782	6,235	2,456	4,386	3,393	2,758	4,363	947	5,359	4,722	**52,936**
Operating			**23,475**	**31,159**	**25,817**	**26,020**	**20,846**	**19,994**	**22,076**	**10,847**	**19,939**	**24,788**	**23,341**	**20,774**	**48,556**	**317,633**
Corridor Management (Environment) [O]			**838**	**906**	**645**	**641**	**641**	**448**	**532**	**658**	**480**	**702**	**448**	**608**	**1,104**	**8,650**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	90	111	125	63	67	127	56	33	60	123	87	64	0	**1,005**
	203	Degraded areas	247	225	168	35	156	185	119	126	116	194	82	0	138	**1,791**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	904	**904**
	205	Invasive plants and animals	436	442	287	443	298	71	272	380	207	268	213	438	24	**3,780**
	206	Fire risk management	65	127	65	100	120	65	85	120	97	117	66	105	38	**1,170**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**35,662**	**35,662**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	33,501	**33,501**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	2,161	**2,161**
MPO Routine Maintenance [O]			**22,637**	**30,253**	**25,172**	**25,379**	**20,205**	**19,546**	**21,544**	**10,189**	**19,459**	**24,086**	**22,894**	**20,166**	**3,750**	**265,281**
	215	Routine maintenance	19,549	30,029	21,705	23,648	18,591	19,546	21,393	10,006	17,333	24,002	21,628	19,416	3,750	**250,596**
	216	Unsealed road re-sheeting	3,088	224	3,467	1,732	1,614	0	151	183	2,126	84	1,266	751	0	**14,686**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8,039**	**8,039**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	8,039	**8,039**
Road Operations			**875**	**3,493**	**4,659**	**3,480**	**2,300**	**31,884**	**13,380**	**6,099**	**953**	**20,383**	**779**	**3,267**	**53,682**	**145,232**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,572**	**9,572**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,572**	**9,572**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,980	**1,980**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	355	**355**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	7,237	**7,237**
Operating			**875**	**3,493**	**4,659**	**3,480**	**2,300**	**31,884**	**13,380**	**6,099**	**953**	**20,383**	**779**	**3,267**	**44,110**	**135,660**
MPO Traffic Operations [O]			**875**	**3,493**	**4,659**	**3,480**	**2,300**	**31,884**	**13,380**	**6,099**	**953**	**20,383**	**779**	**3,267**	**44,110**	**135,660**
	230	Route lighting [O]	0	219	1,029	560	656	3,878	2,849	1,772	144	3,401	0	412	20,659	**35,579**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,165	**1,165**
	213	Other transport infrastructure maintenance	0	15	43	43	0	11,559	760	0	0	1,321	0	0	6,000	**19,740**
	234	Traffic management [O]	875	3,259	3,587	2,877	1,644	16,447	9,771	4,327	809	15,661	779	2,855	16,286	**79,175**
Maintenance, Preservation and Operations Total			**52,817**	**101,110**	**68,710**	**73,567**	**58,613**	**101,467**	**117,486**	**42,437**	**45,169**	**92,292**	**44,739**	**65,145**	**151,226**	**1,014,776**

MPE & RO State and Federal Funding Allocations for 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**54,802**	**99,627**	**65,830**	**76,153**	**58,931**	**82,285**	**110,742**	**37,204**	**45,629**	**71,722**	**46,320**	**64,861**	**98,836**	**912,942**
Capital			**30,454**	**67,299**	**39,081**	**49,193**	**37,319**	**61,186**	**87,845**	**25,971**	**24,973**	**46,065**	**22,107**	**43,230**	**49,876**	**584,599**
Corridor Management (Environment) [C]			**0**	**84**	**0**	**0**	**0**	**565**	**671**	**0**	**0**	**527**	**0**	**0**	**383**	**2,230**
	109	Road traffic noise management	0	84	0	0	0	565	671	0	0	527	0	0	383	**2,230**
MPO Grids, Guidance and Delineation [C]			**788**	**1,638**	**1,059**	**1,398**	**1,332**	**2,283**	**2,075**	**815**	**814**	**1,916**	**738**	**1,365**	**19,213**	**35,434**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	1,262	**1,262**
	123	Roadside signing	672	1,440	749	711	711	1,997	1,767	615	711	1,767	615	979	0	**12,732**
	124	Roadside and surface delineation	116	197	310	688	621	285	309	201	104	149	123	385	17,951	**21,440**
MPO Programmed Maintenance			**14,699**	**24,526**	**18,758**	**27,809**	**19,325**	**16,108**	**34,147**	**10,624**	**16,323**	**16,572**	**13,796**	**16,160**	**19,619**	**248,467**
	129	Skid resistance management	0	0	0	0	0	0	0	0	0	0	0	0	6,964	**6,964**
	117	Surfacing treatments	14,699	24,526	18,758	27,809	19,325	16,108	34,147	10,624	16,323	16,572	13,796	16,160	12,655	**241,503**
MPO Rehabilitation [C]			**14,967**	**41,051**	**19,264**	**19,986**	**16,662**	**42,230**	**50,952**	**14,532**	**7,835**	**27,051**	**7,572**	**25,705**	**10,661**	**298,468**
	127	Batter slope management	215	626	424	213	246	327	511	199	174	1,056	77	268	5,350	**9,686**
	118	Pavement rehabilitation	13,133	37,403	13,680	10,745	9,185	36,243	45,932	10,845	4,826	21,510	6,522	19,929	0	**229,952**
	119	Bridge and culvert rehabilitation [C]	1,619	3,022	5,160	9,028	7,231	5,660	4,509	3,488	2,835	4,485	973	5,508	5,311	**58,829**
Operating			**24,348**	**32,328**	**26,749**	**26,960**	**21,612**	**21,099**	**22,897**	**11,233**	**20,656**	**25,657**	**24,213**	**21,631**	**48,960**	**328,343**
Corridor Management (Environment) [O]			**904**	**1,019**	**673**	**684**	**693**	**875**	**603**	**688**	**506**	**733**	**514**	**758**	**1,194**	**9,846**
	201	Contaminated Areas	36	81	7	20	34	414	53	5	9	8	53	128	0	**850**
	202	Nature conservation	90	111	125	63	67	127	56	33	60	123	87	64	40	**1,046**
	203	Degraded areas	257	234	175	36	162	192	124	131	121	202	85	0	144	**1,863**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	940	**940**
	205	Invasive plants and animals	454	460	298	461	310	74	283	395	215	279	222	456	25	**3,931**
	206	Fire risk management	67	132	67	105	120	67	87	125	101	121	68	109	45	**1,216**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**36,167**	**36,167**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	34,841	**34,841**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	1,326	**1,326**
MPO Routine Maintenance [O]			**23,444**	**31,309**	**26,076**	**26,276**	**20,919**	**20,224**	**22,294**	**10,545**	**20,150**	**24,924**	**23,699**	**20,873**	**3,750**	**274,482**
	215	Routine maintenance	20,232	31,076	22,470	24,475	19,240	20,224	22,137	10,355	17,938	24,837	22,382	20,092	3,750	**259,209**
	216	Unsealed road re-sheeting	3,212	233	3,606	1,801	1,679	0	157	190	2,211	87	1,317	781	0	**15,273**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7,848**	**7,848**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	7,848	**7,848**
Road Operations			**909**	**3,621**	**5,133**	**3,916**	**2,760**	**33,428**	**13,922**	**6,504**	**991**	**21,040**	**810**	**3,876**	**55,934**	**152,846**
Capital			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,794**	**9,794**
MPO Traffic Operations [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9,794**	**9,794**
	130	Route lighting [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,811	**1,811**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	369	**369**
	134	Traffic management [C]	0	0	0	0	0	0	0	0	0	0	0	0	7,614	**7,614**
Operating			**909**	**3,621**	**5,133**	**3,916**	**2,760**	**33,428**	**13,922**	**6,504**	**991**	**21,040**	**810**	**3,876**	**46,140**	**143,052**
MPO Traffic Operations [O]			**909**	**3,621**	**5,133**	**3,916**	**2,760**	**33,428**	**13,922**	**6,504**	**991**	**21,040**	**810**	**3,876**	**46,140**	**143,052**
	230	Route lighting [O]	0	228	1,061	583	683	3,983	2,932	1,843	149	3,537	0	429	21,092	**36,519**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	1,209	**1,209**
	213	Other transport infrastructure maintenance	0	20	45	45	0	12,191	780	0	0	1,342	0	0	6,500	**20,923**
	234	Traffic management [O]	909	3,373	4,028	3,289	2,077	17,254	10,211	4,662	841	16,161	810	3,447	17,339	**84,402**
Maintenance, Preservation and Operations Total			**55,711**	**103,248**	**70,963**	**80,069**	**61,691**	**115,713**	**124,664**	**43,708**	**46,620**	**92,762**	**47,130**	**68,737**	**154,770**	**1,065,788**

MPE & RO State Funding Allocations for 2018-19 to 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**181,387**	**337,298**	**235,656**	**260,052**	**197,115**	**282,261**	**356,102**	**125,849**	**146,233**	**224,467**	**163,814**	**225,942**	**341,781**	**3,077,955**
Capital			**96,764**	**231,237**	**139,068**	**166,395**	**124,862**	**207,093**	**285,051**	**90,420**	**77,850**	**154,202**	**78,671**	**148,849**	**155,700**	**1,956,162**
Corridor Management (Environment) [C]			**0**	**328**	**23**	**0**	**0**	**2,129**	**2,549**	**38**	**0**	**1,943**	**0**	**0**	**1,489**	**8,499**
	109	Road traffic noise management	0	328	23	0	0	2,129	2,549	38	0	1,943	0	0	1,489	**8,499**
MPO Grids, Guidance and Delineation [C]			**3,042**	**5,019**	**3,349**	**4,638**	**4,198**	**8,105**	**7,337**	**2,419**	**2,399**	**6,626**	**2,721**	**4,389**	**63,756**	**117,997**
	107	Management of grids	378	14	24	69	83	0	0	32	117	48	334	17	3,643	**4,809**
	123	Roadside signing	2,326	4,433	2,404	2,535	2,295	7,257	6,426	1,794	1,974	6,137	1,972	3,229	1,740	**44,523**
	124	Roadside and surface delineation	338	572	921	2,035	1,819	849	911	592	307	442	365	1,142	58,373	**68,665**
MPO Programmed Maintenance			**47,705**	**84,450**	**70,763**	**100,214**	**64,003**	**48,651**	**107,242**	**37,935**	**54,412**	**42,484**	**53,322**	**58,425**	**49,011**	**818,616**
	129	Skid resistance management	130	416	328	412	238	936	1,021	428	124	1,332	156	430	18,546	**24,498**
	117	Surfacing treatments	47,575	84,033	70,435	99,801	63,764	47,715	106,221	37,507	54,288	41,152	53,167	57,995	30,465	**794,118**
MPO Rehabilitation [C]			**46,017**	**141,440**	**64,934**	**61,543**	**56,662**	**148,207**	**167,924**	**50,028**	**21,041**	**103,149**	**22,628**	**86,035**	**41,444**	**1,011,050**
	127	Batter slope management	744	1,966	1,419	896	956	1,219	2,273	804	692	3,220	483	838	21,400	**36,910**
	118	Pavement rehabilitation	40,120	128,314	49,970	34,635	32,585	129,753	150,051	38,344	11,901	86,231	18,610	68,305	100	**788,918**
	119	Bridge and culvert rehabilitation [C]	5,152	11,160	13,545	26,013	23,121	17,235	15,600	10,881	8,446	13,698	3,534	16,892	19,944	**185,222**
Operating			**84,623**	**106,061**	**96,588**	**93,657**	**72,253**	**75,168**	**77,051**	**35,429**	**68,383**	**70,265**	**85,143**	**77,093**	**186,081**	**1,121,793**
Corridor Management (Environment) [O]			**3,022**	**3,844**	**2,601**	**2,381**	**2,512**	**2,736**	**2,220**	**2,491**	**1,939**	**2,874**	**1,841**	**2,608**	**4,146**	**35,214**
	201	Contaminated Areas	36	81	7	20	34	916	117	5	9	8	117	284	0	**1,636**
	202	Nature conservation	355	437	492	245	262	497	220	128	235	482	339	252	40	**3,985**
	203	Degraded areas	642	891	667	105	618	733	471	499	349	768	247	0	547	**6,535**
	204	Heritage preservation	0	60	0	26	0	0	0	60	70	60	0	0	3,364	**3,640**
	205	Invasive plants and animals	1,669	1,819	1,163	1,612	1,136	322	1,106	1,329	854	1,118	861	1,672	72	**14,733**
	206	Fire risk management	321	556	272	374	461	266	306	470	421	438	278	399	123	**4,685**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**140,141**	**140,141**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	132,769	**132,769**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	7,372	**7,372**
MPO Routine Maintenance [O]			**81,601**	**102,216**	**93,988**	**91,276**	**69,741**	**72,432**	**68,831**	**32,938**	**66,444**	**67,391**	**83,301**	**74,486**	**11,250**	**915,894**
	215	Routine maintenance	69,471	101,326	80,046	84,393	63,353	72,432	68,239	32,241	58,044	67,061	78,303	71,535	11,250	**857,694**
	216	Unsealed road re-sheeting	12,130	890	13,942	6,883	6,388	0	592	697	8,401	330	4,998	2,951	0	**58,200**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30,544**	**30,544**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	30,544	**30,544**
Road Operations			**3,441**	**12,173**	**17,545**	**12,350**	**7,541**	**122,404**	**46,545**	**22,145**	**3,758**	**73,043**	**3,063**	**12,164**	**194,787**	**530,959**
Capital			**0**	**0**	**875**	**700**	**850**	**1,400**	**0**	**650**	**0**	**0**	**0**	**0**	**17,583**	**22,058**
MPO Traffic Operations [C]			**0**	**0**	**875**	**700**	**850**	**1,400**	**0**	**650**	**0**	**0**	**0**	**0**	**17,583**	**22,058**
	130	Route lighting [C]	0	0	0	0	0	700	0	0	0	0	0	0	2,341	**3,041**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	0	0	1,408	**1,408**
	134	Traffic management [C]	0	0	875	700	850	700	0	650	0	0	0	0	13,834	**17,609**
Operating			**3,441**	**12,173**	**16,670**	**11,650**	**6,691**	**121,004**	**46,545**	**21,495**	**3,758**	**73,043**	**3,063**	**12,164**	**177,204**	**508,901**
MPO Traffic Operations [O]			**3,441**	**12,173**	**16,670**	**11,650**	**6,691**	**121,004**	**46,545**	**21,495**	**3,758**	**73,043**	**3,063**	**12,164**	**177,204**	**508,901**
	230	Route lighting [O]	0	864	3,104	2,203	2,584	10,388	8,150	6,971	566	13,380	0	1,623	83,261	**133,095**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	4,620	**4,620**
	213	Other transport infrastructure maintenance	0	64	168	168	0	53,550	3,040	0	0	5,268	0	10	23,000	**85,267**
	234	Traffic management [O]	3,441	11,245	13,398	9,279	4,107	57,066	35,354	14,524	3,192	54,395	3,063	10,531	66,323	**285,919**
Maintenance, Preservation and Operations Total			**184,828**	**349,471**	**253,201**	**272,402**	**204,656**	**404,665**	**402,647**	**147,994**	**149,991**	**297,510**	**166,877**	**238,106**	**536,568**	**3,608,914**

MPE & RO Federal Funding Allocations for 2018-19 to 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**15,872**	**37,106**	**9,796**	**19,212**	**24,521**	**25,788**	**50,999**	**17,797**	**25,541**	**43,220**	**8,765**	**16,856**	**10,031**	**305,506**
Capital			**9,691**	**21,463**	**7,524**	**11,859**	**15,871**	**15,131**	**34,840**	**9,688**	**15,806**	**15,598**	**3,151**	**9,996**	**10,031**	**180,649**
Corridor Management (Environment) [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	109	Road traffic noise management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Grids, Guidance and Delineation [C]			**225**	**416**	**222**	**173**	**201**	**487**	**431**	**199**	**292**	**1,022**	**188**	**286**	**8,384**	**12,526**
	107	Management of grids	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	123	Roadside signing	225	416	222	173	201	487	431	199	292	1,022	188	286	0	**4,142**
	124	Roadside and surface delineation	0	0	0	0	0	0	0	0	0	0	0	0	8,384	**8,384**
MPO Programmed Maintenance			**4,786**	**7,635**	**3,004**	**4,662**	**8,873**	**5,325**	**17,088**	**4,314**	**9,535**	**4,130**	**813**	**3,484**	**1,647**	**75,318**
	129	Skid resistance management	18	61	20	33	30	39	54	48	18	150	6	73	1,647	**2,196**
	117	Surfacing treatments	4,767	7,574	2,985	4,629	8,843	5,286	17,034	4,266	9,540	3,980	807	3,412	0	**73,122**
MPO Rehabilitation [C]			**4,680**	**13,413**	**4,298**	**7,024**	**6,798**	**9,318**	**17,321**	**5,175**	**5,957**	**10,446**	**2,149**	**6,225**	**0**	**92,805**
	127	Batter slope management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	118	Pavement rehabilitation	3,676	12,248	2,892	2,763	3,782	7,672	15,589	2,828	3,443	8,242	1,803	5,001	0	**69,940**
	119	Bridge and culvert rehabilitation [C]	1,004	1,164	1,406	4,261	3,015	1,646	1,732	2,347	2,513	2,204	346	1,224	0	**22,864**
Operating			**6,181**	**15,643**	**2,272**	**7,353**	**8,650**	**10,657**	**16,159**	**8,109**	**9,735**	**27,622**	**5,614**	**6,860**	**0**	**124,857**
Corridor Management (Environment) [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	201	Contaminated Areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	202	Nature conservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	203	Degraded areas	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	204	Heritage preservation	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	205	Invasive plants and animals	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	206	Fire risk management	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Rehabilitation [O]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
MPO Routine Maintenance [O]			**6,181**	**15,643**	**2,272**	**7,353**	**8,650**	**10,657**	**16,159**	**8,109**	**9,735**	**27,622**	**5,614**	**6,860**	**0**	**124,857**
	215	Routine maintenance	6,181	15,643	2,272	7,353	8,650	10,657	16,159	8,109	9,735	27,622	5,614	6,860	0	**124,857**
	216	Unsealed road re-sheeting	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
State Special Initiatives [C]			**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Road Operations			**15**	**1,800**	**2,500**	**2,400**	**3,500**	**13,999**	**6,240**	**2,800**	**0**	**6,405**	**160**	**1,300**	**13,944**	**55,063**
Capital			**15**	**200**	**500**	**0**	**700**	**0**	**0**	**0**	**0**	**405**	**160**	**100**	**13,944**	**16,024**
MPO Traffic Operations [C]			**15**	**200**	**500**	**0**	**700**	**0**	**0**	**0**	**0**	**405**	**160**	**100**	**13,944**	**16,024**
	130	Route lighting [C]	0	0	500	0	0	0	0	0	0	0	0	100	5,200	**5,800**
	111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	160	0	0	**160**
	134	Traffic management [C]	15	200	0	0	700	0	0	0	0	405	0	0	8,744	**10,064**
Operating			**0**	**1,600**	**2,000**	**2,400**	**2,800**	**13,999**	**6,240**	**2,800**	**0**	**6,000**	**0**	**1,200**	**0**	**39,039**
MPO Traffic Operations [O]			**0**	**1,600**	**2,000**	**2,400**	**2,800**	**13,999**	**6,240**	**2,800**	**0**	**6,000**	**0**	**1,200**	**0**	**39,039**
	230	Route lighting [O]	0	0	960	0	0	4,951	3,108	0	0	0	0	0	0	**9,019**
	211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	213	Other transport infrastructure maintenance	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	234	Traffic management [O]	0	1,600	1,040	2,400	2,800	9,048	3,132	2,800	0	6,000	0	1,200	0	**30,020**
Maintenance, Preservation and Operations Total			**15,887**	**38,906**	**12,296**	**21,612**	**28,021**	**39,787**	**57,239**	**20,597**	**25,541**	**49,625**	**8,925**	**18,156**	**23,975**	**360,569**

MPE & RO State and Federal Funding Allocations for 2018-19 to 2021-22 in $'000 outturn

Based on OPPM 21 March 2018

22-March-2018

No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment		**197,259**	**374,404**	**245,454**	**279,264**	**221,637**	**308,048**	**407,101**	**143,645**	**171,774**	**267,687**	**172,578**	**242,799**	**351,812**	**3,383,460**
Capital		**106,455**	**252,700**	**146,593**	**178,254**	**140,734**	**222,223**	**319,891**	**100,108**	**93,656**	**169,800**	**81,821**	**158,845**	**165,731**	**2,136,811**
Corridor Management (Environment) [C]		**0**	**328**	**23**	**0**	**0**	**2,129**	**2,549**	**38**	**0**	**1,943**	**0**	**0**	**1,489**	**8,499**
109	Road traffic noise management	0	328	23	0	0	2,129	2,549	38	0	1,943	0	0	1,489	**8,499**
MPO Grids, Guidance and Delineation [C]		**3,268**	**5,435**	**3,570**	**4,811**	**4,399**	**8,593**	**7,768**	**2,618**	**2,690**	**7,648**	**2,909**	**4,675**	**72,139**	**130,523**
107	Management of grids	378	14	24	69	83	0	0	32	117	48	334	17	3,643	**4,809**
123	Roadside signing	2,552	4,849	2,626	2,708	2,496	7,744	6,857	1,993	2,266	7,156	2,160	3,516	1,740	**48,665**
124	Roadside and surface delineation	338	572	921	2,035	1,819	849	911	592	307	442	365	1,142	66,757	**77,049**
MPO Programmed Maintenance		**52,490**	**92,084**	**73,767**	**104,875**	**72,876**	**53,976**	**124,330**	**42,249**	**63,970**	**46,615**	**54,136**	**61,909**	**50,658**	**893,934**
129	Skid resistance management	148	477	347	445	269	975	1,075	476	142	1,482	162	502	20,193	**26,694**
117	Surfacing treatments	52,342	91,607	73,419	104,430	72,607	53,001	123,254	41,772	63,828	45,132	53,974	61,407	30,465	**867,240**
MPO Rehabilitation [C]		**50,697**	**154,853**	**69,232**	**68,567**	**63,459**	**157,525**	**185,245**	**55,203**	**26,995**	**113,595**	**24,777**	**92,261**	**41,444**	**1,103,855**
127	Batter slope management	744	1,966	1,419	896	956	1,219	2,273	804	692	3,220	483	838	21,400	**36,910**
118	Pavement rehabilitation	43,796	140,562	52,862	37,398	36,367	137,425	165,640	41,172	15,344	94,473	20,413	73,306	100	**858,858**
119	Bridge and culvert rehabilitation [C]	6,157	12,324	14,951	30,274	26,136	18,881	17,332	13,226	10,960	15,902	3,880	18,117	19,944	**208,086**
Operating		**90,804**	**121,704**	**98,861**	**101,010**	**80,903**	**85,825**	**87,210**	**43,637**	**78,118**	**97,887**	**90,757**	**83,954**	**186,081**	**1,246,649**
Corridor Management (Environment) [O]		**3,022**	**3,844**	**2,601**	**2,381**	**2,512**	**2,736**	**2,230**	**2,491**	**1,939**	**2,874**	**1,841**	**2,608**	**4,146**	**35,214**
201	Contaminated Areas	36	81	7	20	34	916	117	5	9	8	117	284	0	**1,636**
202	Nature conservation	355	437	492	245	262	497	220	128	235	482	339	252	40	**3,985**
203	Degraded areas	642	891	667	105	618	733	471	499	349	768	247	0	547	**6,535**
204	Heritage preservation	0	60	0	26	0	0	0	60	70	60	0	0	3,364	**3,640**
205	Invasive plants and animals	1,669	1,819	1,163	1,612	1,136	322	1,106	1,329	854	1,118	861	1,672	72	**14,733**
206	Fire risk management	321	556	272	374	461	266	306	470	421	438	278	399	123	**4,685**
MPO Rehabilitation [O]		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**140,141**	**140,141**
219	Bridge and culvert rehabilitation [O]	0	0	0	0	0	0	0	0	0	0	0	0	132,769	**132,769**
239	Large Traffic Signs Structural Maintenance	0	0	0	0	0	0	0	0	0	0	0	0	7,372	**7,372**
MPO Routine Maintenance [O]		**87,782**	**117,859**	**96,260**	**98,629**	**78,391**	**83,089**	**84,990**	**41,046**	**76,180**	**95,013**	**88,915**	**81,346**	**11,250**	**1,040,750**
215	Routine maintenance	75,652	116,969	82,318	91,747	72,003	83,089	84,398	40,350	67,779	94,683	83,917	78,395	11,250	**982,550**
216	Unsealed road re-sheeting	12,130	890	13,942	6,883	6,388	0	592	697	8,401	330	4,998	2,951	0	**58,200**
State Special Initiatives [C]		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**30,544**	**30,544**
270	Data collection	0	0	0	0	0	0	0	0	0	0	0	0	30,544	**30,544**
Road Operations		**3,456**	**13,973**	**20,045**	**14,750**	**11,041**	**136,403**	**52,785**	**24,945**	**3,758**	**79,448**	**3,223**	**13,464**	**208,731**	**586,021**
Capital		**15**	**200**	**1,375**	**700**	**1,550**	**1,400**	**0**	**650**	**0**	**405**	**160**	**100**	**31,527**	**38,082**
MPO Traffic Operations [C]		**15**	**200**	**1,375**	**700**	**1,550**	**1,400**	**0**	**650**	**0**	**405**	**160**	**100**	**31,527**	**38,082**
130	Route lighting [C]	0	0	500	0	0	700	0	0	0	0	0	100	7,541	**8,841**
111	Vehicle monitoring systems [C]	0	0	0	0	0	0	0	0	0	0	160	0	1,408	**1,568**
134	Traffic management [C]	15	200	875	700	1,550	700	0	650	0	405	0	0	22,578	**27,673**
Operating		**3,441**	**13,773**	**18,670**	**14,050**	**9,491**	**135,003**	**52,785**	**24,295**	**3,758**	**79,043**	**3,063**	**13,364**	**177,204**	**547,939**
MPO Traffic Operations [O]		**3,441**	**13,773**	**18,670**	**14,050**	**9,491**	**135,003**	**52,785**	**24,295**	**3,758**	**79,043**	**3,063**	**13,364**	**177,204**	**547,939**
230	Route lighting [O]	0	864	4,064	2,203	2,584	15,339	11,258	6,971	566	13,380	0	1,623	83,261	**142,114**
211	Vehicle monitoring systems [O]	0	0	0	0	0	0	0	0	0	0	0	0	4,620	**4,620**
213	Other transport infrastructure maintenance	0	64	168	168	0	53,550	3,040	0	0	5,268	0	10	23,000	**85,267**
234	Traffic management [O]	3,441	12,845	14,438	11,679	6,907	66,114	38,486	17,324	3,192	60,395	3,063	11,731	66,323	**315,939**
Maintenance, Preservation and Operations Total		**200,715**	**388,377**	**265,499**	**294,014**	**232,678**	**444,451**	**459,886**	**168,590**	**175,532**	**347,135**	**175,801**	**256,263**	**560,543**	**3,969,481**

MPE & RO State Funding Element Suballocations for 2018-19 in $'000 outturn

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**29,458**	**44,937**	**35,883**	**44,521**	**30,287**	**36,924**	**45,310**	**19,919**	**29,238**	**29,090**	**32,440**	**34,831**	**0**	**412,842**
Capital			**12,481**	**18,098**	**17,744**	**23,750**	**14,084**	**14,576**	**24,138**	**9,603**	**13,482**	**5,341**	**13,436**	**14,710**	**0**	**181,444**
Element 117 Surfacing treatments - State			**12,481**	**18,098**	**17,744**	**23,750**	**14,084**	**14,576**	**24,138**	**9,603**	**13,482**	**5,341**	**13,436**	**14,710**	**0**	**181,444**
	117	Skid resistance improvement	250	282	373	380	206	639	907	402	264	877	250	326	0	**5,155**
	117	Drainage maintenance	582	789	603	894	654	518	1,098	342	525	533	444	520	0	**7,500**
	117	Surfacing treatments - General	11,649	17,028	16,768	22,476	13,225	13,419	22,133	8,860	12,694	3,931	12,742	13,864	0	**168,789**
Operating			**16,977**	**26,839**	**18,139**	**20,771**	**16,203**	**22,348**	**21,172**	**10,316**	**15,756**	**25,749**	**19,004**	**20,121**	**0**	**231,396**
Element 215 Routine maintenance - State			**15,538**	**23,245**	**18,139**	**18,840**	**14,186**	**19,540**	**16,875**	**8,433**	**13,484**	**16,461**	**17,720**	**18,295**	**0**	**200,758**
	215	Surfacing treatment preparatory works	1,545	1,466	1,431	2,233	1,172	35	598	630	1,269	465	1,274	981	0	**13,099**
	215	Routine maintenance - General	13,993	21,779	16,708	16,606	13,014	19,506	16,277	7,803	12,215	15,996	16,446	17,314	0	**187,659**
Element 215 Routine maintenance - Federal			**1,439**	**3,594**	**0**	**1,931**	**2,017**	**2,808**	**4,297**	**1,883**	**2,272**	**7,288**	**1,284**	**1,826**	**0**	**30,639**
	215	Surfacing treatment preparatory works	124	132	53	111	174	0	0	59	261	5	19	25	0	**563**
	215	Routine maintenance - General	1,314	3,462	-53	1,819	1,843	2,808	4,297	1,824	2,012	7,283	1,265	1,801	0	**29,676**
Total of elements 117, 118 and 215			**29,458**	**44,937**	**35,883**	**44,521**	**30,287**	**36,924**	**45,310**	**19,919**	**29,238**	**29,090**	**32,440**	**34,831**	**0**	**412,842**

MPE & RO State Funding Element Suballocations for 2019-20 in $'000 outturn

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**27,426**	**50,660**	**37,306**	**48,403**	**34,244**	**30,022**	**48,113**	**18,825**	**30,126**	**30,084**	**33,955**	**33,435**	**8,905**	**431,504**
Capital			**8,532**	**21,636**	**17,302**	**25,549**	**16,276**	**9,051**	**28,418**	**9,153**	**13,374**	**7,989**	**13,051**	**14,669**	**5,155**	**190,155**
Element 117 Surfacing treatments - State			**8,532**	**21,636**	**17,302**	**25,549**	**16,276**	**9,051**	**28,418**	**9,153**	**13,374**	**7,989**	**13,051**	**14,669**	**5,155**	**190,155**
	117	Skid resistance improvement	0	0	0	0	0	0	0	0	0	0	0	0	5,155	**5,155**
	117	Drainage maintenance	582	789	603	894	654	518	1,098	342	525	533	444	520	0	**7,500**
	117	Surfacing treatments - General	7,950	20,847	16,699	24,655	15,622	8,533	27,320	8,811	12,849	7,456	12,607	14,149	0	**177,500**
Operating			**18,894**	**29,024**	**20,004**	**22,854**	**17,968**	**20,971**	**19,695**	**9,672**	**16,752**	**22,095**	**20,904**	**18,766**	**3,750**	**241,349**
Element 215 Routine maintenance - State			**17,313**	**25,008**	**19,899**	**21,046**	**15,757**	**18,355**	**15,741**	**7,597**	**14,261**	**15,347**	**19,461**	**17,088**	**3,750**	**210,596**
	215	Surfacing treatment preparatory works	1,511	1,730	1,307	2,276	1,169	75	637	474	1,273	665	1,261	1,065	0	**13,443**
	215	Routine maintenance - General	15,802	23,278	18,592	18,770	14,588	18,280	15,104	7,123	12,991	14,652	18,200	16,023	3,750	**197,153**
Element 215 Routine maintenance - Federal			**1,581**	**4,016**	**105**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**30,753**
	215	Surfacing treatment preparatory works	103	123	46	83	138	0	0	55	225	7	21	21	0	**821**
	215	Routine maintenance - General	1,478	3,893	59	1,725	2,073	2,616	3,954	2,020	2,263	6,771	1,422	1,657	0	**29,932**
Total of elements 117, 118 and 215			**27,426**	**50,660**	**37,306**	**48,403**	**34,244**	**30,022**	**48,113**	**18,825**	**30,126**	**30,084**	**33,955**	**33,435**	**8,905**	**431,504**

MPE & RO State Funding Element Suballocations for 2020-21 in $'000 outturn

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**32,567**	**51,733**	**39,058**	**47,513**	**34,924**	**28,796**	**45,305**	**19,188**	**30,752**	**36,004**	**34,716**	**32,730**	**16,405**	**449,691**
Capital			**13,018**	**21,704**	**17,354**	**23,865**	**16,333**	**9,251**	**23,912**	**9,182**	**13,419**	**12,002**	**13,089**	**13,314**	**12,655**	**199,098**
Element 117 Surfacing treatments - State			**13,018**	**21,704**	**17,354**	**23,865**	**16,333**	**9,251**	**23,912**	**9,182**	**13,419**	**12,002**	**13,089**	**13,314**	**12,655**	**199,098**
	117	Skid resistance improvement	0	0	0	0	0	0	0	0	0	0	0	0	5,155	**5,155**
	117	Drainage maintenance	0	0	0	0	0	0	0	0	0	0	0	0	7,500	**7,500**
	117	Surfacing treatments - General	13,018	21,704	17,354	23,865	16,333	9,251	23,912	9,182	13,419	12,002	13,089	13,314	0	**186,443**
Operating			**19,549**	**30,029**	**21,704**	**23,648**	**18,591**	**19,545**	**21,393**	**10,006**	**17,333**	**24,002**	**21,627**	**19,416**	**3,750**	**250,593**
Element 215 Routine maintenance - State			**17,968**	**26,013**	**20,625**	**21,840**	**16,380**	**16,929**	**17,439**	**7,931**	**14,845**	**17,224**	**20,184**	**17,738**	**3,750**	**218,866**
	215	Surfacing treatment preparatory works	1,572	1,800	1,358	2,364	1,218	78	661	494	1,329	690	1,309	1,105	0	**13,980**
	215	Routine maintenance - General	16,396	24,213	19,267	19,476	15,162	16,851	16,778	7,437	13,516	16,534	18,875	16,633	3,750	**204,886**
Element 215 Routine maintenance - Federal			**1,581**	**4,016**	**1,779**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,727**
	215	Surfacing treatment preparatory works	103	123	46	83	138	0	0	55	225	7	21	21	0	**821**
	215	Routine maintenance - General	1,478	3,893	1,033	1,725	2,073	2,616	3,954	2,020	2,263	6,771	1,422	1,657	0	**30,906**
Total of elements 117, 118 and 215			**32,567**	**51,733**	**39,058**	**47,513**	**34,924**	**28,796**	**45,305**	**19,188**	**30,752**	**36,004**	**34,716**	**32,730**	**16,405**	**449,691**

MPE & RO State Funding Element Suballocations for 2021-22 in $'000 outturn

	No	SubElement	Central West	Darling Downs	Far North	Fitzroy	Mackay	Metropolitan	North Coast	Northern	North West	South Coast	South West	Wide Bay/Burnett	State Wide	Total
Maintenance, Preservation and Environment			**33,776**	**53,671**	**40,505**	**51,113**	**36,311**	**35,060**	**51,890**	**19,923**	**31,951**	**40,656**	**35,971**	**35,393**	**16,405**	**482,625**
Capital			**13,544**	**22,595**	**18,035**	**26,637**	**17,071**	**14,837**	**29,753**	**9,568**	**14,012**	**15,819**	**13,590**	**15,301**	**12,655**	**223,417**
Element 117 Surfacing treatments - State			**13,544**	**22,595**	**18,035**	**26,637**	**17,071**	**14,837**	**29,753**	**9,568**	**14,012**	**15,819**	**13,590**	**15,301**	**12,655**	**223,417**
	117	Skid resistance improvement	0	0	0	0	0	0	0	0	0	0	0	0	5,155	**5,155**
	117	Drainage maintenance	0	0	0	0	0	0	0	0	0	0	0	0	7,500	**7,500**
	117	Surfacing treatments - General	13,544	22,595	18,035	26,637	17,071	14,837	29,753	9,568	14,012	15,819	13,590	15,301	0	**210,762**
Operating			**20,232**	**31,076**	**22,470**	**24,476**	**19,240**	**20,223**	**22,137**	**10,355**	**17,939**	**24,837**	**22,381**	**20,092**	**3,750**	**259,208**
Element 215 Routine maintenance - State			**18,651**	**27,060**	**21,383**	**22,668**	**17,029**	**17,607**	**18,183**	**8,280**	**15,451**	**18,059**	**20,938**	**18,414**	**3,750**	**227,473**
	215	Surfacing treatment preparatory works	1,635	1,873	1,411	2,457	1,269	81	685	515	1,388	717	1,359	1,148	0	**14,538**
	215	Routine maintenance - General	17,016	25,187	19,972	20,211	15,760	17,526	17,498	7,765	14,063	17,342	19,579	17,266	3,750	**212,935**
Element 215 Routine maintenance - Federal			**1,581**	**4,016**	**1,087**	**1,808**	**2,211**	**2,616**	**3,954**	**2,075**	**2,488**	**6,778**	**1,443**	**1,678**	**0**	**31,735**
	215	Surfacing treatment preparatory works	103	123	46	83	138	0	0	55	225	7	21	21	0	**821**
	215	Routine maintenance - General	1,478	3,893	1,041	1,725	2,073	2,616	3,954	2,020	2,263	6,771	1,422	1,657	0	**30,914**
Total of elements 117, 118 and 215			**33,776**	**53,671**	**40,505**	**51,113**	**36,311**	**35,060**	**51,890**	**19,923**	**31,951**	**40,656**	**35,971**	**35,393**	**16,405**	**482,625**

5. Element Summary

A list of the Element Summaries contained within this QRSPP are shown below in Table 1. Transport System Asset Management (TSAM) are working with Element Leaders to continue to update this information.

The Element summaries contained in this document are snapshots of the Element Management Plans. For detailed Element information, please consult the relevant Element Management Plan.

Element No.	Element Description	Element Contacts	Element Scope	Performance Target	Performance Trends	Rationale for Allocation	Performance Milestones	Priority Listing
1	Contaminated Areas	X	X	X		X		
2	Nature conservation	X	X	X		X		
3	Degraded areas	X	X	X		X		
4	Heritage preservation	X	X	X	X	X	X	X
5	Invasive Plants and Animals	X	X	X	X	X	X	X
6	Fire risk management	X	X	X	X	X		X
7	Management of grids	X	X	X		X	X	X
9	Road traffic noise management	X	X	X		X	X	X
11	Vehicle monitoring systems	X	X	X	X	X	X	X
13	Other transport infrastructure maintenance	X	X	X	X	X	X	X
15	Routine maintenance	X	X	X		X	X	
16	Unsealed road re-sheeting	X	X	X	X	X	X	
17	Surfacing treatments	X	X	X	X	X	X	X
18	Pavement rehabilitation	X	X	X	X	X	X	X
19	Bridge and culvert rehabilitation	X	X	X	X	X	X	X
23	Roadside signing	X	X	X		X	X	X
24	Roadside and surface delineation	X	X	X	X	X	X	X
27	Batter slope management	X	X	X		X	X	X
29	Skid resistance management	X	X	X	X	X	X	
30	Route lighting	X	X	X	X	X	X	X
34	Traffic management	X	X	X	X	X	X	X
39	Large Traffic Signs Structural Maintenance							
70	Statewide data collection	X	X			X		

Table 1: Element Summary Details

Element 1: Contaminated Areas

Element Contacts	
Element Leader:	Kathryn Mahony 4639 0868

Element Scope

On all land (including maritime and GLR) owned or managed by TMR suspected of contamination through either notifiable activities or other practices/knowledge, without an agreement with the landholder will have the following undertaken:

- Be reported and/or registered to DEHP for inclusion in CLR or EMR or DoD for inclusion in the UXO Register
- Be investigated to determine the contaminants, their movement and impact on the surrounding environment (human and natural)
- Be managed and monitored though a site based management plan **OR** remediated to a DEHP or DoD agreed condition state to enable removal from either the EMR or CLR Register or movement from CLR to EMR register or removal from the UXO register.

Performance Target

- All contaminated sites owned or managed by Transport and Main Roads (TMR) are identified.
- On-ground investigations have been carried out on potential contaminated sites, where necessary.
- Database has been established to record contaminated areas.
- On-ground investigations have been carried out on all potential contaminated sites, where necessary.
- Spatial site register is maintained.
- Audit all TMR (Government Land Register) parcels to ensure that all sites that need to be registered on the Environmental Management Register (EMR) or Contaminated Land Register (CLR) are registered.
- Identify all "substantial" UXO sites that intersect with TMR managed land and negotiate a management agreement with Department of Defence.

Performance Trends

Not available.

Rationale for Allocation	Known needs are prioritised by Element Leader.

Output Reporting	To be confirmed

Priority Listing

Not available.

Element 2: Nature Conservation

Element Contacts	
Element Leader:	Julie Immonen 3066 4267

Element Scope

- Nature conservation commitments in accordance with environmental legislation or whole-of-government policy commitments to nature conservation including environmental conditions linked to project approvals and permits including environmental offsets following expiration of the offset maintenance period (10 – 20 years) where TMR is the party assigned as responsible.
- Maintenance and enhancement of dedicated fauna structures (i.e. NCA) where TMR is the party assigned as responsible.
- Management and maintenance of areas designated as Significant Environmental Areas (SEA) where TMR is the party assigned as responsible.

Performance Target

- Identify Significant Environmental Areas (SEA) throughout the State-controlled road reserve. It is expected that approximately 140 new Significant Environmental Areas will be designated throughout the State by the five year milestone.
- Undertake deficiency and value analysis and establishment of management plans for all Significant Environmental Areas.
- Establishment of a state-wide database (including GIS layer) of Significant Environmental Areas attributes and condition.
- Develop a monitoring, evaluation and reporting system for Significant Environmental Areas.

Performance Trends

Not available.

Rationale for Allocation	Known needs are prioritised by Element Leader.

Output Reporting	To be confirmed.

Priority Listing

Not available.

Element 3: Degraded Areas

Element Contacts	
Element Leader:	Kathryn Mahony 4639 0868

Element Scope

- Development of site management plans and rectification works of all degraded areas in RCEA degraded areas database.
- Packaging and/or coordination Element 27 Batter Slopes sites with degraded areas projects adjacent to or in same corridor of the State-controlled network.
- Sites of land degradation that have potential to impact on the integrity of road infrastructure or an area of national and/or state environmental significance within or adjacent to the State-controlled road reserve.

Performance Target

- Identify 50% existing degraded areas within each District's road reserve.
- Development and implementation of a data collection system and dictionary, and storage register. All known degraded areas should be translated to this system.
- Development and implementation of a prioritisation tool.
- 25% completion of remediation for all applicable and identified degraded area sites.
- 50% of degraded areas have concept/design documentation.

Performance Trends

Not available.

Rationale for Allocation	Known needs are prioritised by Element Leader.

Output Reporting	To be confirmed.

Priority Listing
Not available.

Element 4: Heritage Preservation

Element Contacts	
Element Leader:	James Smith 3066 4264

Element Scope

- Activities or heritage maintenance works undertaken with the intent of identifying, assessing, recording, managing or conserving places listed on:
  - (a) the Queensland Heritage Register (administered under the *Queensland Heritage Act 1992*); and/or
  - (b) the Aboriginal and Torres Strait Islander cultural heritage database and register (administered under the *Aboriginal Cultural Heritage and Torres Strait Islander Cultural Heritage Acts 2003)*,

  where these places are located on lands and waters owned or controlled by TMR. Places falling under point a) are referred to hereon as Heritage Management Areas (HMAs) and under point b) hereon as Indigenous Heritage Management Areas (IHMAs). Priority will be given to HMAs and IHMAs covered by a Conservation Management Plan (below);
- Development of Conservation Management Plans for HMAs and IHMAs (n.b. CMPs for IHMAs require consultation with Aboriginal Party/ies);
- All works associated with the inspection, rehabilitation and maintenance of decommissioned heritage structures listed on the Queensland Heritage Register, where those structures are retained by TMR solely for their heritage significance;
- Organisation and running of specialist heritage workshops (such as dry stone walling techniques) to address skill shortages within maintenance crews;
- Annual audit of the Queensland Heritage Register and Aboriginal and Torres Strait Islander cultural heritage database and register to identify additional places;
- Maintenance of a spatial register of HMA and IHMA place locations;
- District Element 4 overhead costs; and
- Other heritage places on lands and waters owned or administered by TMR, but which are not on the Queensland Heritage Register or Aboriginal and Torres Strait Islander cultural heritage database and register. Management priority will be given to HMAs and IHMAs, however other heritage places can receive funding if justification of their cultural heritage significance is available.

Performance Target

- All HMAs and IHMAs managed in an appropriate, best practice way.
- Heritage Management to be considered 'business-as-usual'.

Performance Trends

No long-term performance trends are available for this element (will be available at end of 2017-18), however there is an increase in site identification, Conservation Management Plan development and maintenance expenditure in 2016-17 compared to the previous financial year (15-16).

Rationale for Allocation

Allocation priority is given to HMAs and IMHAs, however other heritage places can receive funding if justification of their cultural heritage significance is available. Funding is in the first instance expended on HMAs and/or IHMAs that are of high significance, are in poor condition and the consequence is high.

Final allocations are negotiated and decided via consultation between the Element Leader and each Districts' Cultural Heritage Officer.

Output Reporting

Financial expenditure is reported via 3PCM.

Project delivery reporting is conducted via a master spreadsheet maintained by the Element leader – available on request.

Priority Listing

Full list is available from the Element Leader on request, however key priorities include: Albion Fire Station, Annan River Bridge, Anzac Memorial Avenue (former), Anzac Memorial Trees, Binna Bura Road, Burnett Bridge, Coorparoo Substation, Dickabram Bridge, Grassy Hill Lighthouse, Hornibrook Highway, Kennedy Bridge, Lamington Bridge, Leichhardt Tree, Little Sea Hill Lighthouse, Maryborough Air Raid Shelter, Mt Spec Road and Little Crystal Creek Bridge, Mt Tamborine-Geissmann Drive, North Coast Rest Areas, Picnic Bay Jetty, Springbrook Road, The Leap Cane Lift and War Memorial Bridge. A suite of Indigenous heritage places are also a priority under Element 4.

Element 5: Invasive Plants and Animals

Element Contacts	
Element Leader:	Michal Leja 3066 4263

Element Scope

Element 5 is focused on optimising the management of invasive plants and animals within the State- controlled road reserve by taking all reasonable and practical measures to prevent or minimise biosecurity risk on human health, the economy, the environment and social amenity. Invasive plants and animals are those prohibited or restricted under the Biosecurity Act and include species listed under local laws or where any species poses a biosecurity risk. This is achieved through:

- Establishment of priorities for control that balances legislative responsibilities, invasive plant and animal distribution, densities, available funding and likelihood of treatment methods being successful
- Implementing infrastructure, equipment and methods to prevent or minimise weed seed spread
- Herbicide spot spraying of invasive plants (RMPC Activity No. 406)
- Invasive species data collection co-ordination and data management
- Element management including overhead costs such as related meetings, workshops and internal training; (note - externally delivered training and forums are not included)
- The management of invasive animals (rabbit/dog) grids, fences, line marking, vegetation control, clear zones and pest road side signage is within scope but unfunded by Element 5 with funding coming from Element 7,17, 15 and 23
- Special projects such as equipment (slasher mounted blowers and spray units) and the management of feral deer, wild horses, camels and pigs is funded under the Element 5 state wide allocation after consultation and approval from the Element 5 leader is granted and where funding is available.

Performance Target

20 year targets/vision:

- All districts identify, plan, treat and monitor invasive species on land under their control
- Districts host inter-agency workshops to facilitate project identification and prioritisation
- Continuation of data collection and utilisation of captured data into project identification, prioritisation and reporting
- 80% of districts undertaking project identification and prioritisation with inter-agencies
- 50% of districts and contractors utilising data collection tools

4 year milestones:

- 100% of affected areas identified, planned, treated, monitored or in progress
- 100% of districts undertaking project prioritisation activities (invasive species management workshops or similar inter-agencies/stakeholder networking meetings)
- Compliance with legislation and all internal and external policies for invasive species management
- Effective network of infrastructure or equipment that reduces weed seed spread
- Robust data collection for use in project identification and prioritisation
- State-wide consistent approach to deficiency analysis and project prioritisation

Performance Trends

Investment in empirical evidence is not possible at this stage due to limited funding available for treatment projects. Anecdotal evidence via stakeholder meetings enables review of project performance at the district level

Rationale for Allocation

Funding needs are determined through a district stakeholder biosecurity risk assessment on invasive plants animals within the road reserve considering local government area biosecurity considerations such as health, economy, environment and social amenity.
Projects are logged into a Project Prioritisation List and ranked in accordance to hierarchy of most critical with funding allocated to the highest priority until the allocation is exhausted.

Output Reporting

District Element Managers provide yearly Project Prioritisation Reporting in July that includes:

- Review of previous year's prioritisation report against actual spend and treatment
- Comments stating reasons for underspend or overspend

Priority Listing

Prioritisation is not undertaken at a state level but at the district level to achieve compliance with the *Biosecurity Act 2014*, reflect the work of Biosecurity Queensland and align with local government priorities.

Element 6: Fire Risk Management

Element Contacts	
Element Leader:	Ross McMillan Program Management & Delivery 3066 4308

Please note, the information in this summary is sourced from the 2017/18 DRAFT Element 6 Management Plan and may change following District and TSAM review. For further information please refer to the approved 2017/18 Element 6 Management Plan

Element Scope

As per the 2017/18 DRAFT Element 6 management Plan: the scope of element 6 includes:

- Bushfire risk assessment (unless otherwise funded by Element 70)
- Development and maintenance of Element Management Plans, including an annual District Element Management Plan,
- Monthly Element 6 Reporting,
- Reimbursement of costs for fuel hazard treatment including:
  - Hazard reduction burning,
  - Traffic management,
  - Slashing, mowing and/or baling delivered in addition to that undertaken by Element 15,
  - Construction and maintenance of fire breaks,
  - Any other bushfire fuel hazard treatment which is nominated by the Element Manager, approved by the Element Managers Program Manager/District Director, and
  - Endorsed by the Element Leader.
- Emergency call outs for some hazard reduction burns,
- Element Manager overhead costs, and
- Funding some treatments arising from customer/stakeholder complaints.

Performance Target

As per the 2017/18 DRAFT Element 6 management Plan, the objective of Element 6 is to minimise the chance of bushfire ignition and spread through or from the state-controlled road reserve by the removal and/or modification of bushfire fuel hazard. Note, there is currently no set annual target for bushfire fuel hazard treatment and bushfire fuel changes rapidly depending on prevailing climatic conditions.

Additional performance targets currently under consideration include:

1. Number of districts conducting or involved in assessing bushfire risk,
2. Number of districts developing and submitting annual District Element Management plans,
3. Percentage of state-wide road network treated for a financial year,
4. Number of districts with less than 10% of their allocation underspent at EOF,
5. Number of Element Managers attending at least two external fire management meetings per year,
6. Number of Districts submitting an Element 6 Report each month.

Consideration of the additional performance targets continues and they are expected to be finalised in the approved 2017/18 Element Management Plan.

Performance Trends

In relation to Performance Targets above:
During 2016/17 Element 6 reported the treatment of 1061.98 km of State-controlled road reserve. This represents:

1. 1.59% of the road network (estimated at 66,868 km i.e. both side of the road), or
2. 3.1% of network (33,343 km network i.e. one side of the road).

Please note that this is reported data and is not ground-truthed.

Rationale for Allocation

The Element 6 budget is currently developed using the rolling four year aspirational bid process developed and administered by TSAM. Element Managers submit bids to the Element Leader who undertakes initial moderation, including consideration of:

- Current and historical reported bushfire risk,
- Previous reported District delivery (bushfire fuel hazard treatments),
- Previous district expenditure, including any unexplained or unjustifiable underspends,
- Justification for the bid, including any demonstrable plans to expend the requested allocation (preference will be given to Element Managers who provide bids which have been costed with reference to the TMR Fire Management Payment Policy (2012)),
- Size of the District road network as a percentage of the whole state-controlled road network,
- Frequency and quality of monthly element reporting, and
- Any other factors or extenuating circumstances the Element Leader considers relevant.

The moderation bids are then supplied to TSAM for review and finalisation

Output Reporting

Districts are to provide District Element Management Plans and Monthly Reporting

Priority Listing

Currently - each District targets high fire risk areas based on individual processes and a subjective/localised understanding of risk. This process is intended to be replaced by formal governance and guidance provided by the Element Leader in 2018/19 including the Proposed Roadside Bushfire Risk Assessment Model.

Element 7: Management of Grids

Element Contacts	
Element Leader:	Kobe Ip 3066 0946

Element Scope

- Annual inspection of all TMR grids and adjacent fencing to ensure their structural integrity is maintained
- Annual servicing of TMR grids and fencing to maintain safety and serviceability
- Replacement of TMR owned grids at the end of their serviceable lives or when the grid becomes deficient or unsafe
- Removal of grids (if structurally unsound and more cost effective to fence rather than replace the grid)
- Minor remediation (that is, re-welding rails, repairing fencing adjacent to grids) of TMR owned grids
- Major repairs / rehabilitation of existing grids
- Annual inspection of non TMR owned grids and adjacent fencing to ensure their structural integrity is maintained
- Fencing installation (material costs only)
- Advising owners of non TMR owned grids of expired Road Corridor Permit (RCP) to ensure valid RCP is maintained

Performance Target

- Annual inspections and yearly servicing undertaken
- All grids to have a risk score of less than 3
- All grids are in good/fair condition
- All grids that could be removed have been removed at the end of operational life

Performance Trends

Not available

Rationale for Allocation

- Deficiency analysis by Element Leader on the basis of the statewide grid inspection (AADT, Abutment Condition, Geometry, Grid Condition, Grid Width, Heavy vehicle daily count & Visibility).
- 20%/80% split funding method
  - 20% of the target fund will be allocated according to the total number of both TMR or non TMR owned grids in each district
  - 80% of the target fund will be allocated according to the need analysis

QRSPP 4-year Performance Milestones

- 25 grids can be replaced or
- 250 grids can be repaired or
- 38 grids can be removed and have properties fenced

Output Reporting

1. Element leader to provide inspection report on a quarterly basis which is available from TSAM sharepoint https://inside.tmr.qld.gov.au/corp/pip/Pages/TSAM/Element-Leadership.aspx
2. Districts to provide a summary of the work completed under this Element

Priority Listing

Please contact Element Leader for the prioritised list for TMR grids.

Note: Annual allocation is done on a pro-rata basis of four year needs.

Element 9: Road Traffic Noise Management

Element Contacts	
Element Leader:	Mark Kanowski 3066 8237

Element Scope

- Identify road links which may require noise mitigation treatments.
- Conduct detailed noise assessment for prioritised road links.
- Community consultation on noise management strategies and implementation.
- Rehabilitate existing noise barriers, i.e. replace whole or sections of noise barriers with an upgrade of acoustic performance (e.g. change of noise barrier alignment, height, length).
- Major maintenance – repair/replacement of individual major components (require structural design/certification).

Performance Target

- For high priority road links of existing roads, detailed noise assessment is conducted.
- Noise barriers are maintained to meet the defined performance requirements.
- Registration of all noise barriers and enabling life cycle cost analysis.

Performance Trends

Not available

Rationale for Allocation

The funding needs are estimated based on the following activities, aiming to maintain the noise barriers at the designed service level (acoustically and structurally):

- E&T element leader: noise barrier condition survey and maintenance data gathering, consultancies, road link prioritisation through state-wide strategy modelling updates
- North Coast: barrier maintenance, noise monitoring/assessment, survey
- Metro: barrier maintenance, noise monitoring/assessment, survey
- South Coast: barrier maintenance, noise monitoring/assessment, survey
- Other Districts: noise barrier survey, noise monitoring/assessment, no major barrier maintenance requirements expected.

QRSPP 4-year Performance Milestones

- Detailed noise assessment is conducted for priority road links
- Completion of noise barrier survey and level 1 inspection
- Creation of a preliminary noise barrier data management system
- Maintain noise barriers to Condition Rating Level 1 or above based on the draft Noise Barrier Maintenance Strategy

Output Reporting

Not applicable

Priority Listing

- Analyse survey of noise barrier locations and conditions
- Maintenance of noise barriers with major defects

Element 11: Vehicle Monitoring System

Element Contacts	
Element Leader:	Geoff Smith 3066 1251

Element Scope

The overall objective of this element is to influence the behaviour of heavy vehicle operators to ensure that vehicles carry loads that are appropriate for the network and the type of vehicle does not adversely affect the asset. This is achieved by:

- Monitoring the loading and behaviour of heavy vehicles on the national and state controlled network
- Providing intelligence to those empowered to enforce heavy vehicle loading and behaviour
- Providing accurate data as needed to design appropriate infrastructure
- Directing priorities for deployment of transport inspectors and Police
- Providing infrastructure for compliance activities
-

The Element funding allocation provides for:

- Weigh-in-Motion (WiM) sites
- Automated Number Plate Recognition (ANPR) System
- Heavy Vehicle Inspection (HVI) sites

Performance Target

The project provides intelligence on heavy vehicle operations and is an enabler for compliance activities through the provision of facilities to conduct on-road enforcement.

The desired outcomes are:

- A fully functional overload surveillance system that assists in altering the behaviour of heavy vehicle operators to:
  - minimise heavy vehicle overloading, resulting in maximum road and bridge asset life
  - significantly reduce heavy vehicle related crashes
  - Introduction of a camera detected offence for mass enforcement.
  - A reduction in the percentage of vehicles operating over approved mass and a decrease in the severity of overloads through successful mass enforcement. Specifically:
    - the incidence of heavy vehicle overloading is less than 3%
    - the degree or severity of overloading is limited to:
      - no vehicles operating above double legal payload
      - less than 0.5% of vehicles operating beyond manufacturer's rating
      - less than 5% of vehicles operating between legal mass limits and manufacturer's rating.

Performance Trends

Availability of quality data at an agreed set of WiM sites

- Capture a minimum of 300 days of data per year (> 80%)
- 90% of data collected is to be within accuracy limits

Availability of agreed set of HVI sites for mass compliance activities

- Key sites available 24/7, 330 days per year (>90%)

Availability of the WiM and ANPR databases

- Databases available 95% business hours

Rationale for Allocation

WiM, ANPR and HVI site maintenance costs have been assessed and prioritised, in consultation with key stakeholders, against available funding resulting in the following program:

- Maintenance of 30 high priority WiM sites - remainder to be retained as vehicle classifiers and funded through the Element
- Maintenance of 22 ANPR camera sites
- Maintenance of 15 mobile ANPR cameras
- Pavement resurfacing of priority WiM sites on a 5 year cycle
- Minor improvements and maintenance of 30 key HVI sites. Maintenance of WiM and ANPR databases and provision of analysis and reporting tools to support compliance intelligence including quarterly status and overload monitoring reports
- Data retrieval, validation and loading of the WiM and ANPR databases
- Maintenance of inventories on all 3 site networks, together with appropriate periodic reporting on same.

QRSPP 4-year Performance Milestones

- A sustainable network of WiM sites producing reliable and accurate data.
- Completion of a program to retrofit ANPR cameras to key WiM sites to provide compliance intelligence, detect unregistered vehicles and support Intelligent Access Program audits.
- An inventory of HVI sites, aligned with freight trends, complying with current WH&S requirements.
- Development of a "virtual interception site" to test the viability of introducing a camera detected offence to mass enforcement.
- Provision of analysis and reporting tools to support compliance intelligence including monthly status reports and overload alarm reports to identify areas of critical need.
- A reduction in the percentage of heavy vehicles operating over regulation mass to 3% or less and a reduction in the severity of overloads

Output Reporting

Monthly status report from E & T

Priority Listing

Refer to Element Leader for up-to-date priority listing.

Element 13: Other Transport Infrastructure Management

Element Contacts	
Element Leader:	Kym Eldridge 3066 8871 or 0408 743 566

Element Scope

- Busway and Nundah Tunnel M&E and ITS maintenance;
- Busway lift and escalator maintenance cost;
- Structural maintenance for Busway;
- Busway tunnel cleaning;
- Busway pest control;
- Special infrastructure Park N Ride / Bus Interchanges across the state cleaning and gardening;
- Special infrastructure Park N Ride / Bus Interchanges across the state ITS and Electrical maintenance;
- Special infrastructure Nundah tunnel cleaning; and
- General Tunnel fire life safety reviewing.

Performance Target

To have a ***Busways*** network and ***Nundah Tunnel*** that is available for operation and is run efficiently and effectively ultimately enabling convenient, safe and secure Public Transport outcomes through the:

- Use of fit for purpose technology and the application of best practices in the areas of Fire Life Safety, CCTV, PA and voice and other systems; and
- Effective and efficient management of technical incidents for the Busways.

To have ***Bus Stop Infrastructure*** that is available for operational, convenient, safe and secure through the:

- Use of fit for purpose technology and the application of best practices in the areas of CCTV, PA and voice and other systems; and
- Effective and efficient management of technical incidents.

Performance Trends

- Improved energy efficiencies through the use of innovative technology and engineering along with leveraging on "economies of scale buying power of TMR" and revised tariffs through ongoing TMR negotiations with energy providers;
- Growing Bus Stop infrastructure asset base;
- Increased security initiatives by working with TransLink on public spaces;
- Increased Busways patronage;
- Developing Level of service TransLink customer expectations;
- Tracked expenditure; and
- Aging infrastructure.

Rationale for Allocation

Busways: (P1: Non-Discretionary, P2: Critical Discretionary)

- Ageing infrastructure (structurally and roads); P1/P2
- Electrical and ITS systems reaching respective End Of Life timeframes; P1
- Legislative Fire Life Safety / WHS requirements are mandatory; P1
- Energy costs; P1
- Station cleaning and gardening; P3
- Pest control; P3
- Tunnel cleaning; P2

Special Infrastructure

- Ageing infrastructure (structurally and Car Parks); P2
- Electrical and ITS systems reaching respective End Of Life timeframes; P1
- Legislative Fire Life Safety / WHS requirements are mandatory; P1
- Energy costs; P1
- Station cleaning and gardening; P3
- Pest control; P3

QRSPP 4-year Performance Milestones

- renewal of M&E ITS, lift and escalator maintenance contracts
- initiation of Special Infrastructure (Public Transport oriented infrastructure) maintenance contracts
- renewal and update of the pest control and tunnel cleaning contracts
- introduction of a capital expenditure component for E13
- ITS standardisation across the portfolio and in keeping with TMR ITS and Electrical standards
- establishing closer interface with E30 and E34

Output Reporting

Busway:
Monthly maintenance meetings are conducted. Minutes can be distributed.

Special infrastructure:
Monthly maintenance meetings are conducted. Minutes can be distributed.

Priority Listing

Refer to Element Leader for up-to-date priority listing.

Element 15: Routine Maintenance (Sealed & Unsealed)

Element Contacts	
Element Leader:	Andrew Golding 3066 0823
Element Support:	Nam Ranatunga 3066 8281

Element Scope

- React to improve road safety, serviceability and usability.
- Improve road preservation to reduce rate of deterioration of the pavement and other road assets
- Distribute the available funds based on prioritised needs of the network.
- Apply consistent standards across the network.

Refer to Element Management Plan for scope details.

Performance Target

20 year targets:

- Road infrastructure assets are maintained to deliver safe, predictable road travel and amenity for road users across the declared road network in Queensland
- All defects on the declared road network are addressed within the set intervention criteria
- Total Asset Management plan is driving routine maintenance priorities.
- Establish a central database to monitor routine maintenance element performance.

Performance Trends

Not available yet.

Rationale for Allocation

- Routine Maintenance (RM) aspirational needs are calculated using a model which is based on unit rates linked with the lane km of sealed pavement, roadside vegetation and unsealed pavement of the entire network
- An overhead factor of 1.45 is included into the funding model to overcome the overhead cost and other unforeseen routine maintenance needs. A factor of 2 is included to Districts where AADT is very high.
- Aspirational needs for RM have been reduced by 50% of the pavement related component on road sections with pavement less than 4 years of age or surface less than 2 years of age.
- State wide Element needs are calculated using current RM aspirational model and then distributed to Districts as per the adopted Equivalent Traffic Volume (ETV) model.
- From 2016/17 the needs calculation and allocations to district have been improved by using Joint Maintenance Requirement Assessment (JMRA) data as indicated below;

Needs assessment

- 90% from RM Aspirational needs model + 10% needs from JMRA

Allocations to districts

- 90% from ETV model + 10% from JMRA

QRSPP 4-year Performance Milestones

- All hazardous and safety related defects on the network are addressed as per routine maintenance intervention standards.
- The value of the routine maintenance backlog in each district should not go beyond the level of identified base year's backlog.
- Greater consistency of travel on roads of like traffic across the declared road system through the application of more consistent intervention standards

Output Reporting

Districts operating under RMPC arrangements are to:

- Capture defects data and accomplishment data for each RMPC delivery cycle
- Ensure Joint Maintenance Requirement Assessments (JMRA) are carried out annually, by using the approved JMRA template, with the maintenance contactors.
- Undertake annual (or bi-annual) performance assessment on RMPC contractors in the format requested by the Element leader
- Ensure all RMPC claims are processed through the ARMIS - RMPC system.

Priority Listing

- Each inspection cycle, contractors are required to log all the defects on the road network.
- Then the identified defects are to be prioritised based on routine maintenance Intervention Level and Response Time (IL/RT) criteria.
- Then work orders are to be prepared to fix those prioritised defects on the network.
- This cyclic process to be carried out throughout the RMPC contract period by all contractors.

Element 16: Unsealed Road Resheeting

Element Contacts	
Element Leader:	Andrew Golding 3066 0823
Element Support:	Khoa Do 3066 0846

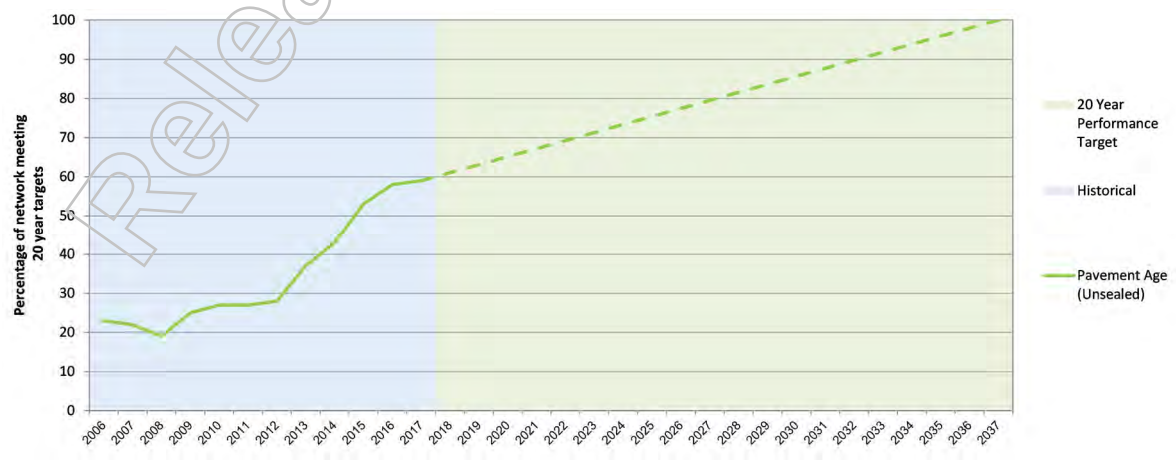
Element Scope

- Districts have the responsibility for producing a prioritised list of sites that are candidates for resheeting
- Districts are required to carry out site investigations and record the outcome
- Districts are required to record the completed resheeting works in the ARMIS road inventory data. An annual status report of gravel loss/wear rates can be created and kept current if possible
- Resheeting unsealed and paved roads with gravel material (if a section is more than 150m in any 1km length) to reinstate the pavement to an agreed pavement depth for the local road conditions
- Incorporation of additives to prolong the wear resistance of running surface material if ordered
- Minor formation works to restore the formation height where necessary to make resheeting more effective
- Minor changes to the road alignment if approved, such as adjustments to tight curves to improve road safety
- Desilting and maintenance of minor culverts within the specified resheeting area
- Finding suitable sources of gravel supply and water, for efficient resheeting operations including associated costs for installation of dams
- Identifying capital works for unsealed roads that will assist in achieving the objectives of preserving scarce gravel and water resources by minimising gravel loss and maintenance demands. These capital works may include and is not limited to:
  - Major improvements to road alignment, or formation aspects
  - Drainage works

Performance

- 100% of gravelled roads have been resheeted in the previous 13 years with nominal gravel depth of 150mm

Current Performance



Rationale for Allocation

The Reference Group Meeting held in July, 2015 agreed to select the 25/75 Split Funding Method for the funding allocation. This method is a combination of Pro Rata Method and Variable Weighting Method.

- 25% of the total target fund will be allocated under Pro Rata Method which is based on the total length of the unsealed road network
- 75% of the total target fund will be allocated under Variable Weighting Method which is based on the total length of the unsealed road network with traffic volumes and Queensland environmental zones being taken into consideration
- The above results will be summed up and distributed across the districts accordingly

QRSPP 4-year Performance Milestones

Resheeting of approximately 870km of the total unsealed road network over the four-year QRSPP period.

Output Reporting

Districts to update ARMIS inventory upon completion of projects
Districts to provide the State Program Office on a quarterly basis:

- Location and quantity of resheeting works (road kilometres)

Road Section ID	TDist_Start	TDist_End	Area (m2)	Treatment Type	Project Number

Priority Listing

- Districts are required to produce a prioritised list of sites that are candidates for resheeting
- The prioritised forward program of works and estimated costs will be in the format shown below

Road Section ID	TDist _Start	TDist_End	Year	Job Type	Resheet Depth	Resheet Cost	Priority

Element 17: Surfacing Treatments

Element Contacts	
Element Leader:	Andrew Golding 3066 0823
Element Support:	Mano Manoharan 3066 0848

Element Scope

- Full width and partial width resurfacing treatments for pavement structures of all types.
- Surfacing treatments greater than 150 linear metres per km in extent comprising sprayed seals, micro-asphalt surfacing, thin asphalt surface layers less than 75 mm and interlayer seal treatments.
- Surfacing treatment works include:
  - removal of Retroreflective Raised Pavement Markers (RRPM) prior to resurfacing
  - spotting for linemarking
  - linemarking of resurfacing works
  - reinstatement of RRPMs of resurfacing works
  - shoulder edge works to ensure safety after correctors or asphalt overlays if required.
- The treatments may be applied:
  - over full width of a carriageway (including sealed shoulder if appropriate)
  - over full width of a lane within a wider carriageway
  - as an essentially continuous longitudinal treatment of a partial width of a lane
  - as extensive seal patches laid as a mechanised process over a road or network of roads.
- Preparation of stockpiles.

Performance Target

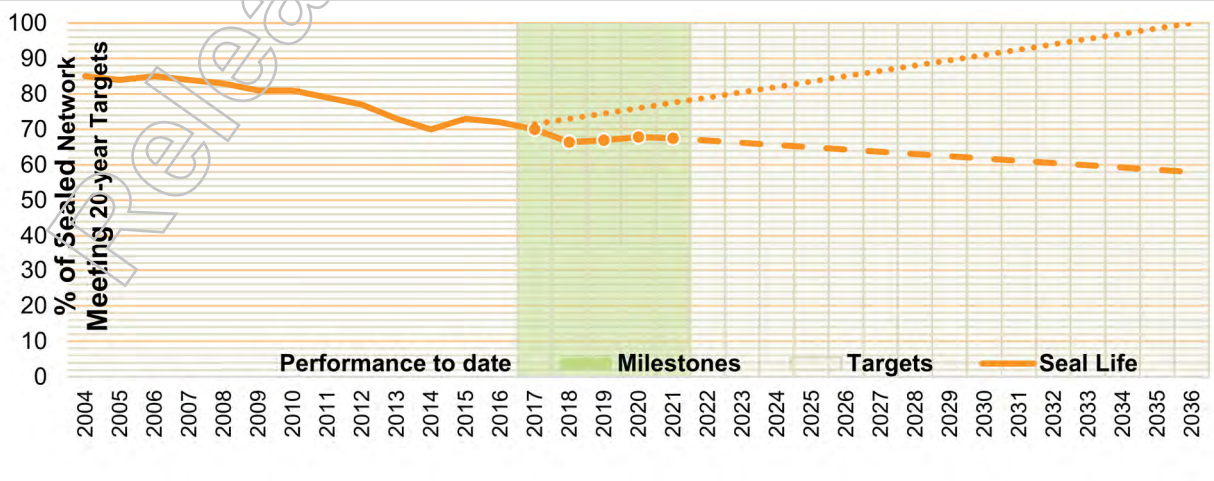
Sprayed Seals:

- The surface age is not greater than the target optimum resurfacing cycle for each Region unless a current inspection and risk assessment have verified that binder and aggregate condition is adequate and that resurfacing can be deferred beyond the target optimum.
- 99% or more of sprayed seals have a cracking extent less or equal to 10%.

Asphalt:

- The surface age is not greater than the target optimum resurfacing cycle for each mix type, unless a current inspection and risk assessment have verified that rutting and cracking are within prescribed limits, that binder and aggregate condition is adequate and that resurfacing can be deferred beyond the target optimum.
- 95% or more of asphaltic concrete seals have a cracking extent less or equal to 10%.

Current Performance



Rationale for Allocation

- TSAM undertake SCENARIO analysis (based on June inventory and condition data).
- Calculate aspirational needs for E17 and E18 for each district (excluding QTRIP Capital work projects).
- Allocate the target funding on a pro-rata basis comparing with district's aspirational needs.
- Run SCENARIO optimisation with target allocations to predict state-wide and districts performance.

QRSPP 4-year Performance Milestones

Seal age performance milestones for each district will be available for download from the Portfolio Investment & Programming Portal. Note: Crocodile cracking performance is not predicted this year as the SCENARIO input file is being updated to incorporate cracking data collected by Automatic Crack Detection (ACD) which is currently in progress.

Output Reporting

Districts to update ARMIS inventory upon completion of projects.

Districts to provide the Program Management and Delivery branch on a quarterly basis:
Location and quantity of resurfacing

Element:	Surfacing Treatment			Planned				Actual			
Road Section	Tdist_start	Tdist_end	Renewal/ Skid?	Length	Area	Treatment Type	Est. Cost	Area	Treatment Type	Actual Cost	Project Number
				0							
				0							

Priority Listing

The prioritised list based on October 2017 SCENARIO analysis will be available for download from the Portfolio Investment & Programming Portal (http://corporate.qdot.qld.gov.au/sites/pip/Pages/TSAM/Element-Leadership.aspx):

- SCENARIO analysis for Element 17 and 18
- Element 17 and 18 constrained program
- Performance graphs for Element 17 and 18

For further information, please contact Mano Manoharan.

Element 18: Pavement Rehabilitation

Element Contacts

Element Leader:	Andrew Golding 3066 0823
Element Support:	Mano Manoharan 3066 0848

Element Scope

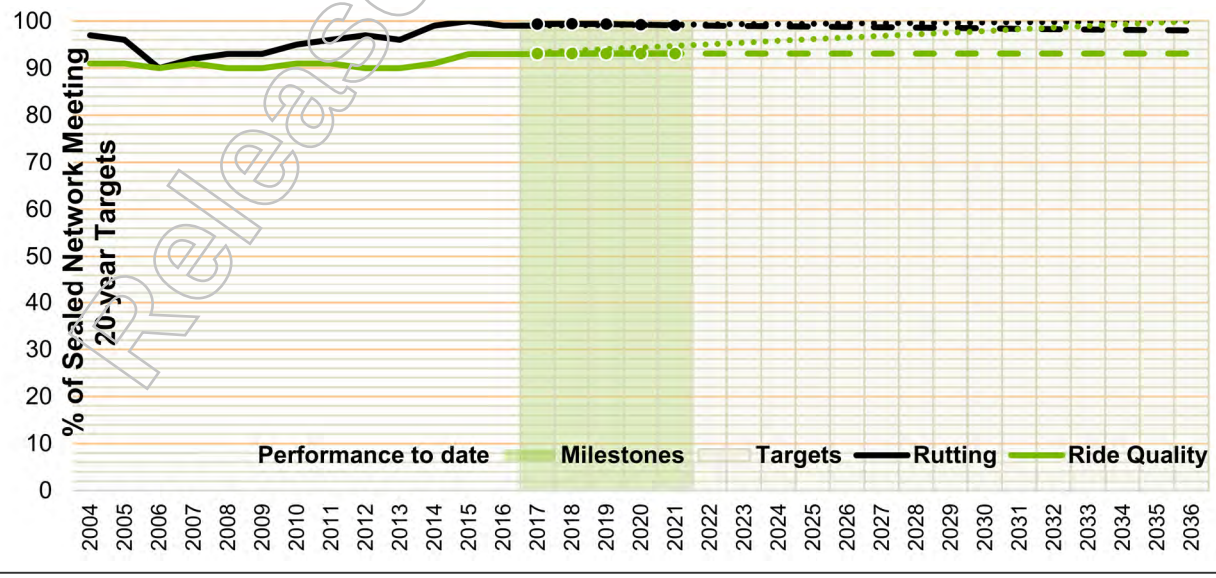
- Applying suitable treatments to identified sections of road to improve their structural capacity to extend life including:
  - full or partial reconstruction
  - rehabilitation by mechanical reshaping
  - stabilisation, modification
  - granular overlays / asphalt overlays greater than 75 mm
  - shape correction.
- The rehabilitation component of widening and rehabilitation projects, not the cost of the widening.
- Treatment areas using mechanical/high production/high power equipment over areas greater than 500 square metres (m²)/km in extent.
- Treating ruts more than 100 linear metres in total per km.
- Minor culverts within the specified pavement rehabilitation area.
- Minor headwall extensions required due to rehabilitation works.
- Bringing guardrail to standard if its height becomes substandard due to overlay.
- When overlays are applied as part of rehabilitation works, other complementary works caused by the overlay not included in the scope of this element should be reported to relevant Regional Element Manager.

Performance Target

Rehabilitation work: at least 1.5% of the network is rehabilitated annually (this includes rehabilitation parts of widening schemes)
Rutting: 100% of 80th percentile OWP rutting to be less than 20 mm
Roughness: 100% of the network to meet the following target values

AADT Range	<500	>500 & <1,000	>=1,000 & <10,000	>=10,000
NAASRA Roughness	130	110	95	80

Current Performance



Rationale for Allocation

- TSAM undertake SCENARIO analysis (based on June inventory and condition data).
- Calculate aspirational needs for E17 and E18 for each district (excluding QTRIP Capital work projects).
- Allocate the target funding on a pro-rata basis comparing with district's aspirational needs.
- Run SCENARIO optimisation with target allocations to predict state-wide and districts performance.

QRSPP 4-year Performance Milestones

Roughness and rutting performance milestones for each district will be available for download from the Portfolio Investment & Programming Portal.

Output Reporting

Districts to update ARMIS inventory upon completion of projects.
Districts to provide the Program Management and Delivery on a quarterly basis:

- Location and quantity of pavement rehabilitation (lane kilometres).

Element:	Rehabilitation		Planned				Actual			
Road Section	Tdist_start	Tdist_end	Length	Area	Treatment Type	Est. Cost	Area	Treatment Type	Actual Cost	Project Number
			0							
			0							

Priority Listing

The prioritised list based on October 2017 SCENARIO analysis will be available for download from the Portfolio Investment & Programming Portal (http://corporate.qdot.qld.gov.au/sites/pip/Pages/TSAM/Element-Leadership.aspx):

- SCENARIO analysis for Element 17 and 18
- Element 17 and 18 constrained program
- Performance graphs for Element 17 and 18

For further information, please contact Mano Manoharan.

Element 19: Bridge and Culvert Rehabilitation

Element Contacts		
Element Leader:	Mandy Haldane	3066 8957

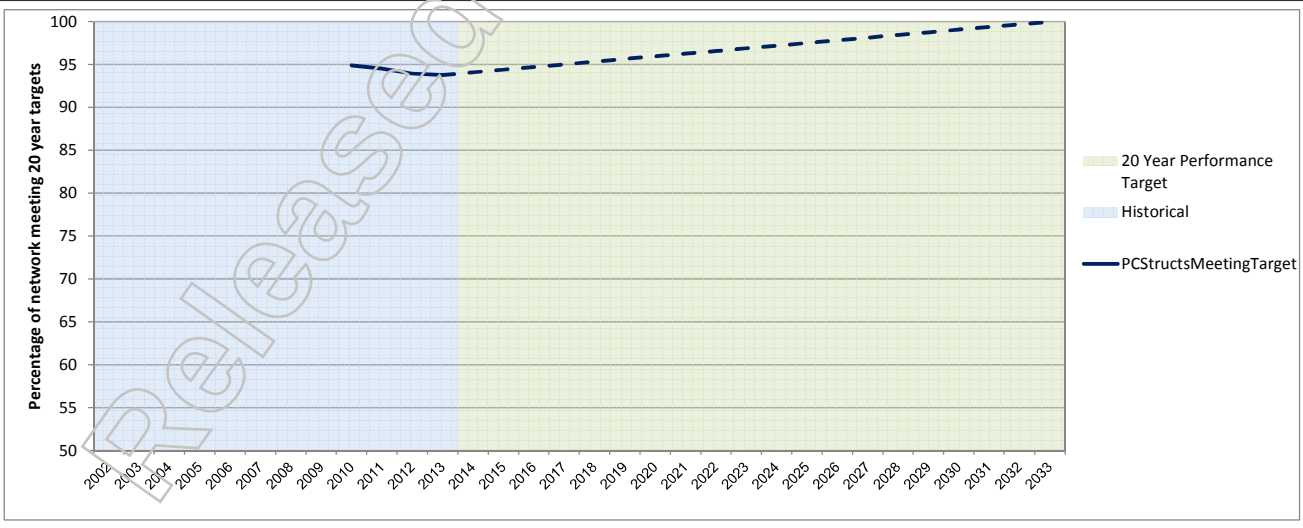
Element Scope

- Bridges and major culverts as defined by the Structures Inspection Manual in Part 1, Section 1.2
- Steel culverts > 1200mm diameter (technically minor culverts but these are high risk structures)
- Capital Expenditure
  - Rehabilitation works to restore original functionality
  - Programmed (cyclical) maintenance
  - Level 3 inspections
  - Identifying bridges and culverts that exceed the intervention threshold specified
  - Developing and implementing Structure Management Plans (SMP)
- Operational Expenditure
  - Bridge and culvert inspection and servicing
  - Level 1 & 2 inspections and BIS data entry under the SSMP contract
- Preventative and reactive maintenance
- Busway structures including bridges, cut and cover tunnels and busway LTMS are in scope but unfunded

Performance Target

- No structure with risk score > 1,500
- No structure with an overall condition rating of 4 or 5
- All structures exceeding the intervention criteria to have a certified Structure Management Plan (SMP)
- All structures inspected in accordance with the Structures Inspection Manual
- All structures serviced in accordance with the Bridge and Culvert Servicing Manual

Current Performance



Rationale for Allocation

The total Element needs were calculated by estimating the existing impairment cost of all bridges with a risk score exceeding 1,500 and major culverts with an overall condition greater than 2*. Predicted deterioration costs over the next four years were derived through adopting assumed deterioration rates (that is, Projected deterioration $ = Deterioration Rate % x Replacement Cost).

The target funding was allocated across the Districts considering the impaired value of:

- Bridges with a risk score > 5,000
- Steel culverts with an overall condition rating of 4 or 5.

QRSPP 4-vear Performance Milestones

- Inspection program will be delivered in accordance with the Structures Inspection Manual.
- Basic servicing conducted on all structures.
- 50% reduction in the number of bridges with an overall rating of 4 or 5.
- 25% reduction in the number of culverts in CS4.

Output Reporting

1. Districts to update BIS upon completion of structure works.
2. Districts to provide a summary of the work completed under this Element.

	Element:	Bridge/Culvert Rehabilitation	Planned			Actual				
Road No.	Road Name	Structure ID	Treatment Type	Est. Cost	Planned Outcome	Area	Treatment Type	Outcome Achieved	Actual Cost	Project Number

Priority Listing

Consult BIS or Element Leader for up to date priority listing.

Element 23: Roadside Signing

Element Contacts	
Element Leader:	Rohit Singh 3066 7970

Element Scope

- Cyclic mass replacement of all TMR owned signs (excl. large directional signs) based on sign age.
- Roadside sign audit process, including sign support audit.
- Installation of new signs and the removal or relocation of existing signs as identified in the sign audit report.
- Installation of new signs or the modification of existing signage as identified by through road safety audit or stakeholder requests.
- Installation of frangible supports where identified in the sign support audit.
- Replacement of standard sign supports that have deteriorated due to age (excluding gantry, cantilever, trussed or non-standard sign support structures).
- Sign support maintenance (posts, bolts, brackets, etc.) as required, but only when replacing existing sign faces as part of this Element.
- Develop sign inventory for all large direction signs (> 6 m^2).
- Inspection of large direction signs on a yearly basis once these signs reach a nominated age (13 years).
- Replacement of large direction signs based on inspection assessment.
- Replacement of faded signs or signs with poor night time retroreflectivity, which are not part of the mass replacement program for that year.
- Hinged or fold down signs that are only displayed when required may be treated the same way as large direction signs (by inventory and inspection) or replaced with the mass sign replacement program. Replacement due to hinge failure is more likely than replacement due to age or fading.

Performance Target

- All signs (other than large direction signs) to be less than 14 years old.
- All large direction signs over 13 years of age to satisfy legibility criteria of an annual night time visual inspection.
- All roadside signs are installed in accordance with applicable warrants and guidelines:
  - all signs that are no longer warranted have been removed
  - all signs that are warranted have been installed.
- All sign supports are frangible, where warranted.
- All unofficial traffic signs have been removed or replaced with official traffic signs.

Performance Trends

Not available

Rationale for Allocation

The funding allocation distribution is primarily based on historical allocation profile.

Funding has been set aside for “Drive Tourism Signage” program (primarily transferred from Element 208 Roadside Landscape).

QRSPP 4-year Performance Milestones

Districts will have completed the following:

- Undertake annual night-time visual inspections for large directional signs that are more than 13 years old (funded under Element 15)
- Replace large direction signs that have failed the visual inspection
- Sign audit, including sign supports over 1/14th of the District per year
- Mass replacement of signs in 1/14th of the District per year
- Replacement of sign supports identified as deficient from the audit
- Undertake replacement of faded signs within the District based on sign type priority.

Output Reporting

No output reporting required.

Priority Listing

Refer to priority listing in element management plan.

Element 24: Guidance and Delineation

Element Leader: Mel de Mel
3066 4239

Element Scope

- Maintenance of pavement marking on state road network to current standard.
- Installation and maintenance of Raised Retroreflective Pavement Markings to the current standard.
- Maintenance of Audio Tactile Line Marking.
- Maintenance of pavement marking of busway facilities and tunnels.
- Installation of Road Edge Guide Posts to the current standard.

Performance Target

Longitudinal lines:

- No more than 10% of all longitudinal lines on priority one roads to have a photometric performance of less than 200 mcd/lux/sqm
- No more than 10% of all longitudinal lines on priority two, three and four roads to have a photometric performance of less than 100 mcd/lux/sqm
- All edge lines are to be marked in accordance with the MUTCD standard.

Transverse lines:

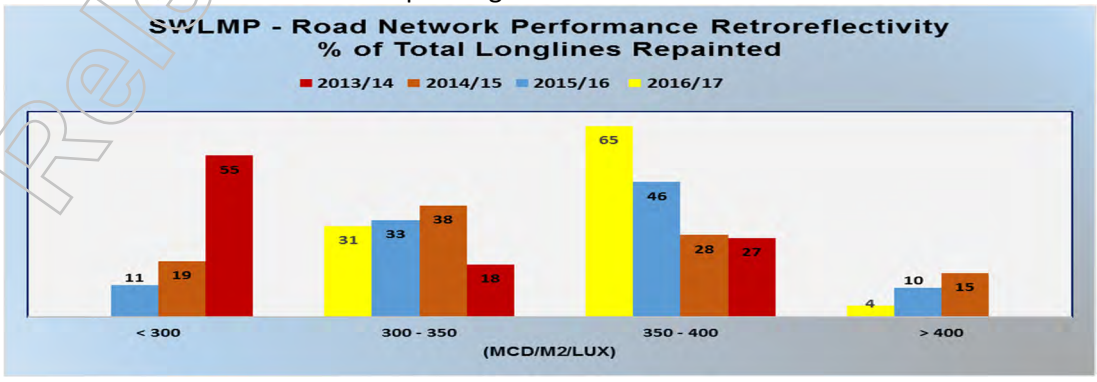
- Application of transverse lines such that all transverse lines have an anti skid treatments applied to the wet paint/product to achieve a skid resistance greater than 45 BPN
- 100% of roads will have linemarking in accordance with the requirements of Section 5.4 of Part 2 of the MUTCD.

RRPMs:

- RRPMs are installed adjacent to the dividing line and edge lines of all Priority 1 roads and all other roads with total traffic volumes greater than 5000vpd
- RRPMs to be installed in accordance with the requirements of Section 5.6 of Part 2 of the MUTCD

Performance Trends

Performance of long lines are being done by ARRB using mobile retro reflectivity measurements.
In 15/16 and 16/17, 90% of lines remarked tested retroreflectivity over 300mcd/lux/m2 with durability ranging from 12 Months to 24 Months depending on traffic volumes.



Rationale for Allocation

The bulk of the allocation for this Element is retained at State-wide level to cover the costs of the State-wide line marking contract.
The remaining allocation divided amongst regions has been split on the basis of linemarking length.
The State-wide line marking program is based on needs identified through need surveys of the network.
Roads are prioritised based on traffic volumes and road priority and funds allocated accordingly.

QRSPP 4-year Performance Milestones

The table below describes the risk based planned remark intervals determined using the computer model and adopted by State Program Office to distribute available funds to districts. With the current level of funding, a significant part of the road network is expected to be in poor or very poor condition because of not meeting TMR standards, exposing TMR to risks resulting from,

- Reduced reflectivity
- Decreased network safety / Possible liability
- Increased % of network not meeting standards
- Network Level Testing

Planned Remark intervals with available funds

Linemarking Maintenance Interval Table (Years)						
AADT			Priority 1	Priority 2	Priority 3	Priority 4
1	-	3999	3	3	4	4
4,000	-	9999	2	3	3	4
10,000	-	39999	2	2	3	3
	>	40000	2	2	2	3

		Reflectivity (mcd)
	Good	> 200
	Fair	100 - 200
	Poor	50 - 100
	Very Poor	< 50

Output Reporting

Remarked Quantities in the past (Statewide)					
	Size of the network	13/14	14/15	15/16	16/17
Long Lines (lkm)	65522	11508	12532	13166	12488
Lateral (Water based) m2	618739	113906	86102	31066	42296
Lateral (Thermoplastic) m2	190460	15072	13286	8392	12888
RRPM (Units)	887289	179690	35560	61196	70280
Available allocations (Statewide)		$15.944M	$11.767M	$12.4M	$15.3M

Priority Listing

Priorities are established based on a deterioration model and routine network condition surveys organised by the Element Leader.

Consult Element Leader for the most up to date priority listing.

Element 27: Slope Risk Management

Element Contacts	
Element Leader:	Jared Lester 3066 7780

Element Scope

- All slopes >1.5m high affecting the state controlled road network (and others as required).
- Identification and Prioritisation of slope instability risks.
- Cost estimations and forward programming.
- Geotechnical investigation and risk mitigation design.
- Development and Implementation of Slope Risk Management Strategies.
- Treatment or management of high to medium risk slopes (typically <$400 K).
- Sudden large scale slope failures (e.g. non NDRRA).
- Managing slope risk information to support District element management.
- Acquisition and maintenance of risk management equipment (e.g. monitoring / warning devices).

Performance Target

Elimination or effective management of all high risk slopes (ARL1-2) on the State road network to provide a more efficient and safer road system.

Performance Trends

Not available.

Rationale for Allocation

- Collect an inventory of slopes (funded by E70).
- Undertake risk assessment on slopes which have been assessed as having a likely potential of risk (funded by E70).
- Prioritise slopes on the basis of assessed risk.
- Develop risk mitigation strategies for slopes and incorporate into program development.

QRSPP 4-year Performance Milestones

- Estimated 75% of Stage 2 inspections completed (with Slope Risk Management Advice).
- District Slope Risk Monitoring plans in place and Interim Slope Management Plans (where required) prepared for assessed slopes.
- Approximately 100 treatment projects completed.

Output Reporting

1. Districts to provide details of slope mitigation work undertaken with the Element funding

Element:			Slope Risk Management		Planned				Actual			
Road No.	Slope Risk ID	ARL	Tdist_start	Tdist_end	Length	Area	Treatment Type	Est. Cost	Area	Treatment Type	Actual Cost	Project Number
					0							
					0							

Priority Listing

- Initial project list from needs analysis was developed in October 2013. District priority list for delivery of projects from the current allocation (which is less than needs) is to be finalised.
- An Initial list of high risk slopes from stage 2 assessments carried out to date was developed in November 2015. The list is ordered by ARL, Road Priority, Hazard Classification and AADT to assist prioritisation. The list is being reviewed to remove TNRP and treated sites. District priority list for delivery of projects from the high risk slopes list and current allocation (which is less than needs) is to be finalised.
- A draft Priority Slopes Listing was developed in July 2016 from Stage 2 assessments carried out to date. This listing comprises ARL1, 2 and 3 slopes and is filtered by an Incident Scale, a Community Scale, ARL, Hazard Classification, Road Priority, and AADT. District and Community scales rely on District input and historical data to evaluate.

Element 29: Skid Resistance Management

Element Contacts	
Element Leader:	Michelle Baran 3066 4026
Element Support:	Kobe Ip 3066 0946

Element Scope

- Investigation of risks associated with skid-related crashes triggered by:
  - network level skid resistance testing
  - skid-related crashes
  - public enquiry, complaint or request for action related to skid resistance.
- Recording of the outcome of investigations in accordance with the Skid Resistance Management Plan
- Taking appropriate actions:
  - undertaking remedial surface treatments (e.g. water blasting, calcined bauxite)
  - erecting temporary warning signs
  - implementing a site monitoring strategy
    speed limit review.

Performance Target

All sites identified with skid resistance below the investigatory level have been investigated in accordance with the Skid Resistance Management Plan (SRMP) and either programmed for remedial treatments or registered for monitoring.

All of the network has at least 70% probability of skid resistance (SFC) being greater or equal to Investigatory Level (IL).

Current Performance

Of the7,600km high risk road sections and 647 ramps were tested in the 2017 SCRIM survey:

	Total length
> 90% points failing the I.L	270 km (4 % tested length)
Between 75% and 90% points failing the I.L	186 km (2 % tested length)
Between 50% and 75% points failing the I.L	384 km (5 % tested length)
Between 30% and 50% points failing the I.L	418 km (5 % tested length)
Between 0% and 30% points failing the I.L	6,268 km (83 % tested length)

20 year Performance Target

Rationale for Allocation

The needs assessment for 2018/19 – 2021/22 considered four priorities:

Priority	Description	% Included in Needs	Comments
1	Sites tested in 2017, inspected and prioritised with crash data which are not programmed for treatment	100%	Districts requested to inspect sites where >75% of points (with 100m segment) failed the I.L.
2	Sites tested in 2017, which were not inspected, but where more than 75% of points within a 100m segment failed to meet the I.L.	75%	Sites which were triggered under E17/E18 needs in SCENARIO were excluded.
3	Sites not tested, but where wet crashes occurred. ***Note: this criterion is not used as crash data quality***	75%	Sites which were triggered under E17/E18 needs in SCENARIO were excluded.
4	Sites not tested, but where texture depth was < 0.6mm and speed > 80km/hr	50%	

QRSPP 4-year Performance Milestones

- Complete skid inspections (Based on 2017 SCRIM survey) as required by end of June2018 to enable next QRSPP development.
- Prioritise skid resistance treatments on the basis of skid risk.

Output Reporting

- Districts to undertake inspections of identified sites as requested
  - Record inspections in Skid Resistance Inspection Database (provided by TSAM at time of request).
- Districts to update ARMIS inventory upon completion of projects.
- Districts to provide the State Program Office on a quarterly basis:

Element:	Skid Resistance Management		Planned				Actual			
Road Section	Tdist_start	Tdist_end	Length	Area	Treatment Type	Est. Cost	Area	Treatment Type	Actual Cost	Project Number
			0							
			0							

** Where a resurfacing project is undertaken to address a skid deficiency, this can be recorded through the output reporting for Element 17

Priority Listing

The inspection list for sites identified with low SCRIM results as part of the 2017 network-level testing was circulated to districts on 9 January 2018.

Element 30: Route Lighting

Element Contacts	
Element Leader:	Cowan Caldwell 3066 1288

Element Scope

- Route lighting on existing lit and unlit roads, including:
  - Motorways
  - intersection lighting on existing lit and unlit roads
  - pedestrian crossing lighting.
- Energy and electrical authority charges, including retailer and government charges.
- Programmed inspections and tests of lighting infrastructure to ensure compliance with electrical safety legislation and TMR technical specifications.
- Program for replacing existing legacy luminaries with high efficiency LED luminaries and smart lighting technologies.
- Cyclic/bulk lamp replacement program.
- Road Maintenance Performance Contract maintenance of route lighting infrastructure.
- Data collection, entry and administration of inventory and transaction details of route lighting assets.
- District and corporate element management function.

Performance Target

- All Rate 3 installations comply with legislative electrical safety requirements.
- All state controlled roads illuminated in accordance with the *RPDM*, Austroads and Australian Standards.
- All Rate 3 lighting infrastructure complies with TMR standards.
- All luminaries use high efficiency technologies.
- Lighting levels are maintained in accordance with Austroads and the *RPDM.*

Current Performance

- Electrical safety requirements for existing rate 3 installations are being addressed.
- New Rate 3 installations are being installed in accordance with TMR standards.
- A program to replace legacy technology lamps has been implemented as funds permit.

Rationale for Allocation

Allocations are based on Regional/District asset inventory with non-discretionary components given the highest priority:

Sub-Element	Non-discretionary Components
230	Electricity Supply Agency Charges (listed as Mandatory)
230	Rate 3 Routine Maintenance
230	Rate 3 Programmed Routine Electrical Inspections, Tests and Maintenance
130	Renewal of Existing Rate 3 Lighting Installations
130	Road Safety Enhancement (New Lighting on Unlit Road Segments)

Sub-Element	Discretionary Components	Priority
230	Replace legacy luminaires with high efficiency luminaires	1
230	Rate 3 Bulk Lamp Replacements	2

Non-discretionary components are those whereby the scheduling and associated costs cannot be altered due to their critical nature, for example not performing these works could have serious safety or legal implications.

Discretionary components are those which may be scheduled and costed to make way for higher priority (non-discretionary) works.

Output Reporting

Reporting will be based on the new approved Work Breakdown Structure for Road Operations projects to enable accurate reporting of outputs.

QRSPP 4-year Performance Milestones

- accurate data on the inventory, condition and status of all road lighting installations,
- Operational, non-discretionary components:
  - Electricity Tariffs and charges
  - Electricity accounts paid -as invoiced by the electricity supply agencies Stanwell Energy (Energex) and Ergon Energy.
  - Ability to validate electricity authority accounts against TMR inventory and update records accordingly.
- Rate 3 Routine Maintenance
  - Road lighting assets being maintained to standard to ensure greater road safety.
  - Safety-type defects on the network are being addressed within the set intervention standards.
- Rate 3 Programmed Routine Electrical Inspections, Tests and Maintenance
  - Visual inspections occurring every 3 years in conjunction with the bulk lamp replacements.
  - Test and inspections occurring every 6 years.
  - Regions' total Rate 3 road lighting installations fully inspected, tested, and as required, repaired, in accordance with the TRUM Manual.
- Operational, discretionary components:

  Upgrade Rate 3 Legacy HID Luminaires to LED Luminaires
  - Existing High Intensity Discharge (HID) luminaires replaced with LED luminaires that utilise high efficiency technologies.

  Rate 3 Bulk HID Lamp Replacements
  - Lamps replaced once every 3 years.
- Capital component:

  Road Safety Enhancement
  - Rate 2 & 3 lighting is installed in accordance with the Road Planning & Design Manual (RPDM) road lighting warrants and standards.

Priority Listing

- Electricity Supply Agency Charges (listed as Mandatory)
- Rate 3 Routine Maintenance
- Rate 3 Programmed Routine Electrical Inspections, Tests and Maintenance
- Renewal of Existing Rate 3 Lighting Installations
- Road Safety Enhancement (New Lighting on Unlit Road Segments)

Element 34: Traffic Management

Element Contacts

Element Leader: Andrew Causley
3066 0919

Element Scope

The overall objective of this element is to safely optimise the operation of the road network by providing and maintaining road operations hardware, systems (software) and services.

The three key areas of focus for this element are

- Traffic management;
- Traffic and travel information; and
- Traffic incident management.

Performance Target

To optimise road operations within the existing Queensland road system by improving the reliability of travel times and enhancing road user safety. This is achieved:

- By reducing the duration and impact of traffic incidents
- By providing high-quality, fully-integrated multi-modal traveller information services that are accurate relevant and timely
- Through the operation of more reliable traffic control systems to move people and goods efficiently on the network.

Current Performance

Five (5) key outcomes identified in TMR Road Operations Action Plan 2016-18:

- Informed
  - Availability of 131940 web and phone services – 99.5%
  - Accuracy of information 131940 web and phone services to actual network status – 99%
- Optimised
  - Accommodate network growth without diminished performance
  - Availability of core traffic management systems – 99%
- Available
  - Reduction in road occupancies without permits
- Innovative
  - Investment in improved systems, technology and process – 20% of E&T element E34 program
- Collaborative
  - Improved consistency of operational processes across TMR TMCs.

Rationale for Allocation

Framework for allocating road operations element funding is undertaken in the following phases:

- Clarify program requirements by detailing element scope, priorities and expected service levels.
- Element leader assess regional submissions and develops state-wide aspirational bids.
- Element leader develops District Element allocation in light of overall element allocation.
- District element managers provide a submission that outlines funding needed to deliver full program requirements as well as a delivery plan for available allocation. The shortfall and the associated risks are then used to inform step 2 in future program development cycles.
- Program delivery and state-wide program delivery performance reporting.

Output Reporting

Reporting is based on a standard Work Breakdown Structure for Road Operations projects to enable accurate reporting of expenditure outputs.

Non-financial outputs are also available from Road Operations systems such as TSDM, SIMS, STREAMS, QLD Traffic Event Publishing System and ROAMS.

QRSPP 4-year Performance Milestones

The element provides funding to operate, maintain and enhance: traffic management devices that reduce congestion and improve the performance of the road network; system and service capabilities to detect, respond and clear traffic incidents quickly to reduce impacts on travel reliability and minimise travel delays; traffic and travel information products to help road users make more informed travel choices; ITS and other electrical assets that optimise use of existing infrastructure and improve safety.

Priority Listing

Priority sites across Queensland for the element are prioritised for each District according to the following hierarchy:

- Priority 1 Maintain safety only: Operational activities of which present the primary means for TMR to maintain the safe use of the state controlled road network (that is, make safe works on the travelled path, maintaining traffic signals)
- Priority 2 Maintain safety and Efficiency: Operational activities of which present the primary and supporting means for TMR to maintain the safe and efficient use of the state controlled road network (that is, make safe works off the travelled path, network optimisation activities).
- Priority 3 Enhance Safety and Efficiency: Operational activities of which enhance the safe and efficient use of the state controlled road network (that is, upgrading of existing ITS devices, end of life replacement of "low cost of outage" ITS assets)

Element 70: Data Collection

Element Contacts

Element Leader: Graham Lee-Lovick
3066 3745

Element Scope

The overall objective of this element is to support other elements through single supplier state-wide network data collection, verification and loading into corporate systems. The data supplier can be either from TMR or contracted to a third party.

The following are in the scope of and funded by this element:

- Funding of state-wide data collection to support MPO element inventory, condition and performance reporting.

Performance Target

Not applicable

Current Performance

Not available

Rationale for Allocation

Allocations are retained at state-wide level and cover:

- minimum pavement testing requirements outlined in the Pavement Data Collection Policy
- high priority Element data collection needs, e.g. E24 Delineation, E27 Batter Slopes and E29 Skid Resistance.

QRSPP 4-year Performance Milestones

Not available

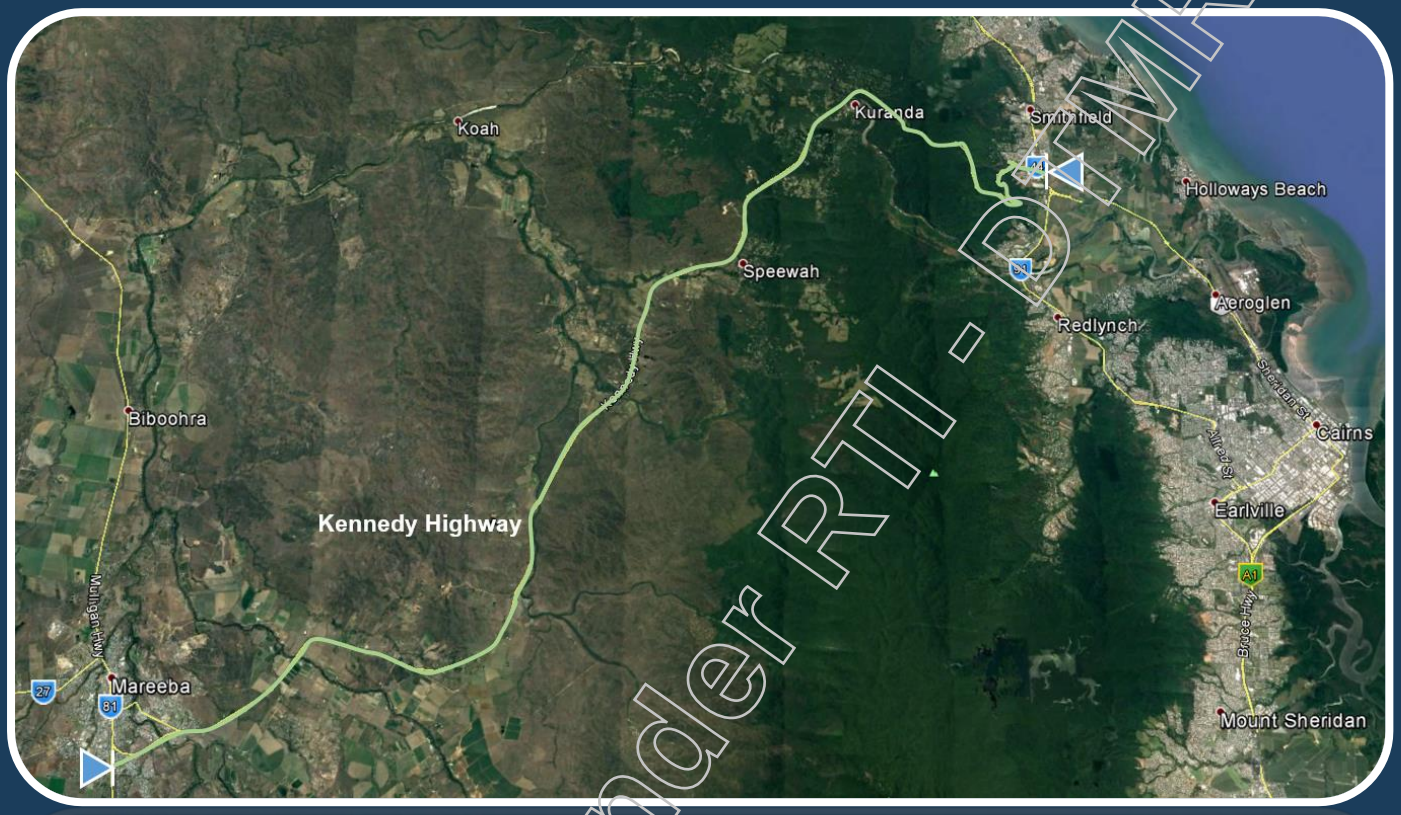
Output Reporting

Not applicable

Priority Listing

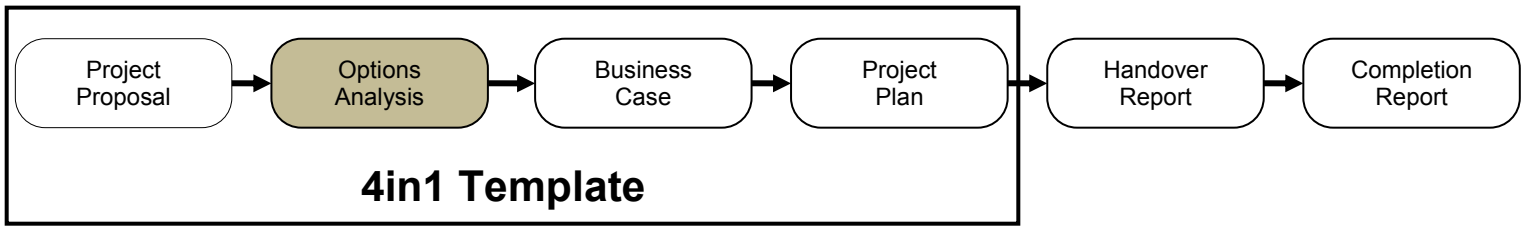
Appendix 1 – MPE & RO Elements

Element No.	Element Name	Element Group	Sub-Element No.
			Capital / Operating
1	Contaminated Areas	MPE	201 - Operating
2	Nature Conservation	MPE	202 - Operating
3	Degraded Areas	MPE	203 - Operating
4	Heritage Preservation	MPE	204 - Operating
5	Invasive Plants and Animals	MPE	205 - Operating
6	Fire Risk Management	MPE	206 - Operating
7	Management of Grids	MPE	107 - Capital
9	Road Traffic Noise Management	MPE	109 - Capital
11	Vehicle Monitoring System	RO	111 - Capital & 211 - Operating
13	Other Transport Infrastructure Maintenance	RO	213 - Operating
15	Routine Maintenance (Sealed & Unsealed)	MPE	215 - Operating
16	Unsealed Road Resheeting	MPE	216 - Operating
17	Surfacing Treatments (Sealed)	MPE	117 - Capital
18	Pavement Rehabilitation	MPE	118 - Capital
19	Bridge and Culvert Rehabilitation	MPE	119 - Capital & 219 - Operating
23	Roadside Signing	MPE	123 - Capital
24	Roadside & Surface Delineation	MPE	124 - Capital
27	Batter Slope Management	MPE	127 - Capital
29	Skid Resistance Management	MPE	129 - Capital
30	Route Lighting	RO	130 - Capital & 230 - Operating
34	Road Operations	RO	134 - Capital & 234 - Operating
39	Large Traffic Sign Management	MPE	239 - Operating
70	State-wide Data Collection	MPE	270 - Operating



Business Case Report

CN-6132 High Risk Roads Safety Improvements Kennedy Highway (32A, Cairns – Mareeba)



Project Summary

Region/Unit	North Queensland Region / Far North District / Cairns Office
Location	Kennedy Highway 32A (Cairns – Mareeba)
Program	Targeted Road Safety Program – High Risk Roads
Project Number	52-00448825
Project Description	CN-6132 High Risk Roads, Provision of Safety Improvements on the Kennedy Highway 32A

Document Control

Prepared by:	Jacobs for Kent Lo (TMR)
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Branch:	Program Delivery and Operations
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Location:	Floor 5, Cairns Corporate Tower 15 Lake Street, Cairns, QLD 4870
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DMS ref. no:	505/00103
File/Doc no:	IH129300-0000-CR-RPT-0001

Version history

Version no.	Date	Changed by	Nature of amendment
0	23 January 2018	Troy McCormack (Jacobs)	Initial draft for review and comments.
1	29 March 2018	Troy McCormack (Jacobs)	Business Case Issue
2	14 May 2018	Troy McCormack	Updated to incorporate TMR review comments from Regional Planning Manager. Final report for approval.
3	25 May 2018	Kent Lo	Minor corrections and inclusion of a schematic diagram.

Template Version 2.0 (07/08/2013)

Endorsement and Approval

Customer

I agree to the project proceeding as proposed in this document.

Name	Sanjay Ram
Position	Regional Director (North Queensland Region)
Signature	NR
Date	28/05/18
Comments	

Sponsor

I agree to the project proceeding as proposed in this document.

Name	Sandra Burke
Position	District Director (Far North District)
Signature	NR
Date	28/5/18
Comments	

The following officers have **endorsed** this document:

Name	Darryl Jones
Position	Manager (Project Planning & Corridor Management, Far North District)
Signature	NR
Date	18/5/18

Add further names as required

Project manager:

I recommend the project proceeds as proposed in this document.

Name	Kent Lo
Position	Project Manager (Project Planning & Corridor Management, Far North District)
Signature	NR
Date	18/05/18

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Executive summary

The Kennedy Highway (32A, Cairns – Mareeba) is an arterial road on the state-controlled road network in Far North Queensland. It provides an important route for local commuters, tourism, and freight transport to gain access from Cairns to Mareeba. The link commences at the base of the Kuranda Range near Smithfield (Ch. 0.0 km) and transverses through a variety of environments including a steep range and rolling topography, to its terminus at the town of Mareeba (Ch. 48.84 km).

The traffic volume for the section between Smithfield and Kuranda is approximately 8,700 vehicles per day (2016), reducing to approximately 5,800 vehicles per day (2016) between Kuranda and Emerald Creek before increasing to approximately 7,700 vehicles per day (2016) between Emerald Creek and Mareeba.

Given the link's strategic significance in the Far North District, safe and efficient transport movement is of paramount importance.

In two state wide reviews of crash data, the Kennedy Highway from Cairns to Mareeba (one in 2015 and one in 2017) was found to rank highly for key risk indicators compared to other state-controlled roads. This section of road was identified for further investigation due to the:

- Very high number of fatal crashes (8 in the reporting period[1]); and
- Very high number of fatal or serious injury crashes (72 in the reporting period[1]).

These equate to an average cost to the community of $24.2M/year over the last five years.

The proposed project is in response to the high crash frequency along the Kennedy Highway. Based on a new High Risk Roads (HRR) framework, under the Targeted Road Safety Program (TRSP), the project aims to develop value for money options for road safety improvements along the whole link. A prioritised list of projects is presented for further consideration and progression into Detailed Design and Implementation.

The objectives of the project include:

- Maximise Road Safety Benefits;
- Achieve Value for Money; and
- Provide a Consistent Customer Experience.

The route was divided into two sections to enable concurrent assessment:

- Section 1 - Chainage 0.0km – 11.3km (Kuranda Range); and
- Section 2 - Chainage 11.3km – 48.84km (Kuranda to Mareeba).

The proposed project location is shown in **Figure E.1** below.

[1] The reporting period for the HRR study was from 2009 to 2015 between Cairns and Speewah and from 2011 to 2015 between Speewah and Mareeba.

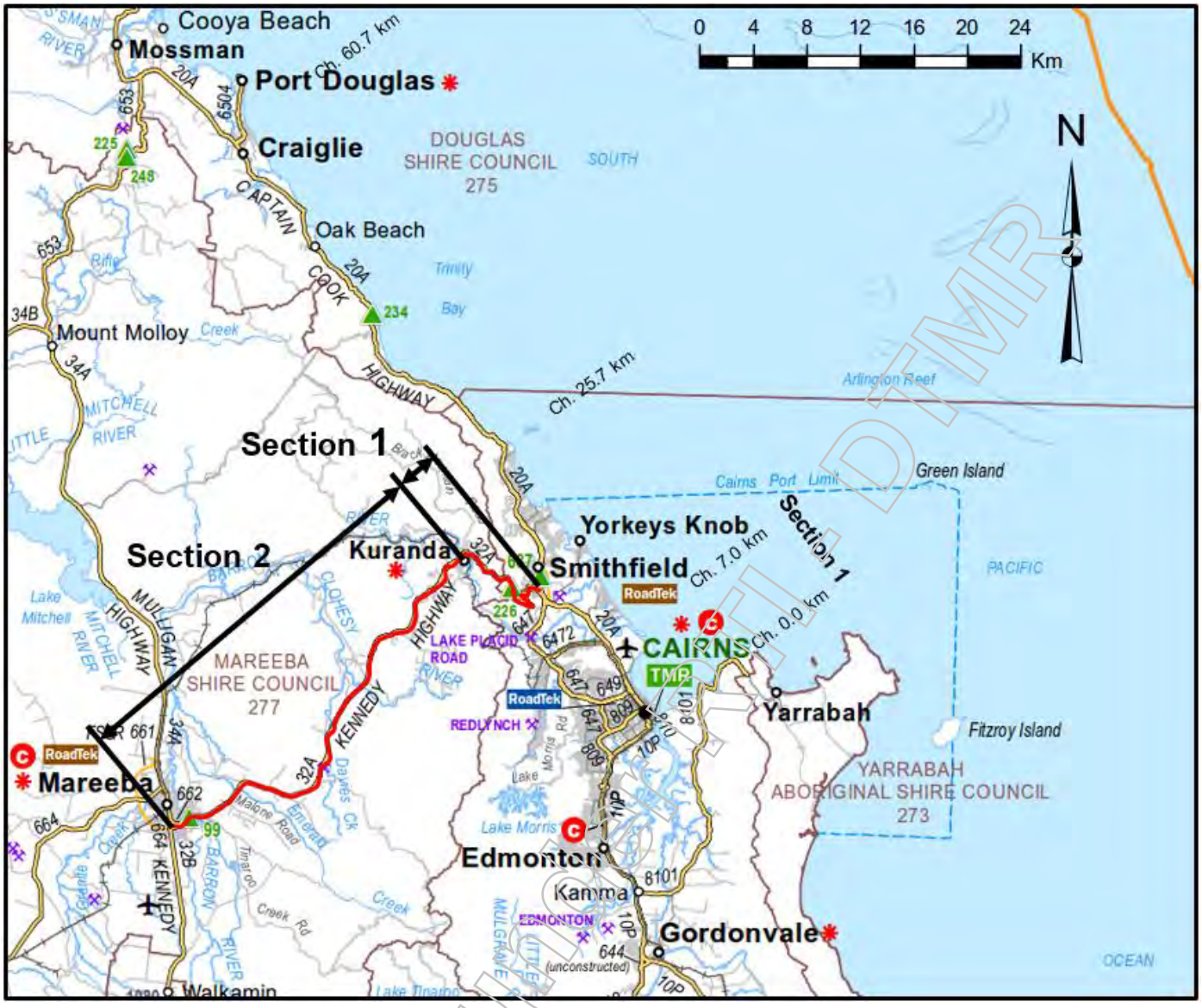

Figure E.1 Project Location

Safety treatments were developed for different location types, including but not limited to: signalised intersections, unsignalised intersections, property accesses, curves, straights, pull over bays, and over taking lanes. Treatment options also varied from minor capital work options (e.g. linemarking and signage) to more complex capital work options (e.g. road realignment and major formation widening, intersection upgrade). Refer to Section 7 for a full list of options considered in conjunction with **Appendix B to E**. Accident types and associated treatments were separated into four categories based on the applicable road section:

- Accidents on the Kuranda Range section (Section 1);
- Accidents at intersections between Smithfield and Mareeba (Sections 1 and 2);
- Off Carriageway accidents between Kuranda and Mareeba (Section 2); and
- Head on accidents between Kuranda and Mareeba (Section 2).

Assessment criteria were then developed to compare and score each option in a Multi-Criteria Analysis workshop. Concept estimates for these preferred options were:

- Section 1 – Accidents on Kuranda range (Option 5). Typical treatments included implementation of wide centreline treatment for the full length of the range excluding Ch. 7.0 – 8.5km, installation of additional signage and EZY Guard guardrail, and major formation widening involving earthworks or retaining structures to facilitate these treatments in isolated locations. $28.03 M
- Sections 1 & 2 – Accidents at intersections between Smithfield and Mareeba (Option 4). Typical treatments include upgrading existing intersections to BAR / BAL, CHR(S) / AUL(S), CHR / AUL and modification to existing signal phasing. A total of 24 intersections have been proposed to be upgraded. $6.08 M
- Section 2 – Head on accidents between Kuranda and Mareeba (Option 3). Typical treatments include road widening to permit the installation of wide centreline treatment and audio tactile linemarking, and installation of an overtaking lane. $8.78 M
- Section 2 – Off carriageway accidents between Kuranda and Mareeba (Option 3). Typical treatments include shoulder widening, installation of audio tactile linemarking to edgelines and installation of wire rope barrier or guardrail. $6.97 M
- Principal's Cost $15.49 M
- Contingency $25.93 M
- Escalation $7.97 M
- **Total** **$99.25 M**

Refer to **Figure E.2** on the next page for a schematic diagram of treatment options and their approximate location.

Between the assessment period of 2007 – 2017 the following number of accidents have occurred on each section of the road:

- Section 1, Kuranda Range - a total of 303 accidents (all accident types), with 89 accidents resulting in a fatality or admission to hospital only. This corresponds to a treatment cost of $92,500 per accident (construction cost only);
- Section 1 and 2 Intersections – a total of 42 accidents (all accident types) have occurred across the 24 intersections. This corresponds to a treatment cost of $144,700 per accident (construction cost only); and
- Section 2, head on and off carriageway accidents - a total of 96 accidents (all accident types) have occurred between Kuranda and Mareeba. This corresponds to a treatment cost of $164,100 per accident (construction cost only).

The Land Transport Safety (LTS) team, as the project advisory group, was involved during the Concept Phase to provide technical advice and program governance for inclusion of the proposed project into the QTRIP (Queensland Transport and Road Investment Program). A benefit / cost analysis of the preferred options has been undertaken by LTS. The significant potential savings from the reduction in crash costs per year have formed part of the analysis, in particular regarding value for money. The benefit / cost analysis was completed using a 6% discount factor and the final BCRs generated for the two segments are:

- Section 1 (Ch. 0.0 – 11.3 km): BCR **2.2**
- Section 2 (Ch. 11.3 – 44.84 km): BCR **1.4**

Figure E.2 Schematic Diagram of Treatment Options

The BCR generated shows that the project is economically viable and represents a high value for money outcome.

At the completion of this project, it is forecasted that TMR will realise a reduction in the frequency, severity and overall social cost of crashes along the link.

Major risks or uncertainties that have been identified during the Options Analysis phase are as follows:

- Availability of funding / changes in funding priorities;
- Cost estimate exceeds budget;
- Availability of resources to meet the program;
- Conflicts with existing utility services;
- Accuracy of DCDB property boundaries;
- Stakeholder requirements;
- Environment, cultural heritage and native title;
- Constructability;
- Wet season impact; and
- Traffic delay.

The Kennedy Highway (32A, Cairns – Mareeba) High Risk Road Safety Improvements project will fulfil the nominated project objectives. **It is therefore recommended that this Business Case Report be approved with sufficient funding allocated to the Far North District for the current project to progress into the Development Phase.** Note that further consideration of the identified issues or additional concerns requiring further investigation are detailed in Section 7.1. These issues comprise of:

- Henry Ross Lookout on the Kuranda Range – a treatment option has been proposed involving traffic separation utilising concrete barriers, reconfiguration of pavement marking, removal of the east bound overtaking lane and addition of parking on the western side of the road in conjunction with installation of a viewing platform. Further investigation is required to determine the feasibility of the proposed option;
- The adoption of Extended Design Domain (EDD) to suit project funding – adoption of EDD would result in a reduction of construction costs on intersections which it applies to, which would present an overall cost saving. Individual detailed assessment of each intersection is required to confirm if it is appropriate to apply EDD;
- Treatment of motorcycle accidents on the Kuranda Range – accidents on this section are often not the result of geometrical issues but of excessive speed or rider behaviour. Historically, this can be controlled by consistent signage including curve advisory speed signs. Further investigation is required to confirm exact location of signage and curves which require upgrades to existing signage to achieve consistency;
- Implementation of WCLT signage on the Kuranda Range – wide centreline 0.6m wide is proposed to be implemented to provide separation between traffic lanes, however is narrower than the conventional 1.0m that is provided in the region. Consultation with Engineering and Technology, LTS and the TMR district regarding the reduced width and preferred signage is required;
- Intersection 32A/662 Mareeba Connection Road treatment option – a T-intersection treatment has been proposed, however the latest traffic data available which used for SIDRA analysis was from

1996. The proposed option should be investigated using current traffic count information, and consideration of alternative options shall be undertaken before confirming the proposed option;

- Intersection Rob Veivers Rd / Myola Rd – it is recommended that the signal phasing at this intersection is changed to remove filtered right-turn movements, however the traffic data available which was used for SIDRA analysis was STREAMS data, not a traffic count. Analysis shows that while removing filtered right-turn movements will improve safety at the intersection, it will also reduce its performance. Further investigation using a current traffic count shall be undertaken to confirm the viability of the proposed option;
- Incorporation of overtaking lanes – installation of both an east bound and west bound overtaking lane between chainage 28.7 km – 30.3 km has been recommended in the preferred treatment option for head on crashes. Justification for the proposed location is detailed in Section 7.1.7;
- Completion of geotechnical investigations and design in future stages – geotechnical investigations and designs have not been completed as part of the Business Case for major formation widening works on the Kuranda Range. Proposed treatment options and cost estimates have been based on similar type projects that have been recently constructed on the Kuranda Range. Geotechnical investigation, design and certification is required at each of the proposed locations requirement major formation widening works as part of the Development Phase;
- Environmental constraints assessment – a preliminary environmental assessment was completed as part of the Options Analysis to identify general environmental constraints on the Kennedy Highway. Further assessments are to be completed during the Development Phase at individual critical locations, in particular on the Kuranda Range;
- Intelligent traffic systems (ITS) – a VMS at chainage 4.1 km for east bound traffic approaching the hairpin bend has been recommended. This will complement the VMS that are currently being installed by TMR. Supply and installation of these VMS boards is being completed under a program separate to this Business Case;
- High Crash Zone Signage – the need for installing high crash zone signage between Kuranda and Mareeba (Section 2) has been raised to improve driver awareness. Further investigation and agreement with Queensland Police Services (QPS) to determine the location for the signage will be undertaken in the Development Phase; and
- Project Prioritisation – proposed treatment options on the Kuranda Range (Section 1) have been assigned a priority. Further assessment will be undertaken by LTS to confirm prioritisation of this section, as well as the remaining section of works and proposed intersection upgrades, to assist this process.

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1 Purpose of this document

The purpose of this document is to finalise scope definition of and concept estimate for the selected option, evaluate benefits and obtain the customer's commitment to funding and agreement to the project's inclusion in the QTRIP.

2 Definitions

A list of terms, abbreviations, and acronyms relevant to the proposed project are provided in **Table 2-1.**

Table 2.1 Specific terms, abbreviations, and acronyms

Terms, abbreviations and acronyms	Meaning
32A	TMR Road No. for Kennedy Highway (Cairns – Mareeba)
3PCM	Portfolio, Program, Project and Contract Management
AADT	Annual Average Daily Traffic
ARMIS	A Road Management Information System
ATLM	Audio Tactile Line Marking
BS	Black Spot
CAS	Contract Administration System
CBD	Central Business District
Customer	Decision maker 'owning' the new asset
DBYD	Dial Before You Dig
DCDB	Digital Cadastral Database
DTMR	Queensland Department of Transport and Main Roads
E&T	TMR's Engineering and Technology Branch
ECS	Engineering Consultant Scheme
EDD	Extended Design Domain
HRR	High Risk Roads
LTS	Land Transport Safety
MCA	Multi-criteria Analysis
NDD	Normal Design Domain
PCEM	Project Cost Estimating Manual
PP&CM	Project Planning & Corridor Management
PUP	Public Utility Plant
QTRIP	Queensland Transport and Roads Investment Program
RRPM	Retro-reflective Pavement Marker
Sponsor	Head of the delivery group
SRA	Safety Risk Assessment
SRS	Safer Roads Sooner
TMR	Queensland Department of Transport and Main Roads

Terms, abbreviations and acronyms	Meaning
TRSP	Targeted Road Safety Program
WBS	Work Breakdown Structure
WCLT	Wide Centre Line Treatment

3 Governance

The project is being managed in accordance with the project management policy of April 2012 and the principles on the OnQ website under governance. Governance arrangements for the project are set out below.

3.1 Key Roles

The key management roles of Project Customer, Sponsor, and Program/Project Manager are given in **Table 3-1**.

Table 3.1 Key project management roles

Project Customer	Sanjay Ram (Regional Director, North Queensland Region)
Project Sponsor	Sandra Burke (District Director, Far North District)
Concept Manager	Darryl Jones (Manager, PP&CM, Far North District)
Program Manager	Richard Evans (Principal Engineer, PP&CM, Far North District)
Project Manager	Kent Lo (Graduate Civil Engineer, PP&CM, Far North District)
Advisory Group	Land Transport Safety (LTS)

3.2 Project organisation structure

The overall project organisation structure will be in accordance with the OnQ Project governance model, to show the relationships between the roles filled by various project staff working on the planning phase of the proposed project. **Figure 3.1** below indicates communication and reporting responsibilities for the project at this phase, and the link into the permanent operating structure of the Queensland Department of Transport and Main Roads (TMR) via the project Customer. This is to be revised as required during subsequent project phases.

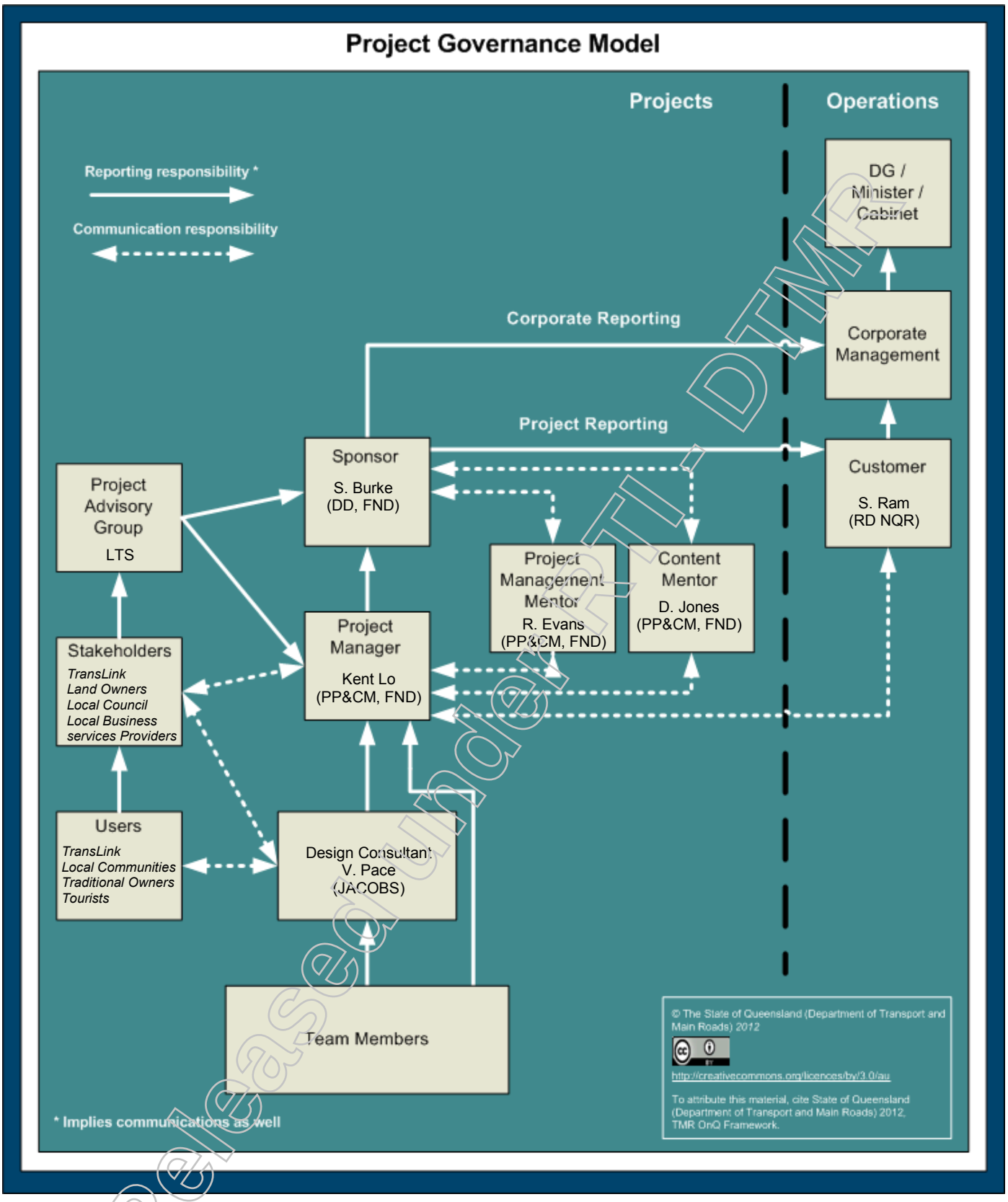


Figure 3.1 Project organisation structure for the planning phase of the proposed project

(based on TMR OnQ Framework project governance model, Queensland Government 2012)

3.3 Higher level requirements

No higher level requirements have been identified to be applicable to this submission.

3.4 Whole of government requirements/strategic focus

The *National Road Safety Strategy 2011-2020 (Australian Transport Council 2011)* recognises the need to complement the traditional reactive road safety programs to build on Australia's road safety performance, and the strategy acknowledged that the majority of crash sites in Australia are widely dispersed across the road network and that a broader, more strategic approach to improving the safety of the road network can be achieved by treating high crash risk sections.

The State of Queensland also recognises a mutual interest in developing a safe, sustainable transport system through land transport infrastructure and planning projects, and the Queensland Government is committed to reducing the burden of road trauma on our communities.

The Queensland Government's *Safer Roads, Safer Queensland: Queensland's Road Safety Strategy 2015-2021* marks the first time a Queensland government has committed to a vision of zero road deaths and serious injuries. This commitment is supported by informed targets, and the Department of Transport and Main Roads together with its 14 districts will continue developing and delivering the safety improvements on our state-controlled networks to:

- Reduce fatalities from 303 (average 2008-2010) to 200 or fewer by 2020;
- Reduce hospitalised casualties from 6,670 (average 2008-2010) to 4,669 or fewer by 2020.

The guiding principles adopted for the Queensland's road safety strategy include the following actions by the Department of Transport and Main Roads to:

- Expand our understanding of the "road toll" to all fatal and hospitalised casualties, and the true road toll is broader than fatalities;
- Adopt an ambitious long-term vision that is supported by interim targets;
- Entrench the mindset that the whole system must be safe at every level of road safety management, and develop solutions based on evidence and innovation, and safe system principles are the foundation for action; and
- Drive a fundamental change in the culture and attitude to road safety, as road safety is everyone's issue and everyone's responsibility

As an outcome of the road safety strategy, *Safer Roads, Safer Queensland: Queensland's Road Safety Action Plan 2015-2017* is the first in a series to be launched to help implement the steps that the department needs to take to begin achieving the long term goals outlined in the strategy. The action plan includes 57 initiatives totalling more than $500 million to be implemented throughout the Financial Year 2017/18, and 2018/19. Action will be taken in the key areas of education and engagement, enforcement, technology, roads and roadside infrastructure, research, data and innovation, and governance and strategy. The investment includes Safer Roads Sooner, Safety Mass Actions, treating emerging crash locations, federal Black Spot projects and targeted motorway treatments. From the planned actions, over $300 million of the total funding has been committed to specifically improve the safety of the road network by treating high severity crash sites through the Targeted Road Safety Program (TRSP).

The revenues collected from the Camera Detected Offence Program (CDOP) will contribute a significant source of funding for the TRSP. Other state consolidated revenue base funding is also provided for the TRSP along with funding from the Australian Government provided funding for the Black Spot Programme.

3.5 Departmental corporate/strategic requirements

The TRSP delivers infrastructure safety interventions by monitoring road crash trends and working in close collaboration with internal and external road safety stakeholders. The key target of the TRSP is to achieve reductions in road trauma through the delivery of high-benefit, cost-effective treatments on the road network to treat locations with known or the potential for high severity crashes. As part of the department's system upgrade to the new 3PCM (Portfolio, Program, Project and Contract Management) in 2016-17, the program works of the TRSP will be restructured to consist of 15 subprograms to manage a multi-pronged approach of delivering road infrastructure improvements targeting specific safety risks on the state-controlled road networks:

- Black Spot
- Innovation Trials and Capability
- Asset Management
- Mass Actions
- Route Actions
- Targeted Safety Interventions
- Flashing School Zone Signs
- Road Safety Minor Works
- Vulnerable Users
- Safer Roads Sooner
- Emerging Crash Locations Remediation
- Fatal Crash Remediation
- Safer Roads Sooner – Australian National Risk Assessment Model (ANRAM) & Innovation
- Safer Roads Sooner – Mass Action Programs
- Enforcement Infrastructure

As a development outcome from the TRSP, High Risk Roads (HRR) has been recently introduced by the department as a new framework and approach being adopted to address the following key components to meet the program targets:

- Identification of high risk locations on the state-controlled road networks;
- Analysis of the specific safety risks at the nominated risk locations; and
- Development of candidate project proposals based on the most appropriate treatment solutions to address the safety deficiencies for funding under the TRSP.

With the expected HRR approach, the department expects to achieve the targeted program benefit of the TRSP by:

- Maximising Road Safety Benefits by maximising reductions in fatal and serious injury casualties;
- Investigating Value for Money solutions to ensure an efficient delivery of the program works;
- Providing consistent customer experience by applying engineering standards and treatments consistently along a high risk road to assist road users in managing risks;

- Collaboration among internal and external stakeholders to work closely throughout the development and implementation phases to ensure the best outcome to be achieved; and
- The latest design, traffic, procurement and construction research to be applied to ensure the best practice approaches are employed throughout the life of the program.

3.6 Portfolio management requirements

The approved project is expected to be included as a part of the QTRIP portfolio for 2017-18 to 2020-21. Project specific governance requirements relevant to this project are:

- approval of this OnQ Options Analysis
- inclusion of this project into the QTRIP submitted to parliament

3.7 Program management requirements

The proposed project will be included in and managed under TMR's QTRIP. Currently, this is a planning project managed by the Project Planning & Corridor Management (PPCM) section in Far North District. The funding, scope and variations will be managed by the Far North District with high level governance support provided by the LTS Branch.

3.8 Business and program benefits of the project

The High Risk Roads approach to developing effective road safety improvement projects recognises that some of the factors contributing to high risk on the state-controlled road networks are route based or network wide issues. The department's previously established safety programs such as Safer Roads Sooner (SRS) and the Black Spot (BS) programs have focused on treating isolated high risk locations with high crash rates (crash clusters), with low-cost, high benefit treatments. These sub-programs have enabled numerous discreet locations to be treated in isolation, however, it has not enabled multiple issues to be treated concurrently, nor enabled the development of a prioritised, strategic program of works for implementation along a route.

By analysing and assessing isolated safety issues together and treating them in a single coordinated delivery approach, can bring the following advantages to the state:

- Systemic or route based issues planned and treated together rather than by a piecemeal approach over a number of years;
- Improved cost effectiveness from the delivery efficiencies associated with delivering larger projects rather than a series of smaller projects in an uncoordinated manner;
- Reduced traffic disruption and crash risk associated with temporary roadworks; and
- Improved safety and a consistent user experience by treating all locations on a route with the same treatment, cross section, and layout.

The key difference with the HRR approach and the established nomination and development process used for approving SRS and BS Program projects, is that the HRR Framework will:

- Holistically assess all road safety deficiencies identified on the route (including intersections);
- Enable development of a comprehensive treatment solution for the whole route; and

- Implement solutions in line with a delivery strategy.

The upgrade of various sections along the Kennedy Highway (32A) between the Cairns and Mareeba over an approximate length of 48.84 km to address the safety deficiencies will bring significant benefits to Far North Queensland with:

- Safety improvements for all road users by substantially reducing the number of crashes;
- Improved operational functionality through improved high risk road sections and intersections; and
- Delivery of value for money outcomes to achieve expected TRSP benefits over a stretched job length along the major transport link between Smithfield and Mareeba for all road users and stakeholders, including tourism industries that provide an important contribution to the economic growth in Far North Queensland.

3.9 Approvals

This project is to be developed under the OnQ process and will follow the appropriate approval procedures as set out in the TMR OnQ framework. The proposed project requires the approvals of the Customer, Sponsor, and Project Manager, as listed on this document's endorsement and approvals page above.

This report, with all of its Appendices and documented decision processes, will be assessed by the LTS team to identify projects that will be progressed and included in future years' QTRIP for delivery.

3.10 Reviews and reporting

This project will follow the OnQ monthly reporting methodology. Where there is no internal departmental reporting system and/or format, the OnQ Monthly Project Report pro forma can be used, together with the reporting requirements planner. The report will typically cover:

- Progress during the month;
- Risk and issues;
- Activities for next period;
- Resourcing; and
- Project control (including earned value (if possible), schedule performance, expenditure relative to budget, estimate to complete, change log).

Once available resources are known, reviews will be conducted by responsible individuals according to the resource management plan (refer to OnQ tools > Worksheets and pro forma > Staff Roles and Responsibilities or the Responsibility Assignment Matrix).

3.11 Project management method

The proposed project will follow TMR's policy to use OnQ project management methodology for the four phases of Proposal, Options Analysis, Business Case, and Project Plan stages. This will involve preparation of the *4in1 – Infrastructure T1&2 – Project Proposal, Options Analysis, Business Case, Project Plan* template. Following the Implementation Phase of the project, the OnQ Finalisation Phase *Handover Report* and *Completion Report* will be prepared. To evaluate the performance of the asset once the project has long been completed, a *Post Implementation Review* may be completed to provide learnings regarding the impact of the project's operations upon future strategy.

3.12 Technical standards and processes

All relevant departmental technical standards will be used to guide the project development throughout all project stages that include Options Analysis, Business Case, Detailed Design, and Contract Documentation, prior to approaching the Implementation Phase of the project. All works will be developed in accordance with, but not limited to the following guidelines and departmental manuals:

- Austroads Guides and Australian Standards;
- Drafting and Design Presentation Standards;
- TMR surveying standards;
- TMR Technical notes on Wide Centre Line Treatment (WCLT);
- TMR Technical notes on traffic engineering;
- TMR Technical Notes on Pavements, Materials and Geotechnical;
- Engineering Consultant Scheme;
- Environmental Processes Manual;
- Guideline for Audio Tactile Line Marking;
- Guidelines for Road Design on Brownfield Sites;
- Manual of Uniform Traffic Control Devices (MUTCD);
- Materials Testing Manual;
- Pavement Design Supplement;
- Pavement Rehabilitation Manual;
- Preconstruction Process Manual;
- Project Cost Estimating Manual;
- Project Development Guidelines – High Risk Roads;
- Road Drainage Manual;
- Road Planning and Design Manual (RPDM, 2nd Edition);
- Road Safety Audit Policy and Guidelines;
- Traffic and Road Use Management Manual (TRUM); and
- Transport Infrastructure Asset Management Policy.

4 Project definition

4.1 Location

The proposed project covers the length of the Kennedy Highway (32A) (Cairns – Mareeba) between Ch. 0.0 and Ch. 48.84 km. The project was split into two sections to allow concurrent assessment:

- **Section 1:** Chainage 0.0 km – 11.3 km (Kuranda Range Section); and
- **Section 2:** Chainage 11.3 km – 48.84 km (Kuranda to Mareeba).

The project location is shown in **Figure 4.1**, which also displays the two sections.

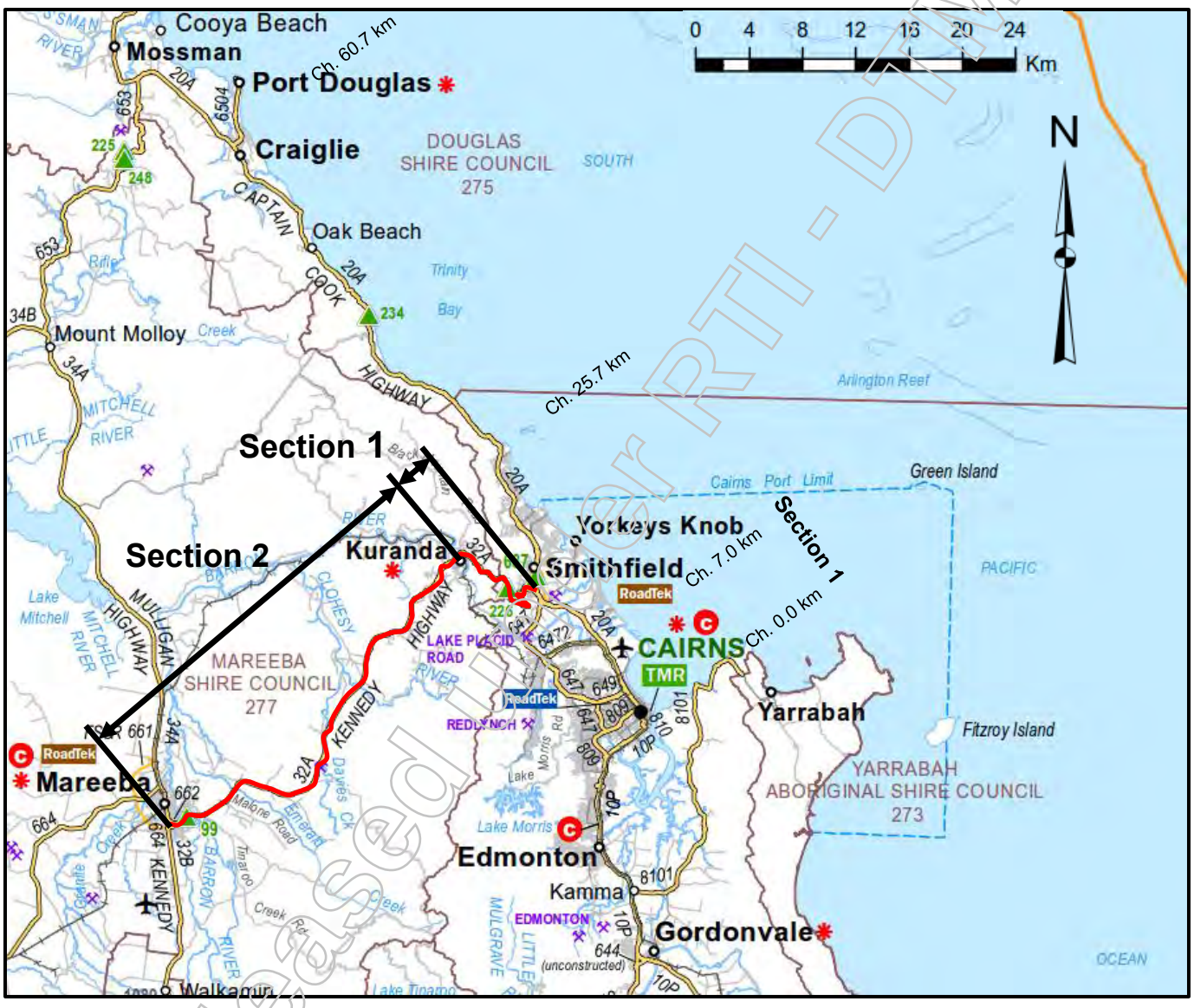


Figure 4.1 Project Location

4.2 Background

The Kennedy Highway (32A) (Cairns – Mareeba) is an arterial road on the state-controlled road network in Far North Queensland. It provides an important route for local commuters, tourism, and freight transport to gain access from Cairns to Kuranda, the Tablelands and the greater Cape York Peninsula. The route is a principal freight link between the regional towns on the northern Tablelands and the city of Cairns and is the first segment of the larger Kennedy Highway corridor. The link commences at the base of the Kuranda

Range at Smithfield and transverses through a variety of environments including a steep range and rolling topography, to its terminus at the township of Mareeba. For the regional towns on the northern Tablelands, the Kennedy Highway provides the primary commuter link to Cairns for educational, health and business related trips.

The Kennedy Highway (32A) (Cairns – Mareeba) is characterised by a two-lane single carriageway road between Smithfield and Mareeba. The road alignment on the Kuranda range winds through mountainous terrain and has a number of sharp curves with a narrow carriageway and numerous objects within 5m of the edge of the traffic lane. The alignment between Kuranda to Mareeba generally has a rolling terrain with infrequent larger curves. The opposing traffic is only separated by a centreline throughout most of the link between Smithfield and Mareeba, which coincides with a high number of head on collisions.

The traffic volume for the section between Smithfield and Kuranda is approximately 8,700 vehicles per day (2016), reducing to approximately 5,800 vehicles per day (2016) between Kuranda and Emerald Creek before increasing to approximately 7,700 vehicles per day (2016) between Emerald Creek and Mareeba.

Given the link's strategic significance in the Far North District, safe and efficient transport movement is of paramount importance.

The Kennedy Highway has been identified by LTS for consideration as a high risk road that is captured within the TRSP as part of a state-wide road safety assessment. This assessment identified the road for specific safety consideration as a result of a historical crash data review that found the Kennedy Highway ranked highly for road safety risks compared with other state-controlled roads.

4.3 Current situation

In a state wide review of crash data, the Kennedy Highway was found to rank highly for key risk indicators, compared to other state-controlled roads. The section of road between Cairns (0.0 km) and Speewah (20.0 km) was identified for further investigation due to the:

- VERY HIGH – Number of Fatal Crashes (4 within the reporting period[2]);
- VERY HIGH – Number of Fatal or Serious Injury Crashes (54 within the reporting period[2]);
- HIGH – Cost of crashes per year ($13.4 million[2]); and
- HIGH – Cost of crashes per kilometre, per year ($0.67 million[2]).

The section of road between Speewah (20 km) and Mareeba (48.84km) was identified for further investigation due to the;

- HIGH – Number of Fatal Crashes (4 within the reporting period[2]);
- HIGH – Number of Fatal or Serious Injury Crashes (32 within the reporting period[2]);
- HIGH – Cost of crashes per year ($10.8 million[2]); and
- HIGH – Cost of crashes per kilometre, per year ($0.37 million[2]).

The key issues that have been identified for this route are summarised in **Table 4.1**.

[2] The reporting period was from 2009 to 2015 between Cairns and Speewah and from 2011 to 2015 between Speewah and Mareeba.

Table 4.1 Key safety issues identified per Section

Section	Safety issues
Section 1 Ch. 0.0 – 11.3 km (Kuranda Range)	• Extensive lengths of road with sharp and very sharp curves • Hazards within the clear zone. • Minimal lane and shoulder width. • Lack of forward sight distance • High speeds and/or wet or slippery road surface • Driver attention at intersections. • Rear end crashes at intersections. • Opposing traffic only separated by centreline • High congestion, driver frustration causing rear end crashes • Vehicles travelling too fast for conditions
Section 2 Ch. 11.3 - 48.84 km (Kuranda to Mareeba)	• Hazards within the clear zone. • Minimal lane and shoulder width. • Driver attention at intersections. • Rear end crashes at intersections. • Opposing traffic only separated by centreline • High congestion, driver frustration causing rear end crashes • Vehicles travelling too fast for conditions • 80 & 100 km/hr speed zones

There have been some projects undertaken in recent times (since 2009) that have remediated some of the key issues raised above at particular locations. These are as follows:

Section 1

- Safety Upgrade – Earthworks and pavement widening Chainage 1.46 to 1.54 km;
- Safety Upgrade – Earthworks and pavement widening Chainage 1.54 km to 1.64 km;
- Safety Upgrade – Earthworks, retaining structures and pavement widening Chainage 2.12 to 2.22 km; and
- Safety Upgrade – Earthworks, retaining structures and pavement widening Chainage 5.76 to 6.09 km.

Section 2

- Road Safety Minor Works – Enhanced delineation Chainage 14.0 – 17.0 km;
- Safer Roads Sooner Mass Action Programs – Guardrail replacement / upgrade Chainage 21.96 – 31.09 km;
- Safer Roads Sooner – Intersection upgrade Chainage 26.60 – 26.70 km;
- Safer Roads Sooner Mass Action Programs – Install / upgrade / replace roadside delineation (WCLT and ALTM) Chainage 27.33 – 32.47 km;
- Safer Roads Sooner Mass Action Programs – Vegetation clearing Chainage 28.00 – 38.00 km;
- Safer Roads Sooner – Shoulder widening, re-alignment of intersection and pavement resurfacing Chainage 35.19 – 35.69 km;
- Safer Roads Sooner – Overtaking lane Chainage 35.71 – 37.14 km; and
- Safer Roads Sooner – Intersection improvements Chainage 43.95 – 44.00 km.

4.4 Objectives

The key objectives of this project are to:

- Maximise Road Safety Benefits – to maximise reductions in fatal and serious injury casualties;
- Achieve Value for Money – to implement a "value for money" approach for targeted safety improvements at various locations over a stretched length;
- Provide a Consistent Customer Experience – to apply engineering standards and treatments consistently along the road to assist road users in managing potential safety risk; and
- Apply the latest design, road safety, traffic engineering, procurement, and construction research to ensure the best practice approaches are employed through the life of the project.

4.5 Proposed project

In accordance with the HRR Framework, this project will allow multiple safety issues to be treated concurrently, and enable the development of a prioritised, strategic program of works for implementation along the Kennedy Highway between Cairns (Ch. 0.0 km) and Mareeba (Ch. 48.84 km). Treatment locations were identified from crash data and the TRSP HRR desktop studies, *Safety Risk Assessment, Far North District: Kennedy Highway (32A Tdist 0.00- to 20.00)* (TMR, November 2015) and *Safety Risk Assessment, Far North District: Kennedy Highway (32A Tdist 20.00- to 48.9)* (TMR, August 2015), hereafter called the SRA (32A) Reports. Safety treatments consider:

- straight and curved alignments on single lane carriageways;
- signalised intersections;
- un-signalised / signed-controlled intersections;
- property acceses;
- overtaking lanes, slow vehicle turnouts and pull-over bays;
- narrow sections of road;
- enhanced delineation, ALTMs; and
- other miscellaneous assets, such as roadside signage and guardrail.

Refer to **Appendix A** for SRA (32A) Reports.

4.6 Delivery strategy

The Transport Infrastructure Project Delivery System (TIPDS) (2014) has been used to provide guidance in regard to developing the best delivery strategy. In this case, where there is a degree of risk and complexity, it will be important to have a fairly high level of relationship management to facilitate good interaction between TMR, the Consultant and/or Contractor, and where applicable, subcontractors. Based on the project characteristics and knowledge of similar completed projects in the region, the delivery strategy is likely to be a 'Design and Document, and then Construct' model. Infrastructure works would be delivered using the Transport Infrastructure Contract – Construct Only (TIC-CO) contract. This model reduces the risk to TMR by transferring most of the complex and high-risk elements to the Consultants/Contractors.

In accordance with the requirements of the Queensland Procurement Policy, TMR has adopted a national system for prequalification of organisations that seek to tender for transport infrastructure projects, in order to minimise the risk of not meeting project objectives. The following prequalification levels are suggested as a basis for limiting registration of interest applications:

1. Roadworks level: R2/R3 (depending on location and complexity)
2. Financial level: F10 (depending on packaging of works)

These levels may be reduced to encourage competition, application by local suppliers and smaller contractors, and/or generate a larger pool of tenderers. Alternatively, levels may be raised to ensure tenderers have the financial and technical capacity to complete the work.

4.7 Project performance measurement/success criteria/KPIs

Standard OnQ project management processes will be followed to encourage good planning; effective scoping and resourcing; realistic expectations of outcomes; and strong management support. The effectiveness of these processes, and thus project performance, may be indicated by:

- Completion on-time;
- Completion within budget;
- Incident-free construction;
- Achievement of the required milestones;
- Customer/stakeholder satisfaction;
- Effective handover from project to Region;
- Completion and approval of handover report documentation;
- Completion and approval of completion report documentation;
- Few remedial works required during the defects liability period; and
- Satisfactory completion of all remedial works during the defects liability period.

4.8 Product performance measurement/success criteria/KPIs

The project manager does not control the usage or network impacts; however, it is important for them to know what is required so that 'before' measurements can be taken to enable later comparison. This exercise may also identify potential operating issues that can be escalated promptly to the customer. The success criteria for achievement of the project operational objectives may include those suggested in **Table 4.2.**

Table 4.2 Suggested methods of measuring product performance

Project objectives	Operational objectives	Suggested methods of measurement
Maximise Road Safety Benefits	• Reduced number of fatal and serious injury crashes. • Reduced severity of crashes.	• TMR data base (RoadCrash2) • Crash cost • Crash frequency • Police data base • Police report forms
Achieve Value for Money	• Benefits of safety treatments outweigh the costs.	• NPVs • BCRs • Cost Effectiveness Ratio (CER) (i.e. no. crashes prevented/cost of measure)
Provide a Consistent Customer Experience	• Consistent application of engineering standards and treatments for a safe road environment. • End-user satisfaction.	• Before-and-after RSA focussing on principles for safe design and operation of intersections, non-intersections, and location of devices (Austroads Guide to Road Safety Part 8) • Road user surveys
Collaborate	• All internal and external stakeholders work closely throughout the development and delivery phases.	• Records of regular consultation with all relevant internal and external stakeholders • Stakeholder satisfaction surveys
Apply Best Practice	• The latest design, road safety, traffic engineering, procurement, and construction research standards are employed through the life of the project.	• RPEQ approval and sign-off • Record of Senior Road Safety Auditor input • Reference to Austroads and TMR publications to support decisions and treatments.

5 Project scope

5.1 In scope

The proposed project is to provide safety improvements along the Kennedy Highway (32A) (Cairns – Mareeba) over a 48.84 km length to reduce crash rates (particularly for fatal and serious injury crashes). All road safety engineering treatments were considered in scope if their primary purpose delivered a reduction in the risk of fatal and serious injury crashes. The project considered all available modes of transport (pedestrian, cyclist, and vehicular) in the identification and development of safety improvements.

Due to the complexity of the existing road features, their functionality and traffic demand over the significant road length, the proposed safety treatments have also been selected by considering strategic fit and value for money. This allows for optimised safety benefits to be implemented on the road network.

In summary, a combination of various safety treatments have been selected at various locations along the Kennedy Highway between Cairns and Mareeba as follows:

<u>Section 1:</u> Chainage 0.0 km – 11.3 km (Kuranda Range)
Safety improvements for this section will improve safety along the curved alignment, with implementation of road formation widening, wide centreline treatment, improved signage and installation of protective barrier treatments. For detailed treatments at each location, refer to the "preferred options" summarised in Section 7 of this report.

- Improvements along curved alignments, including provision of compliant signage to meet current engineering standards; and
- Road formation widening to facilitate provision of 0.6 m wide centreline treatment and installation of barrier treatments to protect vehicles from road side hazards.

<u>Section 2:</u> Chainage 11.3 km – 48.84 km (Kuranda to Mareeba)
Safety improvements for this section will improve safety along the both straight and curved alignment sections of road, with implementation of road formation widening, wide centreline treatment, improved signage, improved opportunities for overtaking, intersection upgrades and installation of ATLMs and protective barrier treatments. For detailed treatments at each location, refer to the "preferred options" summarised in Section 7 of this report.

- Improvements along straight and curved alignments, including provision of 1.0 m wide centre line treatment and provision of 1.5 m wide shoulders, provision of audible line marking and installation of barrier treatments to protect vehicles from road side hazard, updated signage; and
- Treatments at identified intersections, including provision of channelized right-turn and/or auxiliary left turn lanes, basic right and left turn movement widening.

TMR's Far North District office will manage public consultation, and preliminary environmental and cultural heritage components, if required.

5.2 Out of scope

Any works that did not contribute to a safety outcome were considered out of scope, including:

- Capacity enhancement without significant safety benefits, that is, sites where there is no crash history, or solutions that produce little or no crash reduction benefits;
- Upgrading drainage capacity to address flooding issues;
- Realignment of horizontal and vertical geometry (unless the geometry is causing the safety issue, for example sight distance or concealed driveways etc);
- Modification of bridge structures (although lengthening/improving barrier on bridge approaches is in scope); and
- Maintenance or repair of existing assets, such as repairing/replacing damaged safety barrier or correcting pavement surface defects.

5.3 Constraints

There are a number of constraints involved in the development of this project. These include:

- Limited funding available for the current planning works, and for further project phases;
- Unknown lead time in detailed survey and pavement investigation if the project is approved to proceed to design development, due to the significant geographical spread of the project;
- Complexity of existing services that may have potential impact on design footprint and PUP relocation/protection costs;
- Inclement weather during the wet season is likely to have an impact on the construction program if works take longer than nine (9) months;
- Traffic management during construction due to the limited carriageway/corridor width and high daily traffic volume;
- Treatment options should be confined to the existing road corridor (land resumptions will be considered where there is a significant BCR to the proposed treatment, accounting for resumption costs as per the Functional Specification);
- Sufficient contingency in any developed estimates to cover all related stakeholder management and approvals to enable works to proceed; and
- LTS having sufficient time to undertake BCR calculations on the various treatments proposed as part of this Business Case.

5.4 Assumptions

The selection of safety treatment options was based on suitability of the treatment to the existing site and the ability to implement works within the existing road reserve. The project acknowledges the following assumptions:

- Public Utility Plant: the normal constraints around utility services were observed. Conflicts were identified by:
  - Enquiry through the "Dial Before You Dig" service offered by the Queensland State Government;
- Property Boundary Locations: the location of property boundaries was assessed based on Digital Cadastral Database (DCDB) information available at the time of this report. Cadastral surveyors have not been commissioned to confirm the location of property boundaries on the ground.
- Funding will continue to be available for subsequent phases of the project, in line with the proposed project schedule anticipated in this report.
- Resources will continue to be available to complete subsequent phase of the project, within the expected timeframe as anticipated in this report.
- Detailed survey or pavement investigation will not cause delay to the project design activities.
- Stakeholders will be sufficiently engaged and consulted as early as possible during the detailed design stage.

Where assumptions pose a risk to the success of the project, they have been captured in the risk register supplied to compliment the cost estimates.

5.5 Related projects/proposals/planning studies

The related project / proposal / planning studies are outlined below:

- Safer Roads, Safer Queensland: Queensland's Road Safety Strategy 2015-21 (State of Queensland [Transport and Main Roads], 2015);
- Kennedy Highway Link Plan: Top of Range (Ch. 11.5) to Mareeba (Ch. 49.8) (AECOM, 2012);
- Kennedy Highway Kuranda – Mareeba: Overtaking Lane Strategy Review (SKM, 2009);
- Kennedy Highway (32A) – Cairns to Mareeba: Provision of Overtaking Opportunities Ch. 19.5 – 21.5 Business Case (SKM, 2009);
- Kennedy Highway (32A) – Cairns to Mareeba: Provision of Overtaking Opportunities Ch. 29.0 – 30.5 Business Case (SKM, 2009);
- Safety Risk Assessment – Far North District: Kennedy Highway (Tdist 0.00 to 20.00) (State of Queensland [Transport and Main Roads], 2015);
- Safety Risk Assessment – Far North District: Kennedy Highway (Tdist 20.00 to 48.9) (State of Queensland [Transport and Main Roads], 2017);
- Kennedy Highway Kuranda to Mareeba: Four Laning (Duplication) Planning Report (SKM, 2009);
- Kuranda Range Road Link Study (AECOM, 2017);

The Integrated Transport Study for Kuranda Range (The Department of Transport and Main Roads, 1998-2008), should also be noted. The preliminary planning study was undertaken and the solution was to

duplicate the highway based on the predicted future development on the Tablelands. However, current planning shows that the focus for future development has now shifted to South Cairns, thus the proposed duplication/realignment upgrade is a long term solution, if at all, and has not been considered to effect the assessment completed for this Business Case.

5.6 Urgency

The proposed project has been developed in line with the Australian Government's *National Road Safety Strategy 2011-2020* as well as the Queensland Government's *Safer Roads, Safer Queensland: Queensland's Road Safety Strategy 2015-2021* (QRSS). These strategies have a guiding vision that no person should be killed or seriously injured on Australia's roads. The casualty reduction targets for 2020 plan to reduce deaths and serious injuries by at least 30 per cent from the 2008-2010 baseline period.

The QRSS targets for 2020 are ambitious but achievable. *Queensland's Road Safety Action Plan 2015-17* has committed over $300 million of funding over the next two years through the TRSP. Under the HRR framework, the first round Business as Usual process will require Business Cases to be approved by Program Delivery and Operations (PDO) Regional Directors by June 2018, with pre-construction and construction occurring over the following 2 – 3 years depending on prioritisation and funding.

The expected approval and delivery timeframe requirements raise the urgency of the proposed project. However, the need for safety improvements along the Kennedy Highway cannot be understated. The risk is experienced by all road users including public transport, tourism traffic and freight transport. It is in the community's best interests to deliver the targeted safety improvements quickly and efficiently, to maximise the road safety benefits from the recommended treatments.

6 Stakeholder impacts

This section identifies stakeholders that have an impact on, or are impacted by, the project. Internal impacts/stakeholders are listed in **Table 6-1**, while external impacts/stakeholders are listed in **Table 6-2**.

Table 6.1 Stakeholders having internal impact on the project

Internal Stakeholder	Impact/Interest in the project
State Minister for Main Roads	• Awareness of rationale for recommended option(s). • Support for the project as "fit for purpose" solution. • To be briefed on project start and finish dates and key developments (including potential media opportunities and stakeholder issues).
Deputy Director-General (Infrastructure Management & Delivery)	• Awareness of rationale for recommended option(s). • Support for the project as "fit for purpose" solution.
General Manager (Program Delivery & Operations)	• Awareness of rationale for recommended option(s). • Support for the project as "fit for purpose" solution.
General Manager (Portfolio Investment & Programming)	• Awareness of rationale for recommended option(s). • Optimising benefits from available investment.
Executive Director (Strategic Investment & Asset Management)	• Awareness of rationale for recommended option(s).
Executive Director (Program Development & Performance)	• QTRIP impacts, including ability to balance funding over life of the four-year program.
Regional Director (North Queensland) / Project Customer	• Awareness of rationale for recommended option(s). • Support for the project as "fit for purpose" solution. • To be advised of project throughout all phases. • Ensures the project fulfils a business need and its scope is fit for purpose. • Monitors the progress of the project to ensure the benefits will be realised. • Provides funding to cover progress payments. • Provides resources to represent the Customer interests. • Approves any changes to project scope and deliverables.
District Director (Far North District) / Project Sponsor	• Provides high profile support and visibility for the project. • Approves the detailed project delivery budget. • Advises the Customer of any budget/ allocation/scope issues. • Provides final approval of the project deliverables. • Approves recommended solutions to resolve complex issues. • Approves recommended solutions to any conflicts with other projects/organisations. • Approves changes to project scope and deliverables, together with changes to the project budget and schedule which are outside of the contingency allowances.

Internal Stakeholder	Impact/Interest in the project
Project Manager	• Coordinates handover and completion activities. • Ensures appropriate quality standards and quality assurance requirements are met. • Ensures the project schedule is maintained and regularly reports progress. • Ensures project meets Work Health and Safety Act (Queensland) 2011 obligations. • Establishes project admin systems, document control, and record management. • Identifies and documents lessons learnt during the project. • Liaises with the Program Manager or Sponsor to achieve project objectives. • Liaises with suppliers, consultants, or contractors as required. • Manages project scope, constraints, and scope creep. • Manages project variations and changes, and maintains the change control process. • Manages project cost estimating, budgeting, monitoring, and contingency. • Manages overall progress, use of resources and initiates corrective action. • Prepares progress reports and communicates with key stakeholders. • Prepares, manages, reviews, and updates the project plan. • Prepares and manages key knowledge area plans including risk and communications, in conjunction with other project staff.
Strategic advisory group	• Identifies and advises on any emergent issues or risks to the project. • Participates in any risk management or value management workshops required. • Provides advice on likely organisational response to proposed changes. • Provides a sounding board for how changes will be accepted in their organisation. • Prepares their organisation for the changes resulting from the project. • Advocates, promotes, and facilitates the project within their organisation.
Project team leader	• Works on assigned activities according to the quality and timeframe agreed with the Project Manager or project component manager. • Identifies, reports, and acts on potential delays, risks, and issues. • Reports time spent on each activity, in the manner and timeframe required by the Project Manager or project component manager.

Internal Stakeholder	Impact/Interest in the project
Team members	• Work on assigned activities according to the quality and timeframe agreed with the Project Manager, project component manager, or project team leader. • Report and act on potential delays and issues. • Report time spent on each activity, in the manner and timeframe required by the Project Manager or project component manager or project team leader.
Traffic Management Centre	• To be advised of start and finish dates and potential effects on road network.

Table 6.2 Stakeholders having external impact on the project

External Stakeholder	Impact/Interest in the project	
	Construction Phase	Post Construction
Property owners	• Land resumption	• Land resumption
Road users	• Safety of highway through site. • Timing and extent of potential travel delays. • Impact on potential change of routes during the construction period especially for tourism access.	• Improved travel efficiency • Improved safety
Cairns Regional Council and Mareeba Shire Council	• Impacts on local government roads	• Positive impacts on local government road intersections with the Kennedy Highway (improved efficiency and safety)
Local community	• Potential delays and disruptions during construction	• Safety, social, economic and connectivity benefits
Tourism industry	• Traffic management impacts, which may affect travel time reliability.	• Improved travel efficiency • Improved safety
Local industry	• Potential effect on productivity. • Potential effect on site access.	• Improved travel efficiency • Improved safety
Transport/haulage companies	• Potential delays and disruption. • Safety of highway through site. • Impact on potential change of routes during the construction period.	• Improved travel efficiency • Improved safety
Emergency services	• To be advised of project and traffic management impacts, which may affect travel time reliability.	• Improved travel efficiency • Reduction in crashes requiring treatment

External Stakeholder	Impact/Interest in the project	
	Construction Phase	Post Construction
Environment authorities	• Minimising potential environmental impacts and managing residual impacts. • Approvals of methodologies for removing and disposing of waste materials. • Review of proposals and granting of permits.	• Potential for concentrating fauna crossing incidents or wildlife being unable to efficiently cross the road due to proposed new guardrail on the Kuranda Range • Opportunity for dedicated fauna crossings at concentrated locations
Public utility providers	• Protection of services affected by works.	• Improved protection of services (guardrail)
Workplace Health and Safety, Queensland	• Minimising potential workplace safety impacts.	• Improved safety on road when travelling for work
Political – Federal, state and local council MPs	• To be advised of project and rationale for investment. • To be briefed on project developments.	• Upgraded / new infrastructure resulting in reduced maintenance costs • Positive perception impacts

7 Options

A summary of the options considered as part of the Options Analysis are summarised in **Table 7.1** (unsuccessful options) and **Tables 7.2 – 7.5** (preferred options).

Table 7.1 Summary of unsuccessful options for each Section

Location / Description	Proposed Treatment
Section 1 (0.0 – 11.3 km, Kuranda Range)	Option 1: No treatment proposed Option 2: Clash Cluster treatments: WCLT, improved signage, and installation of guardrail (width permitting) Option 3: Treatment full length (excludes chainage 7.0 – 8.5 km): WCLT, improved signage, and installation of guardrail (width permitting) Option 4: Treatment full length (excludes chainage 7.0 – 8.5 km): WCLT, improved signage, and installation of guardrail including where major formation widening works are required
Section 1 and Section 2 (0.0 – 48.84 km, Intersections)	Option 1: No treatment proposed Option 2: Minimum treatment at all intersections (BAR/BAL) or if BAR/BAL already present CHR(S)/AUL(S) Option 3: Upgrade all intersections to meet current standards (CHR/AUL)
Section 2 (11.3 – 48.84 km, Kuranda – Mareeba): Head On accidents	Option 1: No treatment proposed Option 2: Install WCLT and ATLMs
Section 2 (11.3 – 48.84 km, Kuranda – Mareeba): Off Carriageway accidents	Option 1: No treatment proposed Option 2: Widen shoulders (1.5m) and install ATLMs where required

Table 7.2 Summary of Preferred Option for Section 1 (Kuranda Range) – Option 5

Location / Description	Proposed Treatment
Full length (excluding chainage 7.0 km – 8.5 km)	Minor formation widening and / or linemarking to permit installation of WCLT
Full length	Improved signage
Full length (width permitting)	Minor formation widening to permit installation of guardrail
Previously designed and new proposed sites	Installation of guardrail and WCLT where major formation widening works requiring retaining structures are required.

Table 7.3 Summary of Preferred Option for Sections 1 & 2 Intersections – Option 4

Location / Description	Proposed Treatment
Smithfield Shopping Centre Access [Ch.0.4 km]	Option 1 – No treatment proposed as part of this Business Case as intersection upgrade is designed and funded under another funding source, however, currently subject to appeal
Cumberland Avenue [Ch.044 km]	Option 1 – No treatment proposed as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing intersection is fully signalised)
Rain Forestation Access [Ch.10.2 km]	Option 3 – Extend CHR(S) / AUL(S)
Saddle Mountain Rd [Ch.11.84 km]	Option 1 – No treatment proposed as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR / AUL at intersection)
Black Mountain Rd [Ch.12.35 km]	Option 1 – No treatment proposed as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR / AUL at intersection)
Cemetery Access [Ch.12.8 km]	Option 2 – Widening for BAR and AUL for vehicles that wish to turn back
Rob Veivers Rd / Myola Rd [Ch.14.0 km]	Option 2 – Change signal phasing to include right hand turn arrow
Green Hills Rd [Ch.14.81 km]	Option 1 – No treatment proposed as part of this Business Case as intersection upgrade is designed and funded under Safer Roads Sooner Mass Action Program
Fallon Rd / Warril Dr [Ch.15.07 km]	Option 2 – Install signals at intersection
Windy Hollow Rd [Ch.18.08 km]	Option 2 – Install BAL treatment
Top Rock Quarry [Ch.18.5 km]	Option 2 – Install AUL(S) including widening and associated signaged to enable B-doubles to turn around
Speewah Rd [Ch.20.11 km]	Option 2 – Install CHR
Fantin St [Ch.21.54 km]	Option 2 – Install AUL(S)
Cardinia Blvd [Ch.21.56 km]	Option 2 – Install AUL(S)
Blazing Saddles Access [Ch.22.96 km]	Option 3 – Install CHR(S) and BAL
Palm Valley Rd [Ch.24.32 km]	Option 2 – Install CHR(S) / AUL(S)
O'Neil Connection Rd [Ch.24.63 km]	Option 1 – No treatment proposed as part of this Business Case as intersection upgrade is designed and funded under Safer Roads Sooner Mass Action Program
Koah Rd [Ch.25.07 km]	Option 1 – No treatment proposed as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR / AUL(S) at intersection)
Grieveson Rd [Ch.26.12 km]	Option 2 – Install BAR

Location / Description	Proposed Treatment
Brickworks Rd [Ch.26.59 km]	Option 1 – No treatment proposed as part of this Business Case as intersection upgrade is designed and funded under Safer Roads Sooner Mass Action Program
Kanervo Rd [Ch.28.38 km]	Option 3 – Install CHR(S) / AUL(S)
Spena Rd [Ch.31.58 km]	Option 2 – Install BAR / BAL
Tichum Ck Quarry Rd [Ch.34.16 km]	Option 3 – Install AUL, left turn arrows and apply visibility benching
Davies Ck Rd [Ch.35.4 km]	Option 1 – No treatment proposed as part of this Business Case as intersection upgrade is designed and funded under Safer Roads Sooner Mass Action Program
Kay Rd [Ch. 38.36 km]	Option 3 – Install CHR(S) / BAL
Shroj Rd [Ch. 39.05 km]	Option 3 – Install CHR(S) / AUL(S)
Ice-cream Access [Ch.39.2 km]	Option 3 – Install CHR(S) / AUL(S)
Kovacic Rd [Ch.39.71 km]	Option 2 – Install BAL
Pike Rd [Ch.40.74 km]	Option 2 – Install BAR
Gilmore Road [Ch.41.82 km]	Option 3 – Install CHR / AUL
Malone Rd / Godfrey Rd [Ch.43.95 km]	Option 1 – No proposed treatment as part of this Business Case as intersection was recently upgraded and since the upgrade there have been no reported accidents at the intersection
Hastie / Tinaroo Ck Rds [Ch.45.97 km]	Option 1 – No proposed treatment as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR / AUL at intersection)
Anzac Ave [Ch.46.67 km]	Option 1 – No proposed treatment as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR / AUL at intersection)
Riverlands Ave [Ch. 46.8 km]	Option 1 – No proposed treatment as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR(S) / AUL(S) at intersection)
Barron River Rest Area [Ch.47.1 km]	Option 2 - Install BAR / BAL and seal car park rest area to 5m
INT 32A/662 [Ch.48.0 km]	Option 4 - T-intersection treatment was agreed with TMR subsequent to the Options Analysis meeting following further investigations
Keneally Rd [Ch.48.37 km]	Option 1 – No proposed treatment as part of this Business Case based on historical crash data and geometric layout doesn't warrant further treatment (existing CHR(S) / AUL(S) at intersection)
INT 32A/32B [Ch.48.83 km]	Option 4 – Acceleration lane extended (treatment agreed with TMR subsequent to the Options Analysis meeting following further investigations)

Table 7.4 Summary of Preferred Option for Section 2 Kuranda – Mareeba: Off Carriageway – Option 3

Location / Description	Proposed Treatment
Off Carriageway Crash Clusters	Widen shoulders (1.5m) and install ATLMs and protective barriers where required.

Table 7.5 Summary of Preferred Option for Section 2 Kuranda – Mareeba: Head On -- Option 3

Location / Description	Proposed Treatment
Head On Crash Clusters	Install WCLT and ATLMs
Ch. 28.7 – 30.3 km	Install overtaking lanes

The Options Analysis identified that Option 5 in Kuranda Range Section (Ch. 0.0 – 11.3 km), Option 4 for Intersections, Option 3 for Kuranda – Mareeba: Off Carriageway accidents, and Option 3 for Kuranda – Mareeba: Head On accidents are the preferred options. Other options were discounted for not achieving project objectives as well as the preferred recommended options. Refer to the Options Analysis Report for details of unsuccessful options, options assessment methodology, and results of the multi-criteria analysis.

It is understood that funding approval may not be obtained for all treatments proposed in Option 5, therefore as part of this Business Case each of the treatments options included have been prioritised according to historical accident data, Quantitative Risk Assessment Model (QRAM) rating, constructability and cost. Each location has been assigned a priority between A and E, with A being the highest priority sites, and is provided in the Options and Costing Summary for Section 1, Kuranda Range (Refer to **Appendix B)**.

Refer to **Appendix F** for strip plans and concept sketches of the preferred options, which are to be read in conjunction with **Appendix B to E** containing the options and costing summary for the preferred options.

7.1 Further considerations

This section describes identified issues and concerns that will require further investigation/development prior to implementation.

7.1.1 Henry Ross Lookout

As part of the options analysis process, the current Henry Ross Lookout was reviewed to provide operational safety improvements. Historically, there has been 7 accidents resulting in hospitalisation, 2 minor accidents resulting in property damage and 1 accident resulting in medical treatment between 2007 and 2017. In January 2018 (18/01), a waste treatment truck rolled over and subsequently caught fire after swerving to avoid another heavy vehicle at the bottom end of the lookout near the east bound overtaking lane. This resulted in the Kuranda Range being closed in both directions for approximately 6.5 hours. Due to the crash cluster at this location, the Henry Ross Lookout was identified as a location requiring treatment. The proposed treatment option involves traffic separation utilising concrete barriers, reconfiguration of pavement marking, removal of the east bound overtaking lane and addition of parking on the western side of the road as well as installation of a viewing platform which is accessed from the western side of the road. A sketch of the proposed treatment option has been included in **Appendix F**. An option providing a pedestrian overpass from the proposed viewing platform on the western side of the road to the parking / viewing area on the eastern side of the road was also considered. This option was discarded due to the required height of the overpass to not impact on the traffic and significant cost associated. The following aspects require further investigation to determine the feasibility of the proposed option:

- Structural design of viewing platform;
- Geotechnical investigations;
- Environmental investigations and considerations;
- Cultural heritage investigations and considerations; and
- Stakeholder / public engagement.

7.1.2 Extended Design Domain (EDD)

As an outcome of the Options Analysis meeting it was agreed to assess the impacts on cost of options if EDD criteria were used to develop intersection improvements, specifically the impacts on length of turn lanes. By adopting EDD, a reduction of 20m in length can be achieved for AUL(S) and CHR(S) treatments where the intersection has a posted speed limit of 100 km/hr (as is the case for the majority of the intersections along this section of the link). This equates to a reduction in construction costs of approximately $50,000 per CHR(S) or AUL(S) that EDD is applied to, which would result in an overall cost saving for intersection improvements of approximately $1,000,000 for the project (9% of total intersection cost).

It is noted that as per Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Appendix A EDD for Intersections, EDD should only be used in constrained locations and is only appropriate where crash data indicates that there are no sight distance related crashes. Because of this, each intersection must be assessed individually in detail to confirm if it is appropriate to apply EDD. Depending on funding constraints it may be viable to complete an assessment of which intersections EDD may be applicable at, however for the purpose of this Business Case report it is recommended that EDD is not applied based on current available information.

7.1.3 Treatment of Motorcycle Accidents on Kuranda Range

Consideration was given to the treatment options to mitigate the causes of motorcycle accidents. It was agreed at the Options Analysis meeting that motorcycle accidents, particularly on the Kuranda Range section of the link, are often not the result of geometrical issues but of excessive speed or rider behaviour. An important safety issue contributing to motorcycle accidents is speed management on entry to curves. Historically, this can be controlled by consistent signage such as chevron alignment markers (CAMs) and curve advisory speed signs. Consistency in signage is critical as motorcyclists will often use advisory signs on curves to estimate how fast they can traverse the curve. Typical signage that may be implemented is provided on the concept sketches provided in **Appendix F**, however further investigation and analysis is required subsequent to the Business Case for this project to confirm exact location of signage and which curves require upgrades to existing signage to achieve consistency.

7.1.4 Implementation of WCLT Signage on Kuranda Range

The WCLT that will be implemented on the Kuranda Range will be a 0.6m wide centreline which is narrower than the conventional 1.0m that is provided in the region. On a number of curves on the range heavy vehicles will use the wide centreline while traversing the curve, therefore the signage implemented for the WCLT is to show that heavy vehicles will use the wide centreline so that general commuters are aware. It is also recommended that TMR undertake a community engagement program to inform road users prior to the installation of the signage. This is a significant improvement on the current situation as it will provide separation between traffic lanes, and in the situation described above general commuters on the opposite side of the road to heavy vehicles are separated by a greater distance than the current situation (no separation). Consultation with Engineering and Technology, LTS and the TMR district regarding the reduced width and preferred signage is required separate to the Business Case being prepared for this project.

7.1.5 Intersection 32A (Kennedy Highway) / 662 (Mareeba Connection Road)

Following the Options Analysis meeting, it was agreed with TMR that a T-intersection treatment was to be progressed as the preferred option in the Business Case. As part of this Business Case stage, a SIDRA analysis was undertaken to investigate the performance of the proposed intersection. **Figure 7.1** shows the adopted SIDRA intersection layout for the proposed T-intersection treatment.

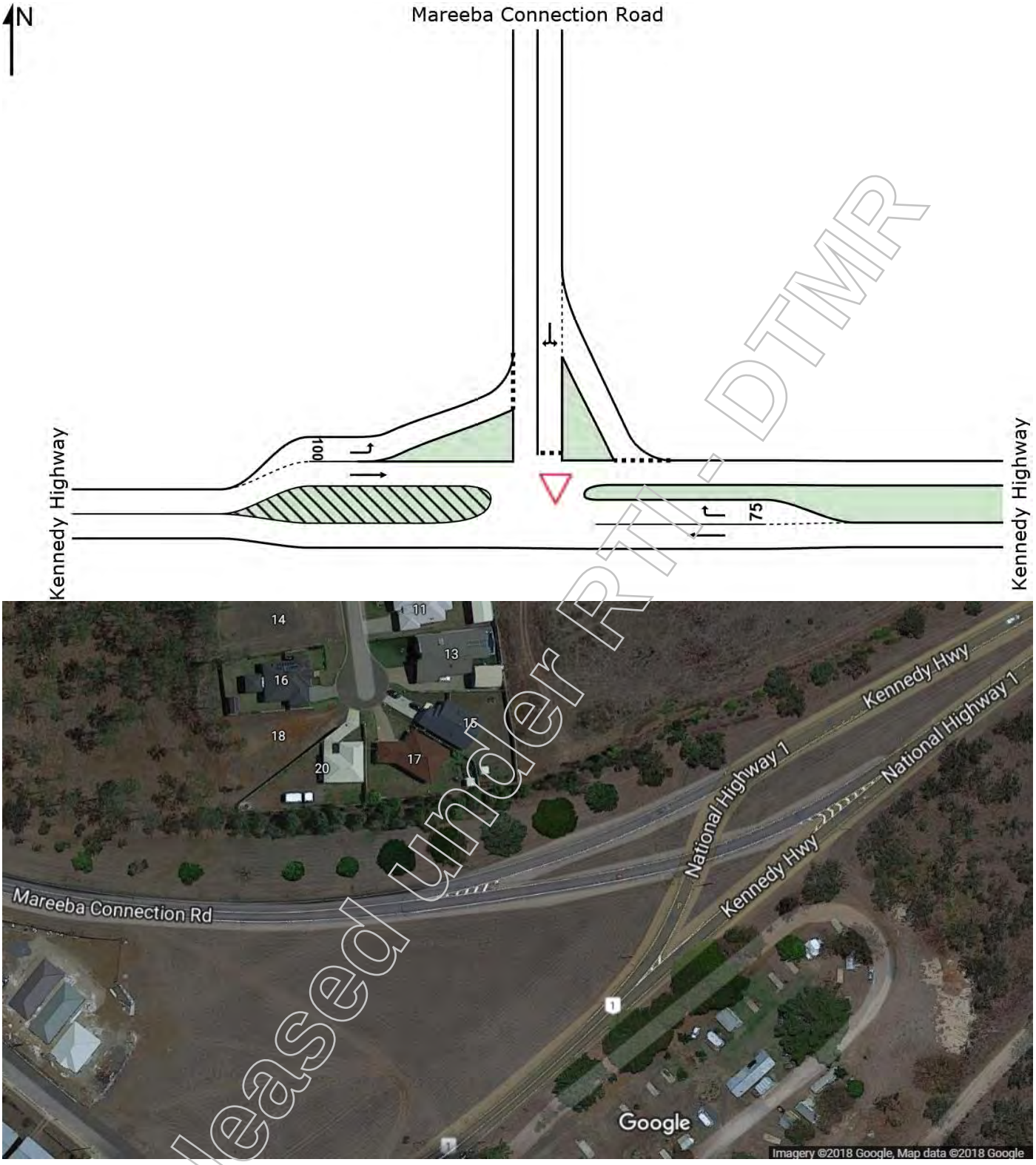


Figure 7.1 Proposed Kennedy Highway / Mareeba Connection Road SIDRA Intersection representation (above), existing aerial (below), 2018

The latest intersection count information available from TMR was dated 11 December 1996. Growth to existing (2018) was estimated by comparing with an AADT Segment Report (2016) and approximated at 2.5 per cent per annum for Mareeba Connection Road and 4.0 per cent per annum for Kennedy Highway. Future growth was assumed to be 5.0 per cent per year until 2020 and then 3.0 per cent per year until the 20-year design year (2038). According to the AADT Segment Report (2016), heavy vehicles are 10 per cent and 15 per cent for Kennedy Highway and Mareeba Connection Road, respectively. Refer to **Figure** 7.2 for estimated traffic volumes for Kennedy Highway / Mareeba Connection Road traffic movements.

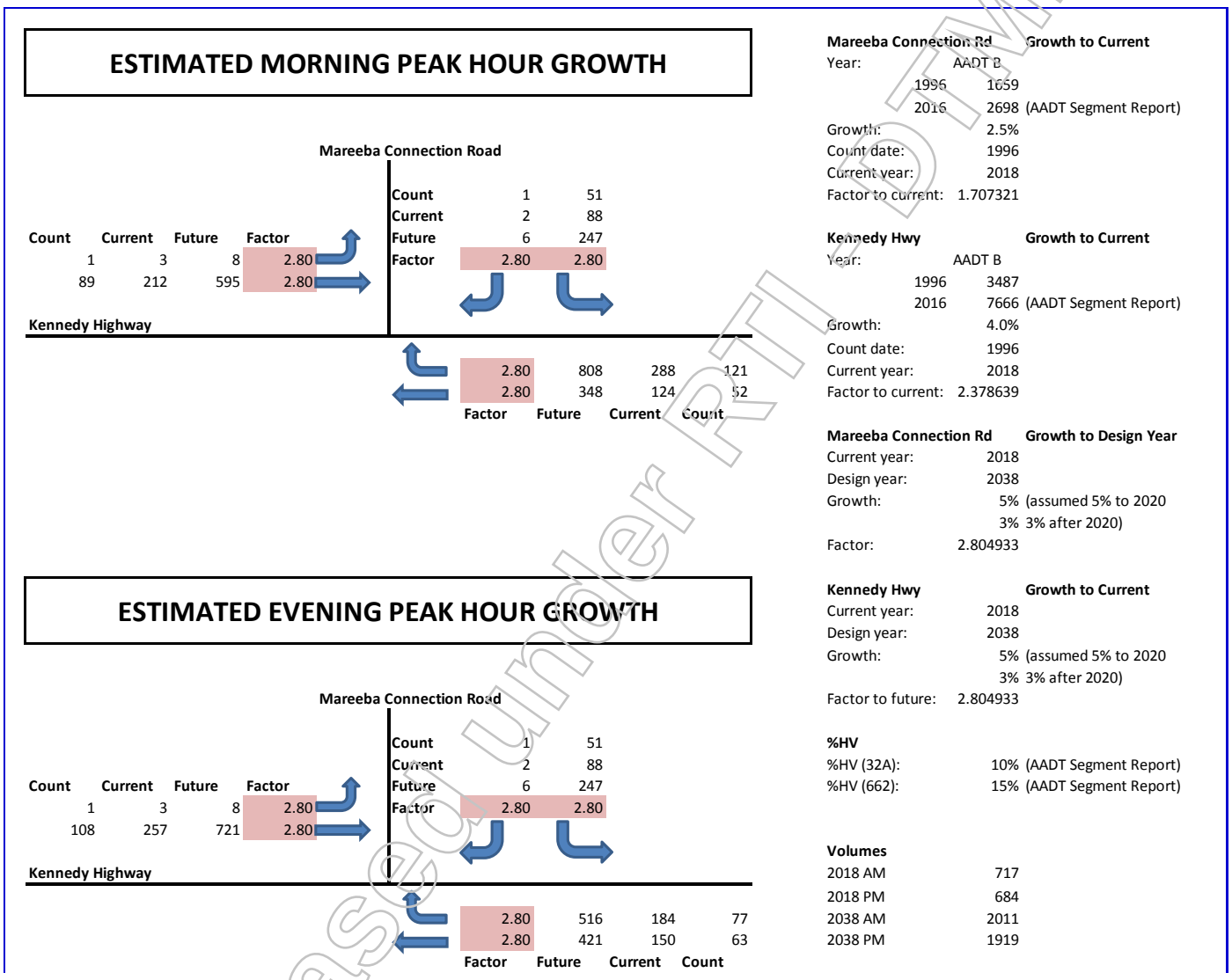


Figure 7.2 Estimated traffic volumes for Kennedy Highway / Mareeba Connection Road

Table 7.6 shows the performance of the proposed Kennedy Highway / Mareeba Connection Road intersection at opening.

Table 7.6 Kennedy Highway / Mareeba Connection Road peak period intersection performance, 2018

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
East: Kennedy Highway	T	124	0.07 (A)	0 (A)	0	
	R	288	0.17 (A)	6 (A)	0	75
North: Mareeba Connection Road	L	88	0.09 (A)	7 (A)	3	
	R	2	0.09 (A)	14 (B)	3	
West: Kennedy Highway	L	3	0 (A)	7 (A)	0	100
	T	212	0.12 (A)	0 (A)	0	
Intersection Total		**717**	**0.17 (A)**	**3**	**3**	
Evening peak						
East: Kennedy Highway	T	150	0.08 (A)	0 (A)	0	
	R	184	0.11 (A)	6 (A)	0	75
North: Mareeba Connection Road	L	88	0.1 (A)	7 (A)	3	
	R	2	0.1 (A)	13 (B)	3	
West: Kennedy Highway	L	3	0 (A)	6 (A)	0	100
	T	257	0.14 (A)	0 (A)	0	
Intersection Total		**684**	**0.14 (A)**	**3**	**3**	

Using estimated 2018 volumes, the intersection would operate well within capacity at a Degree of Saturation (DoS) of 0.17 (Level of Service (LoS) A) during the AM peak and DoS of 0.14 (LoS A) during the PM peak. Intersection LoS and major road approach LoS values are not applicable for two-way sign control since the average delay is not a good LoS measure due to zero delays associated with major road movements. However, the volume of intersection traffic is low enough that road users would experience few delays and minimal queuing.

Table 7.7 shows the performance of the proposed Kennedy Highway / Mareeba Connection road intersection at the design year of 2038.

Table 7.7 Kennedy Highway / Mareeba Connection Road peak period intersection performance, 2038

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
East: Kennedy Highway	T	348	0.19 (A)	0 (A)	0	
	R	808	0.48 (A)	6 (A)	0	75
North: Mareeba Connection Road	L	247	0.66 (B)	18 (C)	32	
	R	6	0.66 (B)	185 (F)	32	
West: Kennedy Highway	L	8	0.02 (A)	12 (B)	0	100
	T	595	0.33 (A)	0 (A)	0	

Intersection Total		**2012**	**0.66 (B)**	**5**	**32**	
Evening peak						
East: Kennedy Highway	T	421	0.23 (A)	0 (A)	0	
	R	516	0.31 (A)	6 (A)	0	75
North: Mareeba Connection Road	L	247	0.71 (C)	22 (C)	34	
	R	6	0.71 (C)	133 (F)	34	
West: Kennedy Highway	L	8	0.01 (A)	8 (A)	0	100
	T	721	0.39 (A)	0 (A)	0	
Intersection Total		**1919**	**0.71 (C)**	**5**	**34**	

Using estimated 2038 volumes, the intersection would operate within capacity during both AM and PM peaks. During the morning peak, the intersection would operate with a DoS of 0.66 (LoS B) and an average delay of 5 seconds. During the evening peak, the intersection would operate with a DoS of 0.71 (LoS C) and an average delay of 5 seconds. However, the delay experienced on minor legs, for example, the right-turn movement from Mareeba Connection Road (185 seconds during the AM peak and 133 seconds during the PM peak), may lead to driver frustration, poor perception of appropriate gap distance, and increased accidents. Additional upgrades may be required prior to 2038 to improve safety for all turn movements under increased traffic volumes.

Due to the significance of the intersection and the volume of works required for the proposed treatment option, it is recommended that TMR investigate the proposed option using more current traffic count information, and consider alternative options before confirming this option is viable. This should be undertaken in conjunction with stakeholder / public consultation.

7.1.6 Intersection Rob Veivers Rd / Myola Rd

To improve safety at the Kennedy Highway / Rob Veivers Road / Myola Road intersection, it is recommended that the signal phasing be changed to remove filtered right-turn movements. As part of this Business Case stage, a SIDRA analysis was undertaken to confirm that queue lengths will not exceed the capacity of the existing intersection configuration. **Figure 7.3** shows the adopted SIDRA intersection layout for the intersection.

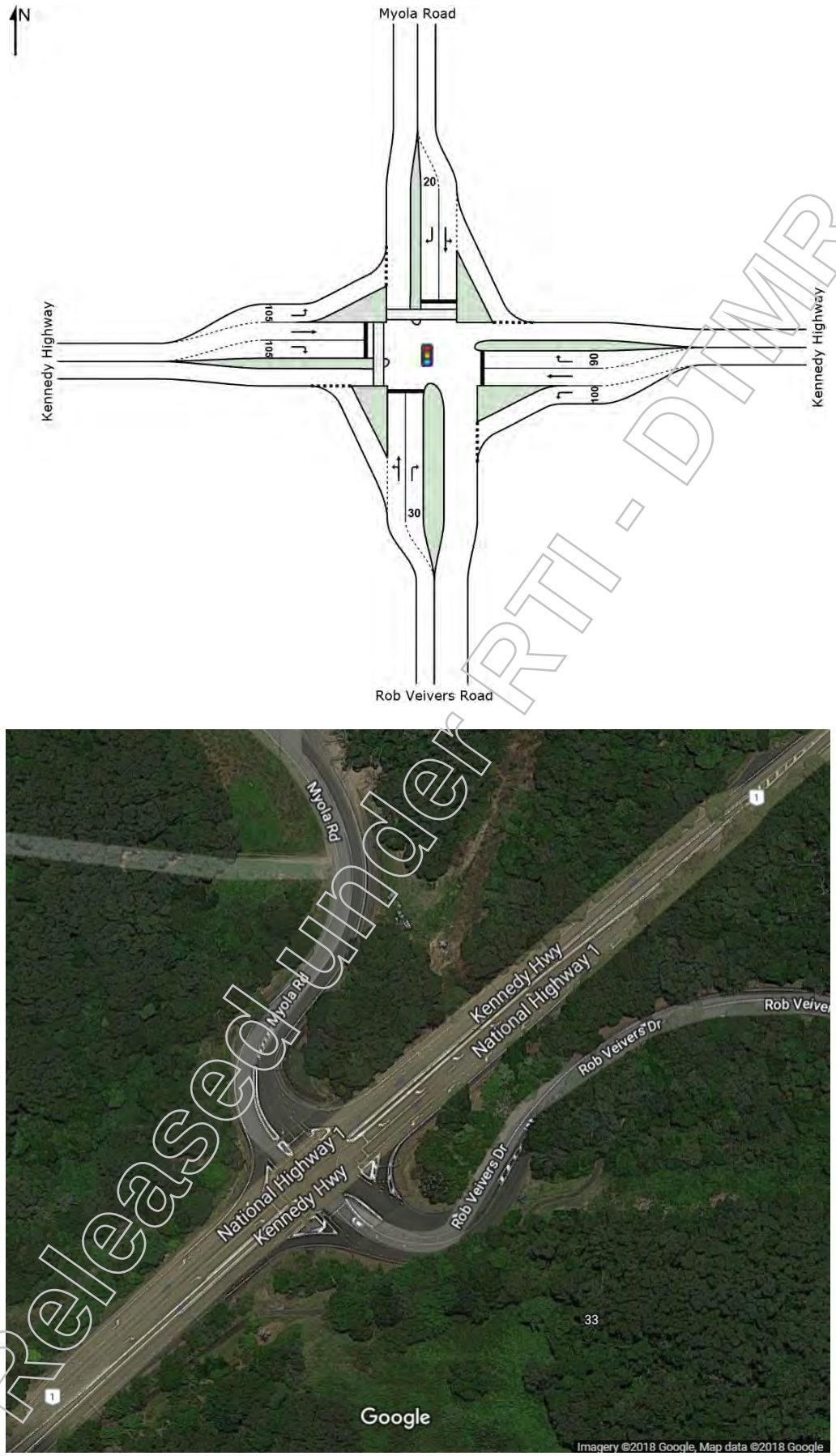


Figure 7.3 Kennedy Highway / Rob Veivers Road / Myola Road SIDRA Intersection representation (above), existing aerial (below), 2018

The latest intersection count information available from TMR was STREAMS data from 14-17 November 2017. Growth to existing (2018) was estimated by comparing the 2016 Road Reference Book volumes (recorded in 2015 and 2014) with an AADT Segment Report (2016) and approximated at 8.0 per cent per annum for Kennedy Highway eastern approach, 3.4 per cent per annum for Kennedy Highway western approach, and assumed at 3.0 per cent per annum for side roads. Future growth for the Kennedy Highway was assumed to be 5.0 per cent per year until 2020 and then 3.0 per cent per year until the 20-year design year (2038). Future growth for side roads was assumed to be 3.0 per cent per year. According to the AADT Segment Report (2016), heavy vehicles are 10 per cent for the Kennedy Highway and were assumed to be 5 per cent on side roads. Refer to **Figure 7.4** for estimated traffic volumes for Kennedy Highway / Rob Veivers Road / Myola Road traffic movements.

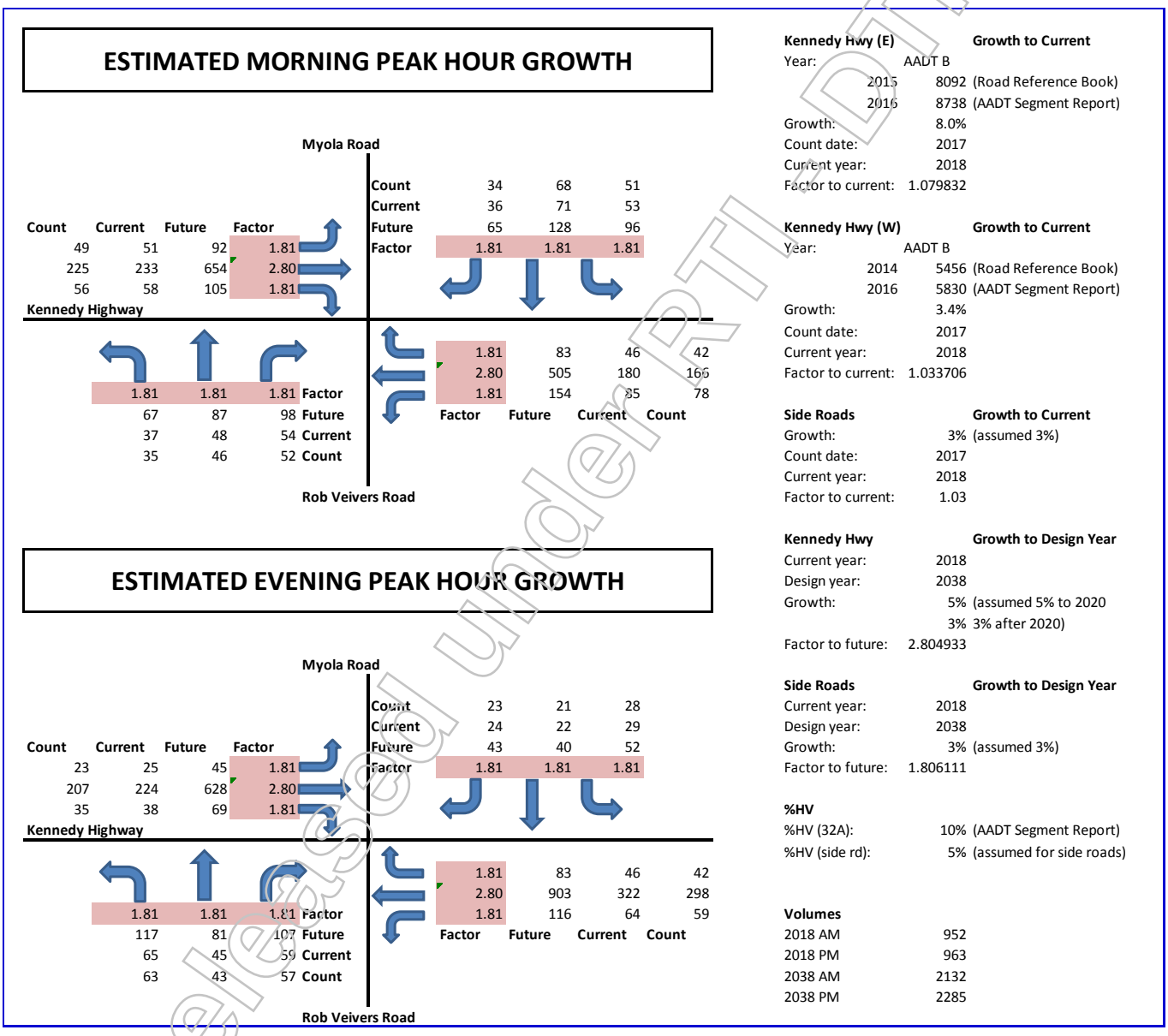


Figure 7.4 Estimated traffic volumes for Kennedy Highway / Rob Veivers Road / Myola Road

Phasing for the Kennedy Highway / Rob Veivers Road / Myola Road intersection used optimum phase times determined by the program. The adopted phases and phase times for estimated 2018 traffic volumes with filtered right-turn movements are shown in **Table 7.8** and without in **Table 7.9**.

Table 7.8 Kennedy Highway / Rob Veivers Road / Myola Road peak hour average phase and cycle times with filtered right-turn movements, 2018

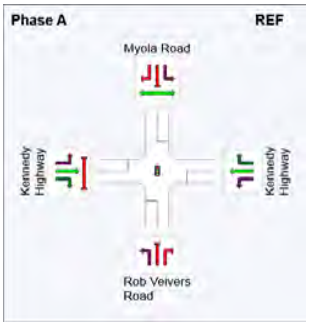
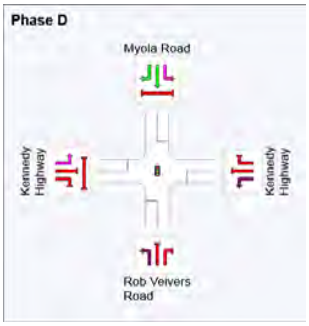
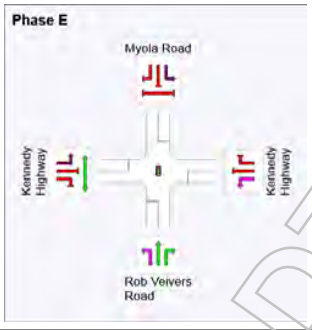
Morning peak (cycle time = 40 s); Evening peak (cycle time = 45 s)		
Phase A	Phase D	Phase E
		
AM: 15 s PM: 20 s	AM: 13 s PM: 13 s	AM: 12 s PM: 12 s

Table 7.9 Kennedy Highway / Rob Veivers Road / Myola Road peak hour average phase and cycle times without filtered right-turn movements, 2018

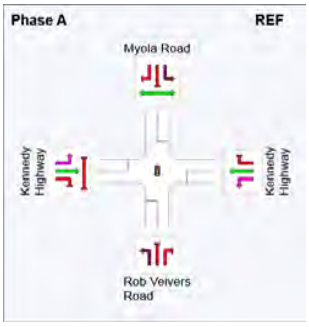
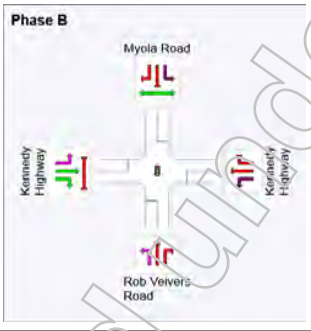
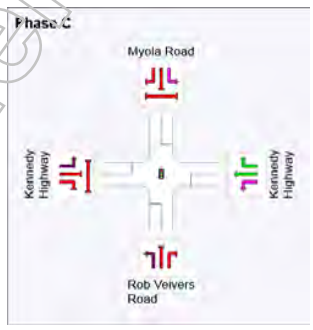
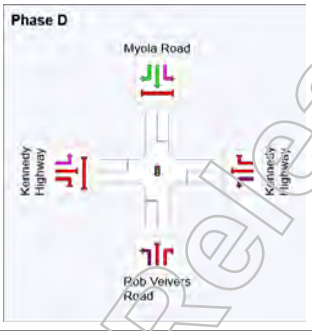
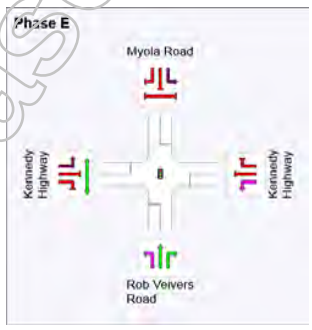
Morning peak (cycle time = 61 s); Evening peak (cycle time = 65 s)		
Phase A	Phase B	Phase C
		
AM: 12 s PM: 15 s	AM: 13 s PM: 13 s	AM: 12 s PM: 12 s
Phase D	Phase E	
		
AM: 12 s PM: 12 s	AM: 12 s PM: 13 s	

Table 7.10 shows the performance of the Kennedy Highway / Rob Veivers Road / Myola Road intersection allowing filtered right-turn movements (estimated 2018 volumes), while **Table 7.11** shows the performance of the intersection without filtered right-turn movements at opening (estimated 2018 volumes).

Table 7.10 Kennedy Highway / Rob Veivers Road / Myola Road peak period intersection performance with filtered right-turn movements, 2018

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
South: Rob Veivers Road	L	37	0.24 (A)	15 (B)	8	
	T	48	0.24 (A)	9 (A)	8	
	R	54	0.2 (A)	23 (C)	7	30
East: Kennedy Highway	L	85	0.07 (A)	9 (A)	2	100
	T	180	0.44 (A)	16 (B)	25	
	R	46	0.2 (A)	26 (C)	6	90
North: Myola Road	L	53	0.36 (A)	15 (B)	11	
	T	71	0.36 (A)	9 (A)	11	
	R	36	0.13 (A)	23 (C)	5	20
West: Kennedy Highway	L	51	0.04 (A)	8 (A)	1	105
	T	233	0.56 (A)	16 (B)	33	
	R	58	0.22 (A)	25 (C)	8	105
Intersection Total		**952**	**0.56 (A)**	**16 (B)**	**33**	
Evening peak						
South: Rob Veivers Road	L	65	0.3 (A)	15 (B)	10	
	T	45	0.3 (A)	10 (A)	10	
	R	59	0.24 (A)	27 (C)	9	30
East: Kennedy Highway	L	64	0.05 (A)	9 (A)	2	100
	T	322	0.56 (A)	15 (B)	47	
	R	46	0.14 (A)	24 (C)	6	90
North: Myola Road	L	29	0.15 (A)	15 (B)	5	
	T	22	0.15 (A)	10 (A)	5	
	R	24	0.1 (A)	26 (C)	4	20
West: Kennedy Highway	L	25	0.02 (A)	9 (A)	1	105
	T	224	0.39 (A)	14 (B)	31	
	R	38	0.14 (A)	26 (C)	6	105
Intersection Total		**963**	**0.56 (A)**	**16 (B)**	**47**	

Table 7.11 Kennedy Highway / Rob Veivers Road / Myola Road peak period intersection performance without filtered right-turn movements, 2018

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
South: Rob Veivers Road	L	37	0.37 (A)	25 (C)	14	
	T	48	0.37 (A)	19 (B)	14	
	R	54	0.3 (A)	36 (D)	12	30
East: Kennedy Highway	L	85	0.07 (A)	9 (A)	3	100
	T	180	0.5 (A)	14 (B)	24	
	R	46	0.26 (A)	37 (D)	10	90
North: Myola Road	L	53	0.55 (A)	25 (C)	21	
	T	71	0.55 (A)	19 (B)	21	
	R	36	0.2 (A)	36 (D)	8	20
West: Kennedy Highway	L	51	0.04 (A)	8 (A)	2	105
	T	233	0.4 (A)	19 (B)	43	
	R	58	0.33 (A)	38 (D)	13	105
Intersection Total		**952**	**0.55 (A)**	**21 (C)**	**43**	
Evening peak						
South: Rob Veivers Road	L	65	0.39 (A)	23 (C)	17	
	T	45	0.39 (A)	17 (B)	17	
	R	59	0.3 (A)	37 (D)	14	30
East: Kennedy Highway	L	64	0.05 (A)	8 (A)	2	100
	T	322	0.76 (C)	15 (B)	48	
	R	46	0.28 (A)	40 (D)	11	90
North: Myola Road	L	29	0.21 (A)	24 (C)	8	
	T	22	0.21 (A)	18 (B)	8	
	R	24	0.14 (A)	38 (D)	6	20
West: Kennedy Highway	L	25	0.02 (A)	8 (A)	1	105
	T	224	0.36 (A)	18 (B)	41	
	R	38	0.23 (A)	40 (D)	9	105
Intersection Total		**963**	**0.76 (C)**	**20 (B)**	**48**	

Using estimated 2018 volumes, removing filtered right-turn movements would reduce the performance of the intersection, particularly during the PM peak. During the AM peak, DoS would decrease from 0.56 (LoS A) to 0.55 (LoS A); however, average delay would increase from 16 seconds (LoS B) to 21 seconds (LoS C), and maximum queues would increase from approximately 35 metres to 45 metres on the Kennedy Highway western approach. A slightly greater effect is seen during the PM peak where DoS would increase from 0.56 (LoS A) to 0.76 (LoS C) and average delay would increase from 16 seconds (LoS B) to 20

seconds (LoS B); however, maximum queues would stay at approximately 50 metres for the Kennedy Highway eastern approach. All queues would be adequately contained in the existing auxiliary lanes.

The adopted phases and phase times for estimated 2038 traffic volumes with filtered right-turn movements are shown in **Table 7.12** and without in **Table 7.13**.

Table 7.12 Kennedy Highway / Rob Veivers Road / Myola Road peak hour average phase and cycle times with filtered right-turn movements, 2038

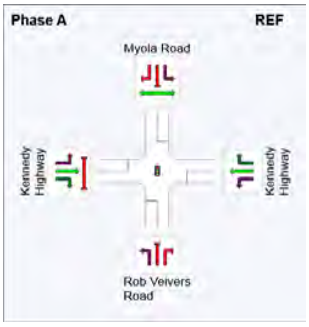
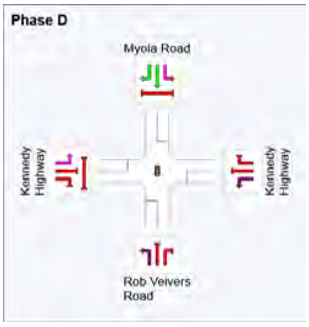
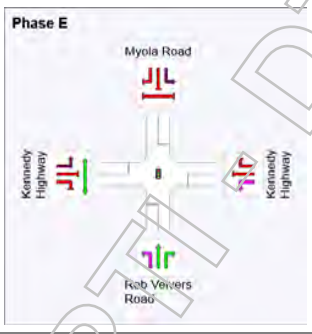
Morning peak (cycle time = 55 s); Evening peak (cycle time = 80 s)		
Phase A	Phase D	Phase E
		
AM: 29 s PM: 53 s	AM: 14 s PM: 13 s	AM: 12 s PM: 14 s

Table 7.13 Kennedy Highway / Rob Veivers Road / Myola Road peak hour average phase and cycle times without filtered right-turn movements, 2018

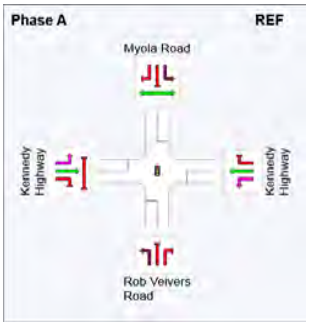
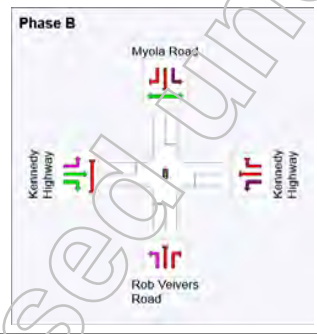
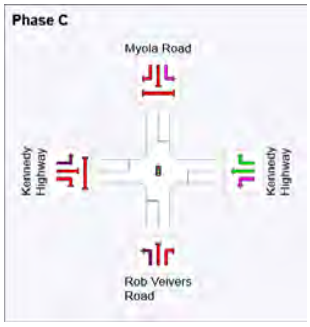
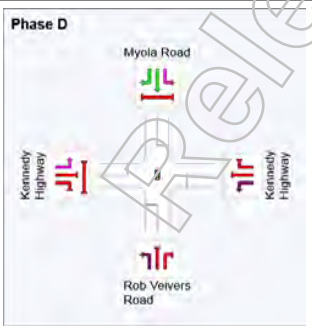
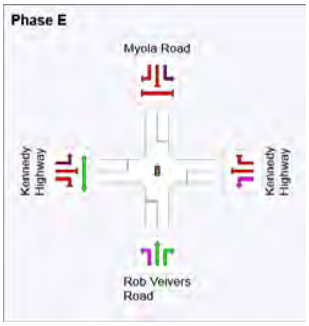
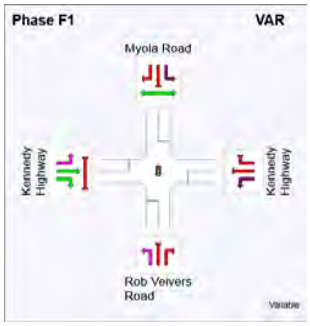
Morning peak (cycle time = 160 s); Evening peak (cycle time = 155 s)		
Phase A	Phase B	Phase C
		
AM: 41 s PM: 56 s	AM: 13 s PM: 19 s	AM: 21 s PM: 26 s
Phase D	Phase E	Phase F1
		
AM: 37 s PM: 22 s	AM: 29 s PM: 32 s	AM: 19 s PM: -

Table 7.14 shows the performance of the Kennedy Highway / R ob Veivers Road / Myola Road intersection allowing filtered turn movements (estimated 2038 volumes), while **Table 7.15** shows the performance of the intersection without filtered right-turn movements (estimated 2038 volumes).

Table 7.14 Kennedy Highway / Rob Veivers Road / Myola Road peak period intersection performance with filtered right-turn movements, 2038

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
South: Rob Veivers Road	L	67	0.61 (B)	22 (C)	20	
	T	87	0.61 (B)	16 (B)	20	
	R	98	0.5 (A)	33 (C)	20	30
East: Kennedy Highway	L	154	0.14 (A)	10 (A)	6	100
	T	505	0.66 (B)	15 (B)	85	
	R	83	0.5 (A)	35 (C)	17	90
North: Myola Road	L	96	0.78 (C)	29 (C)	36	
	T	128	0.78 (C)	23 (C)	36	
	R	65	0.28 (A)	31 (C)	12	20
West: Kennedy Highway	L	92	0.07 (A)	9 (A)	3	105
	T	654	0.85 (C)	18 (B)	129	
	R	105	0.43 (A)	30 (C)	19	105
Intersection Total		**2134**	**0.85 (C)**	**19 (B)**	**129**	
Evening peak						
South: Rob Veivers Road	L	117	0.79 (C)	35 (C)	39	
	T	81	0.79 (C)	30 (C)	39	
	R	107	0.59 (A)	47 (D)	31	30
East: Kennedy Highway	L	116	0.09 (A)	9 (A)	5	100
	T	903	0.92 (D)	25 (C)	282	
	R	83	0.28 (A)	27 (C)	17	90
North: Myola Road	L	52	0.47 (A)	26 (C)	16	
	T	40	0.47 (A)	20 (B)	16	
	R	43	0.32 (A)	47 (D)	13	20
West: Kennedy Highway	L	45	0.04 (A)	12 (B)	4	105
	T	628	0.58 (A)	12 (B)	11 6	
	R	69	0.46 (A)	41 (D)	19	105
Intersection Total		**2284**	**0.92 (D)**	**23 (C)**	**282**	

Table 7.15 Kennedy Highway / Rob Veivers Road / Myola Road peak period intersection performance without filtered right-turn movements, 2038

Approach		Volume (veh/h)	Degree of Saturation (LoS)	Average Delay (LoS)	Max Queue (m)	Queue storage (m)
Morning peak						
South: Rob Veivers Road	L	67	0.51 (A)	70 (E)	71	
	T	87	0.51 (A)	64 (E)	71	
	R	98	0.38 (A)	76 (E)	51	30
East: Kennedy Highway	L	154	0.11 (A)	10 (A)	14	100
	T	505	0.93 (D)	57 (E)	283	
	R	83	0.49 (A)	86 (F)	46	90
North: Myola Road	L	96	0.7 (B)	69 (E)	107	
	T	128	0.7 (B)	63 (E)	107	
	R	65	0.19 (A)	66 (E)	31	20
West: Kennedy Highway	L	92	0.06 (A)	9 (A)	6	105
	T	654	0.92 (D)	60 (E)	408	
	R	105	0.49 (A)	50 (D)	38	105
Intersection Total		**2134**	**0.93 (D)**	**56 (E)**	**408**	
Evening peak						
South: Rob Veivers Road	L	117	0.58 (A)	65 (E)	82	
	T	81	0.58 (A)	60 (E)	82	
	R	107	0.35 (A)	70 (E)	53	30
East: Kennedy Highway	L	116	0.08 (A)	8 (A)	6	100
	T	903	1.13 (F)	294 (F)	1165	
	R	83	0.36 (A)	77 (E)	43	90
North: Myola Road	L	52	0.42 (A)	50 (D)	31	
	T	40	0.42 (A)	45 (D)	31	
	R	43	0.23 (A)	78 (E)	22	20
West: Kennedy Highway	L	45	0.03 (A)	8 (A)	2	105
	T	628	0.81 (C)	40 (D)	302	
	R	69	0.49 (A)	86 (F)	38	105
Intersection Total		**2284**	**1.13 (F)**	**145 (F)**	**1165**	

Using estimated 2038 volumes, removing filtered right-turn movements would significantly reduce the performance of the intersection due to insufficient green time, particularly for approaches on the Kennedy Highway. During the AM peak, DoS would increase from 0.85 (LoS C) to 0.93 (LoS D), average delay would increase from 19 seconds (LoS B) to 56 seconds (LoS E), and maximum queues, from approximately 130 metres to 410 metres (Kennedy Highway western approach peak AM flow). During the

PM peak, the intersection would be at capacity if filtered right-turn movements were allowed (DoS 0.92, LoS D), and fail without filtered right-turn movements (DoS 1.13, LoS F).

While removing filtered right-turn movements will improve safety at the intersection, it will also reduce its performance. Regardless, estimated 2038 traffic volumes indicate the intersection will be at capacity for single-lane approaches on the Kennedy Highway. Intersection upgrades to two-lane approaches may be required prior to 2038 to improve capacity of the intersection.

Due to the significance of the intersection, it is recommended that no filtering is implemented and TMR investigate future four-lane upgrades to the Kennedy Highway.

7.1.7 Overtaking Lanes

Installation of both an east bound and west bound overtaking lane between chainage 28.7 km – 30.3 km has been included in the preferred treatment (Option 3) for head on crashes in Section 2 (Kuranda – Mareeba). Due to a history of crashes at this location and based on Appendix 4 of the State-Controlled Priority Road Network Investment Guidelines (2011), it is recommended that the overtaking lanes are incorporated into the works as part of the business case. The Kennedy Highway is listed as a PN1 (Priority One Road).

Currently there is only one overtaking lane in each direction on the Kennedy Highway between Kuranda and Mareeba (38 km), with an existing west bound overtaking lane located between chainage 35.72 km and 36.62 km and an existing east bound overtaking lane located between chainage 36.22 km and 37.77km. Appendix 4 states that average frequency for overtaking lanes for a road with an AADT equal to between 4,000 - <6,000 should be every 20 km for the interim vision and every 10 km for the final vision. With an AADT of 5,800 (2016), two overtaking lanes in each direction for the section length between Kuranda and Mareeba (38 km) are recommended to align with the interim vision for this section of road. A review of recent accident data between 2007 and 2017 has shown that there are two accidents involving vehicles overtaking where the proposed overtaking lanes are located (28.7 km – 30.3 km) and five head-on or overtaking type accidents within 5.0km either side of the proposed overtaking lanes (23.7 km – 28.7 km and 30.3 km – 35.3 km).

It is noted that the proposed location of the overtaking lanes is within 10 km of the existing overtaking lanes, however this location has been nominated as it provides the best value for money comparatively to other locations. Other locations were not considered for the following reasons:

- Insufficient spacing between intersections to achieve minimum overtaking lane length including tapers;
- High cuttings and/or embankments near edge of existing road which would result in significant increase in construction costs;
- Unsuitable geometry and/or alignment for implementation of overtaking lanes;
- Geometry does not satisfy minimum required lengths for overtaking lanes; and
- Large culvert structures which would require extension resulting in significant increase in construction cost in combination with the issues identified above.

The estimated cost for the proposed overtaking lanes is $6,364,935 (includes Principal's costs, contingency and escalation). It is noted that installation of overtaking lanes will result in additional safety / quantifiable benefits such as reducing driver frustration and in turn improving safety. Therefore, based on the history of crashes, Appendix 4 of the State-Controlled Priority Road Network Investment Guidelines (2011), and a comparison of alternative locations for overtaking lanes on the link it is recommended that

the proposed overtaking lanes between chainage 28.7 km and 30.3 km are incorporated into the works as part of the business case.

7.1.8 Geotechnical investigations and design

No geotechnical investigations or designs have been completed as part of this Business Case for the major formation widening works on the Kuranda Range. Proposed treatment options and cost estimates have been based on a desktop analysis and recent geotechnical designs and treatments which have been constructed on the Kuranda Range for similar type projects such as curve widening to facilitate installation of guard rail for Safer Roads Sooner and Blackspot funded projects. As part of the detailed design phase geotechnical investigation, design and certification will be required at each of the locations requiring major formation widening works and retaining structures.

7.1.9 Environmental Constraints Assessment

A preliminary environmental assessment was completed as part of the Options Analysis to identify environmental constraints on the Kennedy Highway, in particular within Section 1 on the Kuranda Range – refer to **Appendix H** for Environmental Constraints Assessment. Key findings of the assessment include:

- Minor pavement widening works to allow for implementation of wide centreline treatment, pavement alignment optimisation and installation of protective barriers will generally result in minimal loss of canopy connectivity. However, a short to medium term increase in fauna barrier effect will occur at these locations until revegetation works are sufficiently advanced;
- Major formation widening treatments in Section 1 on the Kuranda Range were altered as part of the Business Case to remove or minimise the requirement for widening against the existing cut batter and instead favour additional fill batter widening. This will result in less vegetation clearing, ground and flora disturbance and lower erosion and sedimentation risk. and
- It is recommended that a detailed flora assessment is undertaken at all sites requiring major formation widening works, including spatial mapping of key canopy connectivity specimens to inform the detailed design process and to inform requirements for arboreal fauna rope bridges

It is essential that further environmental assessments are completed as part of the detailed design process for individual sites requiring major works.

7.1.10 Intelligent Traffic Systems (ITS)

Intelligent Traffic Systems (ITS) provide motorists with important information about the upcoming section of road (for example road closures or hazards). Four hybrid variable message signs (VMS) were identified by TMR for installation on the Kuranda Range at the following approximate locations:

- Chainage 0.06 km
- Chainage 0.50 km
- Chainage 10.20 km
- Chainage 14.06 km (INT 32A/ Rob Veivers Rd/ Myola Rd)

The completion timeframe is currently unknown for individual signs, however it is anticipated all signs will be installed by the end of 2018. As part of this Business Case, an additional location for the installation of a VMS at chainage 4.1 km for east bound traffic approaching the hairpin bend has been recommended. This location has been recommended as there is an existing overtaking lane which provides sufficient width for east bound vehicles to turn around if there is an upcoming unplanned road closure (ie. accident) after they have passed the VMS boards at the top of the range. The additional VMS will complement the VMS that are currently being installed by enabling TMR to provide sufficient warning for approaching traffic of upcoming road closures, accidents or hazards. Supply and installation of these VMS boards is being completed under a program separate to this business case.

7.1.11 High Crash Zone Signage

The Queensland Police Services (QPS) has raised with TMR their desire to install high crash zone signs (TC1559) between Kuranda and Mareeba (Section 2, Chainage 11.3 km – 48.84) for driver awareness. Preliminary investigations undertaken by the department found that a number of areas within the section trigger the warrant for high crash zone signage. As part of this Business Case, two high crash zone signs are recommended to be installed within the length of Section 2. Further investigation and agreement with QPS to determine the locations for the signage will be undertaken in the Development Stage.

7.1.12 Project Prioritisation

Projects will be prioritised as part of this Business Case phase. Each treatment location in Section 1 (Kuranda Range) has been assigned a priority between A and E, with A being the highest priority, in the Options and Costing Summary for Section 1, Kuranda Range (Refer to **Appendix C).** Further assessment will be undertaken by LTS to confirm prioritisation of this section, as well as the remaining section of works and proposed intersection upgrades, to assist this process. The final prioritisation of treatment locations will be based on the LTS BCR assessment.

7.2 Developing the Preferred Recommended Option

During the Options Analysis phase the road link was divided into two to allow concurrent assessment. The preferred options for each section identified above were carried forward into this Business Case phase as a single option.

In developing the preferred option, the following work was undertaken:

- Detailed and LIDAR “survey” data was sourced and assessed to check the available formation width and typical cross section profile within Section 1 so that proposed major formation widening treatments could be better quantified;
- A site visit was undertaken with Envirofin to identify environmental constraints on the Kennedy Highway within Section 1 on the Kuranda Range – refer Section 7.1.8 of this report and to **Appendix H** for Environmental Constraints Assessment;
- Concept layout drawings were developed for Sections 1 detailing major formation widening works on the Kuranda Range, and for Section 1 and 2 detailing proposed intersection upgrades, shoulder widening, WCLT and overtaking lane locations; and
- Refer to **Appendix F** for strip plans and concept sketches of the preferred options, which are to be read in conjunction with **Appendix B to E** containing the options and costing summary for the preferred options.

8 Project cost and quantifiable benefits

A Business Case estimate was completed for this stage of the project as per TMR's Project Cost Estimating Manual (PCEM) (2015). The full Estimate Outputs is provided in **Appendix G** of this report. The probabilistic P90 estimate was developed using @Risk software.

The current cost estimates for each section are based on preliminary concept phase data. As the project involves numerous locations with various types of road configurations and various types of safety treatments, the value for money approach provides a specific focus on the upgrade footprint and alignment of the existing roads and only involved a high level review on accuracies of existing services, property boundaries, culverts, and geometric parameters.

The next phase of the project will perform a detailed investigation on survey, utilities pick-up, geotechnical investigations and design, culvert assessments and environmental/cultural heritage impacts to provide a more accurate level of investigation to better inform the design and mitigate project risks during delivery.

As there is no survey available for the current project phase and no geotechnical investigations completed specifically for this project or public utilities survey completed, the current estimates for construction are based on assumptions and historical knowledge of typical treatments with an appropriate contingency applied.

An estimate for the preferred option is presented in the Estimate Report in **Appendix G**. Whilst a single P90 Estimate has been developed for the project, four separate construction schedules (Estimate A, Estimate B, Estimate C and Estimate D) have been provided to reflect the four sections assessed during the Options Analysis as follows:

- Estimate A – Section 1 (Kuranda Range) Ch 0.0 – 11.3 km;
- Estimate B – Section 1 & 2 (Intersections) Ch 0.0 km – 48.84 km;
- Estimate C – Section 2 (Kuranda – Mareeba, Head On accidents) Ch 11.3 – 48.84 km;
- Estimate D – Section 2 (Kuranda – Mareeba, Off Carriageway accidents) Ch 11.3 – 48.84 km; and
- Estimate E – Section 1 and 2, Principal's Costs.

The estimates include Principal's costs for the current phase (Concept Phase) and all subsequent phases of the project (i.e. Development, Implementation and Finalisation). Principal's costs also include an assessment of costs for utility service relocation/protection and property resumptions.

Construction cost estimates for each preferred option have also been split into individual treatment locations within the section, and are represented in the options and costing summary provided in **Appendix B to E** and the Estimate Report provided in **Appendix G**. The unit rates adopted were based on recent TMR projects completed for similar type works and construction rates supplied by TMR.

A summary of the preferred option cost estimate is provided in **Table 8-1**. The following is noted with regard to the estimate:

- Date of Last Estimate — January 2018
- Contingency Method Estimation — In accordance with PCEM (6th ed., September 2015)

Table 8.1 Estimate of project phase costs

Project Phase	Total ($)
Concept Phase	$309,640
Development Phase	$4,630,000
Implementation Phase	
Section 1 (Kuranda Range) Construction Contractor's Cost	$28,033,893
Section 1 and 2 (Intersection Improvement Works) Construction Contractor's Cost	$6,078,589
Section 2 (Head on crashes)	$8,776,423
Section 2 (Off carriageway crashes)	$6,973,713
Principal's Cost (incl. contract admin, management)	$10,116,847
Finalisation Phase	$430,000
Base Estimate (excluding contingency)	$65,349,106
Contingency (39.7%)	$25,927,215
Total Project Cost (including contingency, excluding escalation)	$91,276,321
Escalation Amount	$7,968,941
Out-turn Cost	$99,245,262
Amount of any funding/contributions approved to date	Nil

A benefit / cost analysis of the preferred option has been undertaken by LTS branch during the Business Case. The significant potential savings from the reduction in crash costs per year have formed part of the analysis, in particular regarding value for money. The TRSP HRR desktop studies identified that overall the link had a cost of crashes per year of $24.2 million, therefore reductions to this cost have been considered as part of the cost analysis completed by LTS. Operational improvements along the link have also be considered as part of the benefit / cost analysis, in particular improved incident management. Implementation of WCLT on the Kuranda Range will force the traffic in opposing directions to be separated by greater distance than they currently are, and may enable emergency service vehicles to access accident sites by using the gap between traffic in the centre of the carriageway. It is noted that driver education would be required to enable this to be completed safely, however the implementation of WCLT has the potential to provide significant improvements to incident and accident management on the Kuranda Range. The benefit / cost analysis was completed in two segments and generated the following BCRs:

- Section 1 (Ch. 0.0 – 11.3 km): BCR **2.2**
- Section 2 (Ch. 11.3 – 44.84 km): BCR **1.4**

The BCR generated shows that the project is economically viable and represents a high value for money outcome.

9 Project management plan

The Project Management Plan will be further developed by the Far North District during the Detailed Design stage based on the scope for construction, and kept as a live document with ongoing monitoring throughout pre-construction, construction and project finalisation.

9.1 Scope

Scope will be managed by proceeding through the concept and development phases to develop the nominated scopes defined in this report.

An Environmental Scoping Exercise will also be conducted, which will identify existing environmental values & constraints and possible legislative triggers to be further investigated. This will be done in accordance with the TMR Environmental Management System and will be initiated by completing an Environment & Heritage Service Request, (See InsideTMR> Tools and resources> Environmental Management System).

Once scope is finalised, any changes will be identified, costed and their implications for time and quality determined, using the OnQ site> tools> proformas> project change request and change log, or other required/existing organisational process. Any changes to estimated cost will be handled through the cost variation process in Section 9.3 below on cost.

9.2 Time

Progress of the concept phase will be managed against the milestones listed in **Table 9-1**:

Table 9.1 Timeline for concept phase

Milestone	Date
Develop component proposal	April 2017
Prepare consultant briefs and offer documentation (if required)	July 2017
Select consultant, negotiate prices and gain financial approval	August 2017
Commence component Options Analysis	August 2017
Complete component Options Analysis	November 2017
Controlling project approval to proceed	November 2017
Develop the preferred option / Business Case	November 2017 – March 2018

A timeline for the later stages of the project is provided below in **Table 9-2**. **Table 9-2** will provide input to development of an electronic schedule for later phases. Progress will be reviewed and reported monthly, initially against these milestones, and at later stages, against the P6 schedule. Extensions of time (EOTs) will be recorded in a change log for major contracts.

For projects that are mandated in TMR's Reporting and Performance Management (RPM) system, the Project Manager will enter commentary on any time or financial variances, preferably as they occur, but by the sixth working day of the month at the latest.

Table 9.2 Timeline for later phases

Activity	Planned Date
Business case approved	June 2018
Undertake procurement for detailed design	July – November 2018
Undertake detailed survey, pavement investigation, PUPs survey	July – November 2018
Undertake environmental and cultural heritage assessments	July – November 2018
Commence detailed design	December 2018
Detailed design completed with tender documents	February 2019
Scheme documents approval for Construction	March 2019
Commence procurement for construction	March 2019
Construction Tender Period	March – April 2019
Construction Contract award	May 2019
Commence implementation	May 2019
Practical Completion of Kuranda Range Treatment Construction	September 2019 – June 2021 (depending on prioritisation of works)
Practical Completion of Intersections Treatment Construction	
Practical Completion of Kuranda – Mareeba: Off Carriageway Improvements Construction	
Practical Completion of Kuranda – Mareeba: Head On Improvements Construction	
Defect Liability Period (days following construction of each section)	90 days
Handover documents prepared and project close-out	September 2021

9.3 Cost

Actual costs to complete the Concept Phase (including costs to date) of the project are provided in **Table 9-3** below:

Table 9.3 Cost to complete Concept Phase

Activity	Total ($)
Principal's Cost (Estimated)	$47,200
Consultant's Cost (Options Analysis and Business Case)	$262,440
Total Phase Cost (up to Business Case Approval)	$303,400

The total project budget will be obtained/managed through TMR's Oracle Primavera Portfolio Management (OPPM). Variations to the project total budget will be initiated and approved using the program submission form, formerly known as the M3131 PCR.

Approval to spend money on the project will be obtained in TMR's Financial Approval Process (FAP) system using the "Financial Approval for Purchase of Materials and Services" form, formerly known as the M739.

Staff and contractor staff working in-house will use CATS timesheets, and apportion their times to appropriate cost codes determined by the project manager.

Expenditure will be recorded in SAP. General Ledger (GL) codes will be assigned to all expenditure, and detailed estimate items aggregated to a suitable level into either SAP WBS elements or internal orders. The structure of these needs to be determined by the project manager at the start of the job. The total of these estimated items becomes the project management budget for each cost code/internal order, which SAP expenditure will be monitored against.

SAP line items will be reviewed monthly, if necessary, to ensure no items have been charged to the wrong cost code, and that any such items are corrected.

Expenditure forecasts will be calculated in 3PCM and Unifier and will be reviewed, with the forecast cost to complete estimated monthly.

Variations to project internal budget items will be identified by the project manager/team and submissions requesting financial approval will be approved as per the limit of each officer's financial delegation, with due consideration being given to the impact on total project budget.

Variations that need to be funded from contingencies will be identified by the project manager/team and the funds approved/released by the program manager.

9.4 Quality

The quality requirements of the end product is being addressed during the concept phase process of considering options and developing the business case. This process is designed to balance aspirations for project scope, completion date, cost and quality, all of which impact upon each other. Once these matters are settled and the project proceeds to implementation, then the quality standards will be incorporated into any subsequent work/contract brief and specification Appendices.

9.5 Environmental, cultural heritage and native title

Environment and cultural heritage will be managed in accordance with the Environmental Processes Manual as per the TMR EMS under the Operations tab on InsideTMR.

9.6 Safety

A 'Zero Harm' policy exists within TMR which aspires to achieve an incident and injury-free work environment where every person comes to work and goes home again safely.

TMR safety policy and Jacobs safety policy will apply during Options Analysis and Business Case stages as all works will be completed in house, except any site visit or road inspections, which will be guided by "Stop, Think, Go" and relevant Safe Work Method Statement for safety assurance.

Safety around site works during the construction stage will be managed by TMR safety policy and construction contractor's procedure throughout all time of the Implementation Phase. All safety incidents and near-misses will be reported through Regional WHS coordinators, using WHS hotline as per standard organisational practice. All personnel are required to comply with the WHS legislation, relevant codes of practice, as well as site specific plans and rules as listed in site specific induction.

All project meetings during construction are to have safety on the agenda.

9.7 Functionality

The project manager needs to be alert to the general business and program benefits stated in this report, as well as the specific project objectives and the product success criteria. The impact of project decisions upon these needs to be considered, and where there is an impact, the customer should be advised and provided with appropriate costed options. Where substantial improvements in functionality become possible through performing additional work at additional cost, the customer may be willing to pay.

Decisions on issues that could either reduce or increase functionality will be referred to the customer.

9.8 Human Resources

A prequalified design consultant under Engineering Consultant Scheme is likely to be engaged for detailed design and preparation of construction tender documents, as well as to provide design support for requests for information during the construction stage, and assist the Far North District in preparing the "As Constructed" information following completion of construction.

The Far North District will maintain the management role on all disciplines and areas over the entire project period, with details of resources for delivery management and contract administration to be confirmed during the detailed design stage. The skills and resources required for delivering the proposed safety upgrade works will also be considered and identified during the detailed design stage for preparation of the pre-construction activities.

9.9 Communications

TMR's OnQ project management framework encourages communication between and with project stakeholders. TMR's Project Manager and Communication Advisor will develop a communication strategy for this project in the future development phases. The communication plan will follow OnQ procedures with the required template and worksheets completed and on file.

External to project

External to project communication will be managed as per the external communications management plan and worksheets (communication strategy development matrix, and external communication plan). This will cover both community engagement and stakeholder management, both of which may involve similar key messages and activities. No stakeholder engagement has been undertaken at this stage of the project. Such engagement will be undertaken during the Development Phase.

Internal to project

Internal project communication will be managed by the Far North District.

9.10 Risk

Project risks have been identified in each category and the likelihood and consequence after mitigation have been reassessed, which then classifies the final risk rating for each risk identified. A TMR risk management log has been completed (Refer to **Appendix I**). **Table 9-4** below identifies the major risks or uncertainties likely to be encountered during the project.

Table 9.4 Major risks or uncertainties

Risk details	Comment on likelihood, consequence and treatment
Overall Project Key Risks	
Funding priority changes / availability of funding.	*Likelihood* – Possible. *Consequence* –Severe. Prepare robust Options Analysis / Business Case to justify expenditure. *Residual Rating* – Medium.
Project cost estimate exceeds the project budget and Clients expectations.	*Likelihood* – Possible. *Consequence* – Severe. Prepare robust P90 estimate in consultation with the Delivery Team at part of the Business Case. *Residual Rating* – Medium.
Risks associated with impact on Political Representatives & Media, Local Community and other stakeholders: • current political environment and recent fatality puts spotlight on DTMR's asset and its management causing scope creep and additional works • modifications to the existing network may cause public distress	*Likelihood* – Unlikely. *Consequence* – Moderate. Contingency allowance for scope creep and additional works or changes to programming. TMR to undertake necessary stakeholder engagement as part of the Development Phase. *Residual Rating* – Low.
Current Phase Risks	
Availability of resources to meet the program.	*Likelihood* – Rare. *Consequence* – Moderate. Program and commit resource to the project at an early stage. Project is almost finished the current phase. *Residual Rating* – Low.
Project Specific Key Risks	
Insufficient/Inadequate understanding of the site • public utility plants • pavement • crash analysis and safety assessment • planning for future potentials	*Likelihood* –Unlikely. *Consequence* – Major. Utilise available data for desktop analysis and where required conduct site inspections. *Residual Rating* – Medium.

Risk details	Comment on likelihood, consequence and treatment
Risks related to Geotechnical works: • poor geotechnical conditions encountered which were not allowed in the concept phase, particularly with major formation widening on Kuranda Range • inappropriately constructed geotechnical site may trigger geotechnical risks for embankments, retaining structures, cuttings and pavements • geotechnical works may trigger significant cost and delay to project	*Likelihood* – Possible. *Consequence* – Severe. Utilise available data for desktop analysis and where required conduct site inspections. Historical design knowledge utilised to make educated assumptions of geotechnical treatments on Kuranda Range. Work closely with DTMR to understand future requirements. *Residual Rating* – Medium.
Risks associated with Environmental: Biodiversity & Water Quality • required clearing may affect protected flora / fauna • required works may affect watercourses / groundwater	*Likelihood* – Likely. *Consequence* – Moderate. Undertake preliminary assessment of environmental constraints as part of Options Analysis. Undertake ESA to identify possible risks and provide effective mitigation treatments with relevant stakeholders. *Residual Rating* – Medium.
Risks associated with Cultural Heritage & Native Titles: • required works may impact current native title arrangements or traditional owners' benefits	*Likelihood* – Possible. *Consequence* – Moderate. Undertake preliminary assessment of environmental constraints as part of Options Analysis. Undertake Cultural Heritage assessments as part of the development phase to provide effective mitigation treatments with relevant stakeholders. *Residual Rating* – Medium.
Conflict with existing utility services.	*Likelihood* – Possible. Consequence – Major: Disruption, delay and increases in costs to construct. *Comment:* Ensure services are located accurately and as early as possible during the Development Phase to allow communications and relocations by service providers to occur in a timely manner. *Residual Rating* – Medium.
Unknown existing culvert conditions that may require significant cost for replacement or major rehabilitation.	*Likelihood* – Possible. *Consequence* – Moderate: Disruption, delay and increases in costs to construct. *Comment:* Ensure adequate detailed survey that includes culvert sizes and inlet and outlet levels as well as Level 2 culvert inspections during the Development Phase. *Residual Rating* – Medium.
Unknown accuracy for DCDB considered for land resumption requirements.	*Likelihood* – Possible. *Consequence* – Moderate: Negative Stakeholder feedback, delay to program. *Comment:* Identify possible requirements for land resumptions early in Development Phase. Undertake Cadastral survey. *Residual Rating* – Medium.

Risk details	Comment on likelihood, consequence and treatment
Lack of survey data for concept planning, causing unknowns associated with: • existing formation width • existing horizontal geometry • existing vertical geometry	*Likelihood* – Likely. *Consequence* – Moderate: Delay to program. *Comment:* Commission survey where required as soon as Business Case is approved. *Residual Rating* – Low.
Wet weather impact during construction Delay to construction program Possible additional cost to construction	*Likelihood* – Unlikely *Consequence* – Moderate: Delay in delivering of construction works, and potential increase in cost for construction. *Treatment* – Wet Weather Management Plan to be prepared during the Development Phase, with appropriate allowance made in cost estimate and program, and requirements/clauses addressed in the tender documents. *Residual Rating* – Low
Stakeholder / public opposition to works, in particular associated with: • vegetation / habitat clearing on the Kuranda Range • delays to public traffic during construction	*Likelihood – Likely* *Consequence – Moderate: Negative impact on environmental and cultural heritage factors, media and reputation impact* *Treatment -- Relevant environmental / cultural heritage permits, stakeholder / public consultation and notification, implementation of advanced warning signs / VMS* *Residual Rating – Medium*

This list will be further developed by:

- Taking these risks into the risk register in the corporate risk log;
- Expanding as the project scope as impacts are fully developed;
- Referring back to the corporate risk prompt list;
- Conducing (a) risk workshop(s);
- Conducting (a) value management workshop(s); and
- Monitoring, reviewing and updating the risk register on a monthly/quarterly basis.

9.11 Procurement

The major consultancies/contracts/service providers required are listed below together with the proposed procurement method:

Consultancy/Contract/Service Required	Expected $ value	Procurement method
Options Analysis & Business Case (Consultant's fee)	$262,440	Procurement under Engineering Consultant Scheme (ECS)
Detailed Design (TBA)	TBA	To be determined by the district
Construction Contractor	TBA	Contract types to be confirmed during the development of detailed design

Procurement will be in accordance with the State Purchasing Policy and will be carried out in accordance with departmental procurement procedures including the Manual – Consultants for Engineering Projects, and MR 41/05 Prequalified Supplier Arrangement Manual.

Any contracts will be managed using the TMR Contract Administration System (CAS) Manual/other approved system.

All purchase orders will be processed in SAP and approval limits will be monitored in Projman.

Corporate Card will be used for purchase of small items provided these items are not cumulative to an amount in excess of the current limit.

Requisitions for goods/services and purchase orders will be created in SAP.

Accounts will be processed and paid through SAP.

9.12 Integration

This project management plan has been prepared taking into account the requirements of all knowledge areas, and so provides the means of integrating them, ensuring they can be progressed individually and as a seamless part of the whole project with cohesive inter-relationships.

Management against this plan using the issues register on the OnQ site under tools> proformas will provide ongoing integration that will be supported by the regular project meetings and reporting outlined in this plan.

9.13 Phase transitions/handover/completion

The TMR document, data and information requirements for handover should be identified and costed as part of the finalisation phase in the project cost estimate.

The finalisation activities of handover and completion will also be included in the project schedule, together with such activities as closing ledgers, producing as-constructed plans and updating systems such as ARMIS and Asset Master.

Project Management Plan will overview any known operational/traffic management issues, along with intended commissioning arrangements that may be required for M&E equipment/operating systems, as well as operations and maintenance manual preparation, asset transfer, handover, maintenance and warranty arrangements as well as durability assessment report.

9.14 Design development

Design considerations will be progressively documented in the Design Development Report M4212. It will document existing conditions; design considerations; parameters and details; actions; technical decisions; design verifications; and safety considerations. This report will also document normal design domain and any use of extended design domain and/or design exceptions. As-constructed plans will be prepared progressively during the implementation phase.

9.15 Project Learnings

Learnings on the project will be progressively entered into the learnings register from the OnQ website. Project team members will add to this progressively throughout the project, and it will be an agenda item at monthly team meetings. This will provide a source of information for preparation of the completion report at the end of the project.

10 Recommendations

The preferred options will best achieve the project objectives by improving safety along the Kennedy Highway (32A, Cairns – Mareeba). It is recommended that the following options be progressed to the Development phase:

- Section 1: Accidents on the Kuranda Range – Option 5;
- Sections 1 and 2: Accidents at Intersections – Option 4;
- Section 2: Kuranda – Mareeba: Off Carriageway accidents – Option 3; and
- Section 2: Kuranda – Mareeba: Head On accidents – Option 3.

Careful consideration of constraints is needed to ensure successful completion of the proposed project. Issues may arise due to potential delays to the project associated with unknown environmental issues, cultural heritage issues, geotechnical issues, lead time for provision of professional services (e.g. survey), unknown accuracy associated with overlay of DCDB property boundaries, presence of public service utilities, seasonal weather conditions, the needs of stakeholders and latent conditions. Early investigations and stakeholder engagement are necessary to manage and mitigate these issues before they create a significant impact on the project.

The Kennedy Highway (32A, Cairns – Mareeba) High Risk Road Safety Improvements project will fulfil the nominated project objectives. **It is therefore recommended that this Business Case Report be approved with sufficient funding allocated to the Far North District for the current project to progress into the Development Phase.**

Approval will enable further development of the project design with detailed investigation on project risks to ensure an appropriate mitigation strategy in place at early stage of the Development Phase. If approval is given within the timeframes nominated within this Business Case report, the Development Phase can expect to be completed with finalisation of construction tender documents by early 2019, for the first round of projects approved by LTS.

It is also recommended that further investigation/development be undertaken to address the identified issues and concerns in Section 7.1.

11 Appendices

Appendix A SRA (32A) Reports

Appendix B Section 1 (Kuranda Range) Options and Costing Summary

Appendix C Section 1 & 2 (Intersections) Options and Costing Summary

Appendix D Section 2 (Kuranda – Mareeba, Head-on accidents) Options and Costing Summary

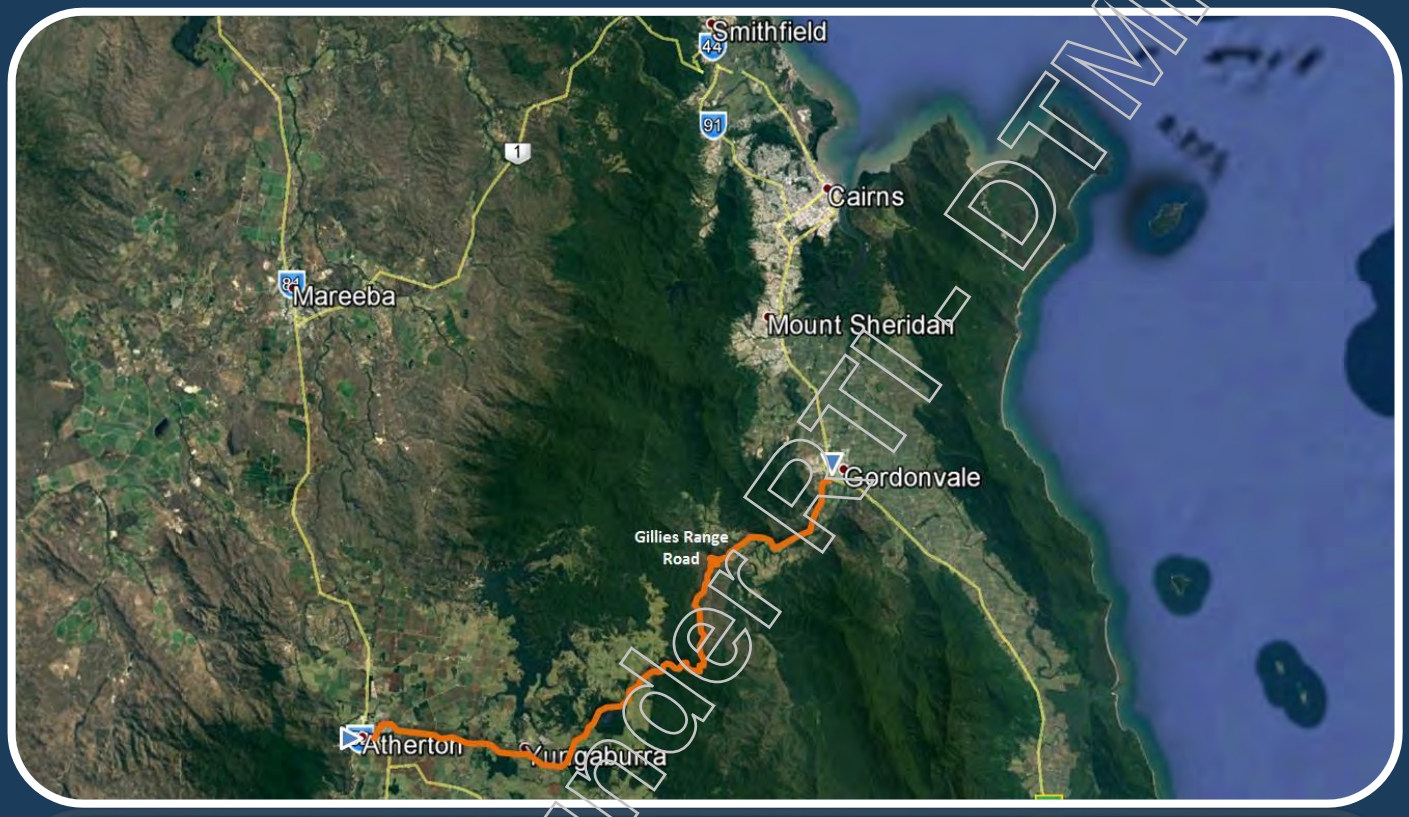
Appendix E Section 2 (Kuranda – Mareeba, Off carriageway accidents) Options and Costing Summary

Appendix F Preferred Option Plans and Details

Appendix G P90 Estimate Outputs

Appendix H Environmental Constraints Assessment

Appendix I Risk Register



Business Case Report

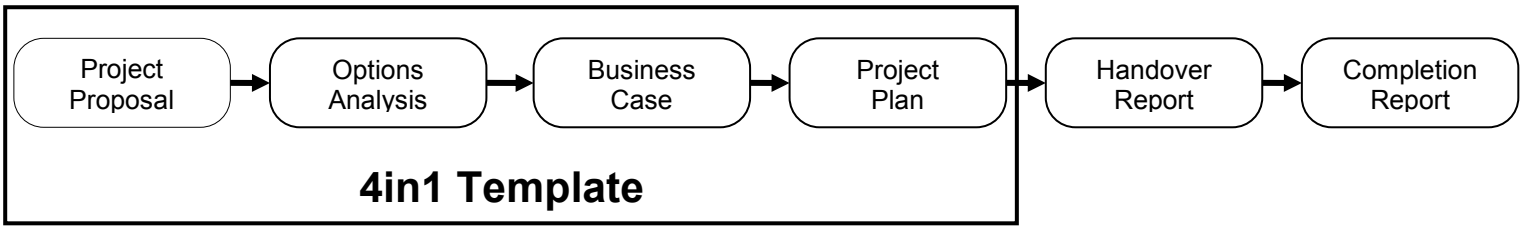
CN-6142 High Risk Roads Safety Improvements
Gillies Range Road (642, Gordonvale – Atherton)

Great state. Great opportunity.

Queensland Government

Creative Commons information

TMR OnQ Framework Template Version 3.0 (06/09/2017)



Project Summary

Region/Unit	Far North District / North Queensland Region
Location	Gillies Range Road (Gordonvale – Atherton)
Program	Targeted Road Safety Program – High Risk Roads
Project Number	448825
Project Description	CN-6142 High Risk Roads Safety Improvements Gillies Range Road (642, Gordonvale – Atherton)

Document Control

Prepared by:	AECOM for Kent Lo
Title:	Engineer (Civil)
Branch:	Program Delivery and Operations
Division:	Project Planning and Corridor Management
Location:	Floor 7, 15 Lake Street, Cairns Qld 4870
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Version history

Version no.	Date	Changed by	Nature of amendment
0.1	4 July 2018	AECOM	Working copy for TMR input into Project Plan
0.2	6 July 2018	AECOM	Initial draft for TMR review and comment
0.3	14 August 2018	TMR	TMR updates

Endorsement and Approval

Customer (delete for Project Plan)

I agree to the project proceeding as proposed in this document.

Name	Sanjay Ram		
Position	Regional Director (North Queensland)		
Signature	NR	Date	7/09/18
Comments			

Sponsor

I agree to the project proceeding as proposed in this document.

Name	Sandra Burke		
Position	District Director (Far North Queensland)		
Signature	NR	Date	4/9/18
Comments			

The following officers have **endorsed** this document:

Name	Darryl Jones		
Position	Manager (Project Planning and Corridor Management)		
Signature	NR	Date	27/8/18

Add further names as required

Project manager:

I recommend the project proceeds as proposed in this document.

Name	Kent Lo		
Position	Engineer (Civil)		
Signature	NR	Date	21/08/18

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Note to reader:

Naming convention

For the purpose of this Business Case, the following naming convention has been adopted:

- The highway has been divided into four (4) ***Segments*** (Segment 1, Segment 2, Segment 3, and Segment 4).
- A potential suite of treatment options, within each segment, has been identified by a unique project ***site*** number which corresponds to the location (chainage).
- To allow for the works to be staged, each site generally has had 2 ***options*** identified, these are identified as:
  - An initial package of works = ***Stage 1***
  - The long term package of works = ***Stage 2***.

The outcome of this work is a **preferred solution** for each segment (i.e. four in total), that is comprised of a combination of sites within the particular segment. The preferred solution incorporates either the Stage 1 or Stage 2 option for each site, or a combination of Stage 1 and Stage 2 options.

Staged approach

While a large number of projects identified during the options analysis phase were not able to be justified (under the HRR funding criteria), for inclusion as part of the current funding application, they are nonetheless valid projects that are likely to be required in the future as traffic volumes increase and the level of safety reduces.

A full list of these projects is provided in **Annexure F** and provides TMR with a valuable pool of safety improvement projects for future road safety initiatives.

Executive summary

The Gillies Range Road is a 55.9 kilometre State Controlled Road and a vital link for commuter, tourism and freight traffic to the Southern Tablelands region. The route provides a critical link between centres such as Atherton, Tolga, Malanda, Yungaburra and other rural communities to Cairns, consequently enabling greater access to employment, education, business and health facilities. The proposed project covers the entire length of the Gillies Range Road (642) between Ch. 0.00 km at the intersection with the Bruce Highway (10P) in Gordonvale and Ch. 55.9 km at the intersection with the Kennedy Highway (32B) in Atherton. **Figure 1** shows the location of Gillies Range Road.

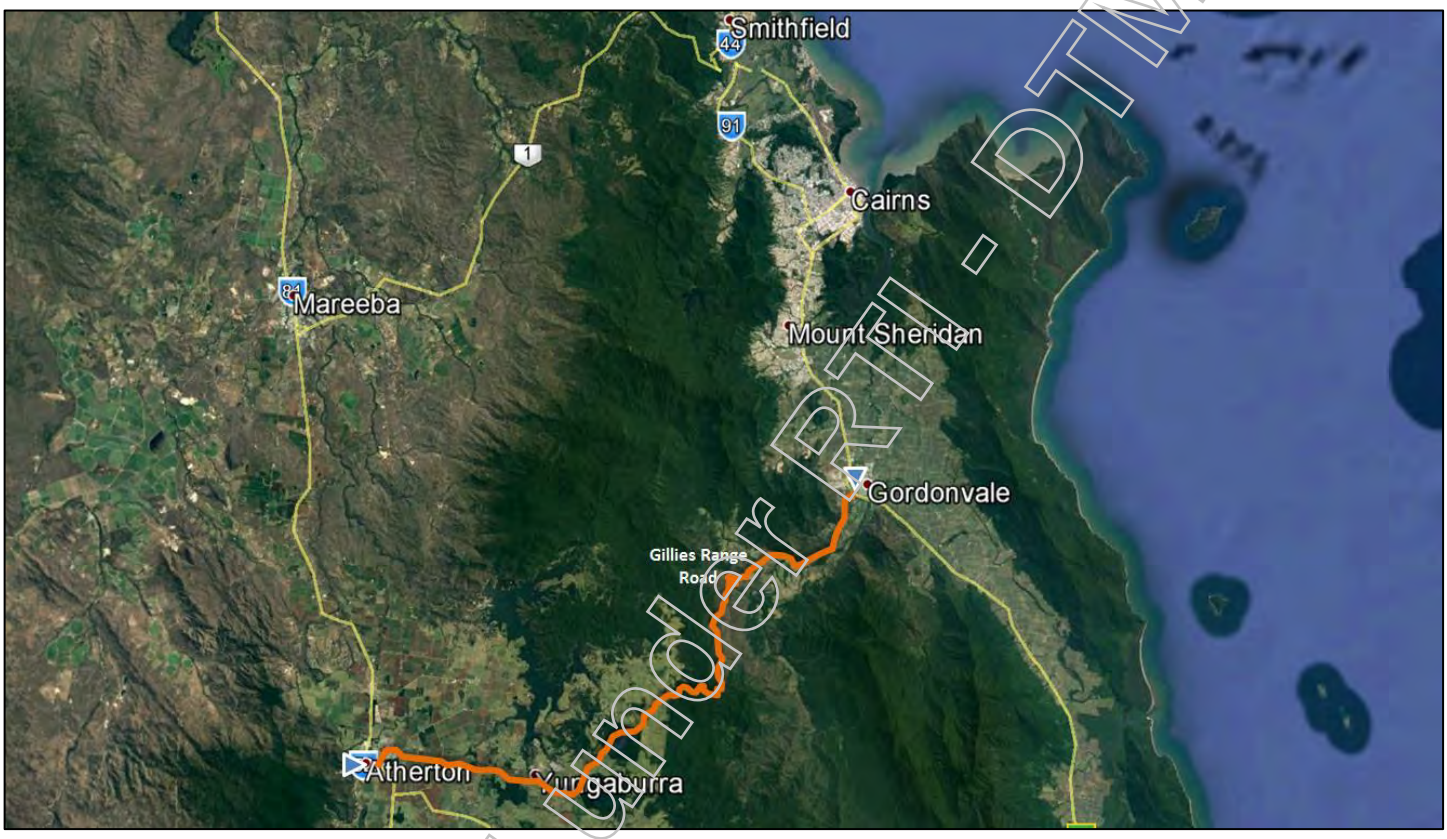


Figure 1 Locality map

The road predominantly consists of a two lane, undivided carriageway with a winding alignment through hinterland and rural environments. The road travels through urban areas at Gordonvale, Yungaburra and the outskirts of Atherton. Overall the highway is characterised by narrow widths and intersection sight distance issues. The Gillies Range section is characterised by poor vertical and horizontal geometry, narrow widths and poor overtaking or pull over opportunities. The posted speeds on the road vary from 60 km/h to 100 km/h.

For the purpose of the business case , the project length has been divided into four segments with similar characteristics, summarised as follows:

- Segment 1 – Gordonvale to bottom of Range (Ch. 0 to 10.0 km)
- Segment 2 – Gillies Range (Ch. 10.0 to 30.0 km)
- Segment 3 – Top of Range to Yungaburra urban area (Ch. 30.0 to 44.0 km)
- Segment 4 – Yungaburra urban area to Atherton urban limit (Ch. 44.0 to 55.9 km)

Figure 2 provides a summary of the typical road environment for each section.

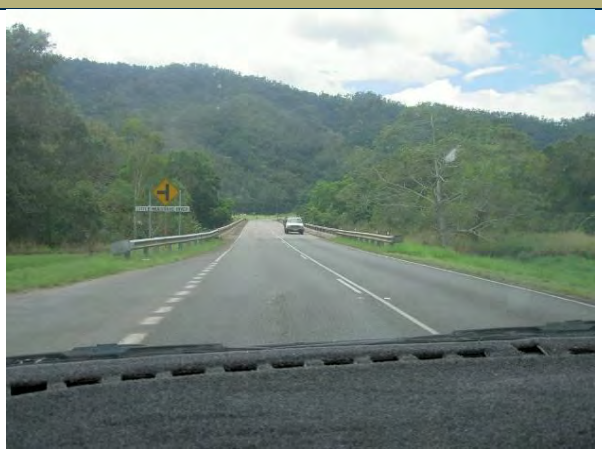
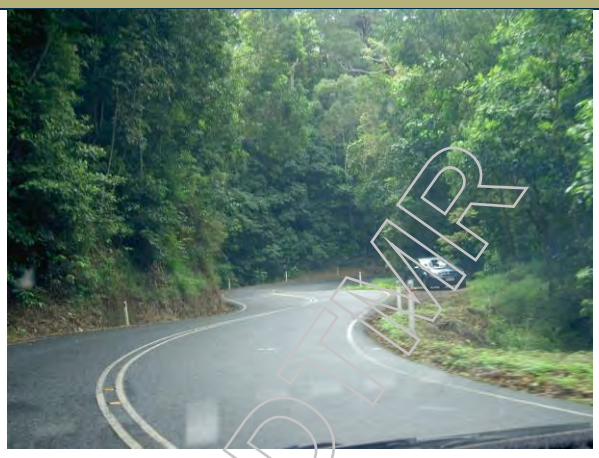
Segment 1	Segment 2
	
This segment traverses undulating terrain that comprises areas of farmland and natural vegetation, including a section of National Park. The alignment through this segment has a varying posted speed between 60 km/h and 100 km/h and consists of a narrow formation with no shoulders.	This segment traverses the mountainous terrain of the Gillies Range and contains approximately 263 corners and an 800 m elevation change over 19 km. Although considered a 'sport bike riders heaven' the undesirable road characteristics of this section significantly restricts safe passage and numerous accidents have occurred over the years.
Segment 3	**Segment 4**
	
This segment traverses undulating terrain that comprises areas of farmland and natural vegetation, including a section of National Park near Lloyd Road. The alignment through this segment has a varying posted speed between 80 km/h and 100 km/h and consists of a narrow formation with no shoulders.	This segment traverses undulating terrain that comprises areas of farmland and natural vegetation, including a section of National Park near Thomas Road. The alignment through this segment has a varying posted speed between 80 km/h and 100 km/h and consists of a narrow formation with no shoulders.

Figure 2 Typical road environment map

Traffic volumes (2016) on the link vary from 7,114 vehicles per day near the Bruce Highway, decreasing to 2,092 vehicles per day at the bottom of Gillies Range (the Range) to the outskirts of Yungaburra. Traffic volumes then increase to 7,946 vehicles per day near the Kennedy Highway in Atherton. Traffic using the road comprises a mix of commuter, tourism and freight traffic. Heavy vehicles comprise up to 10 per cent of the total traffic volume.

In a state wide review of crash data, the Gillies Range Road (642) between Ch. 0.00 km and Ch. 40.0 km ranked highly for key risk indicators when compared to other roads. For completeness and to ensure a consistent approach, this project extended the study area to include the entire 55.9 km length of the Gillies Range Road.

Road crash data used during this assessment was extracted from the WebCrash v2.3 database for the continuous period from 2009 to 2015. This section of road was identified for further investigation due to:

- VERY HIGH – Number of Fatal Crashes (four)
- HIGH – Number of Fatal or Serious Injury (FSI) Crashes (49 in the reporting period)
- HIGH – Cost of crashes per kilometres per year ($194,000)
- HIGH – Cost of crashes per 100 million vehicle kilometres travelled ($24 million)

In response to the high crash frequency along the Gillies Range Road and other State Controlled Roads in Queensland, the TMR's Land Transport Safety Team (LTS) developed a new framework approach to road safety, High Risk Roads (HRR). In accordance with the HRR framework, the aim of this project is to investigate the entire length of the Gillies Range Road to:

- Determine any potential safety treatment projects.
- Develop a prioritised list of candidate projects for further development and potential funding through the Targeted Road Safety Program (TRSP).

The principles of the HRR approach are:

- Maximise road safety benefits – to maximise reductions in fatal and serious injury casualties;
- Achieve value for money – to implement a value for money approach for targeted safety improvements at various locations over a stretched length;
- Provide a consistent customer experience – to apply engineering standards and treatments consistently along the road to assist road users in managing potential safety risk;
- Collaborate – to work closely with all stakeholders through the Development and Implementation phases to achieve the expected safety improvement and project common goals, and
- Apply the latest design, road safety, traffic engineering, procurement, and construction research to ensure the best practice approaches are employed through the life of the project.

The preceding options analysis phase adopted a detailed process for the development and assessment of a set of preferred treatment packages within each of the four road segments. The options analysis was undertaken in collaboration with the TMR (Cairns) District Office and LTS to identify treatment options that best meet Safe System requirements at each location.

The safety treatments considered: straight and curved alignments, priority controlled intersections and roundabouts, property accesses, slow vehicle turnouts, pull-over bays and overtaking lanes; township entry treatments, and other miscellaneous assets, such as roadside signage, guardrail and road lighting. The safety treatments considered varied from minor capital work options (e.g. linemarking and signage) to more complex capital work options (e.g. curve realignment / widening, intersection upgrade).

During the current Business Case phase this work was reviewed and each of the preferred treatment packages was refined in order identify a preferred suite of treatment options for consideration in the current High Risk Roads funding program.

The outcome of this work is a **preferred solution** for each of the four segments, which is shown in **Figure 3** below. Details of the preferred solution and costs are further summarised in **Tables 1, 2, 3** and **4** below.

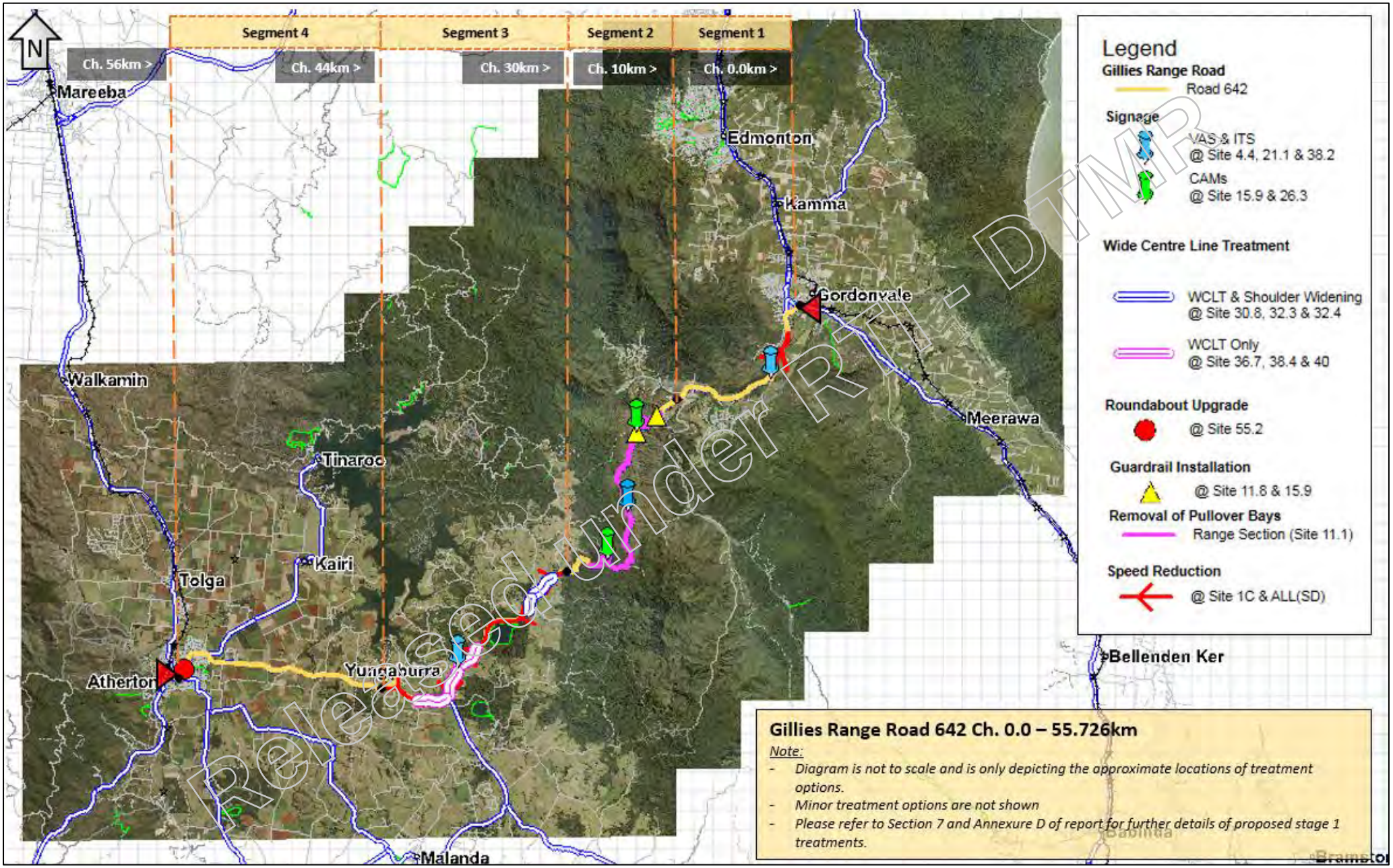


Figure 3 Schematic Diagram of Proposed Stage 1 Options

While a large number of projects identified during the options analysis phase were not able to be justified (under the HRR funding criteria), for inclusion as part of the current funding application, they are nonetheless valid projects that are likely to be required in the future as traffic volumes increase and the level of safety reduces.

A full list of these projects is provided in **Annexure F** and provides TMR with a valuable pool of safety improvement projects for future road safety initiatives.

Table 1 Segment 1 – Preferred solution

Site	Treatment			Total Outturn Cost ($)	Total Benefits ($)	BCR
	Name[1]	No.[2]	Description			
4.4	Install (Vehicle Actuated Signage) VAS Warning Signs	1.1	Install four (4) VAS for the curves between Ch. 4.4 and Ch. 4.8	$146,702	$1,104,749	7.53
1C	Reduce Speed Limit to 80/90km/h (by 10km/h)	1.11	Reduce posted speed[3] between Ch.1.82 and Ch. 3.6.	$20,000	$827,078	41.35
			TOTAL	**$166,702**	**$1,931,827**	**11.59**

[1] Denotes treatment name as defined in the HRR BCR tool
[2] Denotes the treatment number as defined in the HRR BCR tool
[3] This is subject to the outcome of a formal speed review

Table 2 Segment 2 – Preferred solution

Site	Treatment			Total Outturn Cost ($)	Total Benefits ($)	BCR
	Name	No.	Description			
11.1	Install shoulder from "no shoulder or unsealed" to "0.5-1 m sealed"	5.09	Remove pullover bays on range and reallocate shoulder width to lane width on curves starting at Ch.11.1	$469,233	$1,911,132	6.60
11.8	Install w-beam guardrail on road side from no existing shoulder	5.19	Additional curve warning signage & additional guardrail (extensions) at Ch. 11.8, 12.9, 13.0, 13.3, 13.8 and 14.6	$195,924	$1,104,928	9.14
15.9	Install w-beam guardrail on road side from no existing shoulder	5.19	Separate run-off area with guardrail around curve at Ch. 15.9	$90,683	$239,982	2.64
	Install curve alignment markers (CAMs) on outside of curve	5.25	Install CAM's for curve at Ch. 15.9			
21.1	Install New Signing - Warning Signs	1.08	Install ITS (solar powered) signage for warning of approaching traffic (seven sites)	$608,381	$216,105	0.58
26.3	Install curve alignment markers (CAMs) on outside of curve	5.25	Vegetation clearing, additional signage / CAMS, re-linemark, and relocate guardrail for the curve at Ch. 26.3	$291,175	$616,788	3.43
			TOTAL	**$1,655,397**	**$4,088,935**	**2.47**

Table 3 Segment 3 – Preferred solution

Site	Treatment			Total Outturn Cost ($)	Total Benefits ($)	BCR
	Name	No.	Description			
30.8	Install Wide Centre Line Treatment (WCLT) with ATLM[4]	2.03	Install WCLT treatment with 10.5m cross section Ch. 30.8 to Ch. 32.3 (~1.5 km)	$5,203,681	$10,284,154	1.98
	Install shoulder from "no shoulder or unsealed" to">1 m sealed"	5.08				
32.4	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 10.5m cross section and upgrade Powley Road with BAR/BAL treatments (Site 32.3) Ch. 32.3 to Ch. 33.1 (~0.8 km)	$2,845,189	$9,122,922	3.21
	Install shoulder from "no shoulder or unsealed" to">1 m sealed"	5.08				
36.7	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 9.0m cross section Ch. 36.7 to Ch. 38.1 (~1.4 km)	$3,040,626	$4,928,737	162
38.2	Install VAS Warning Signs	1.1	Install Vehicle Actuated Signage (VA) and additional static signs for the approach to the Russell Pocket / Wrights Creek Road Intersection	$150,345	$1,135,513	7.55
	Install New Signing - Guide Signs	1.07				
38.4	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 9.0m cross section Ch. 38.4.to Ch. 39.7.(~1.3 km)	$2,484,789	$5,002,428	2.01
39.8	Move Limit Lines Forward Using Paint Markings	3.19	Move stop line and associated raised islands at the Lake Barrine Road intersection	$303,272	$234,674	5.37
39.8	Reduce Speed Limit to 80/90 km/h (by 10 km/h)	1.11	Reduce posted speed to 90km/h prior to Lake Barrine Road (Ch. 39.8 to Ch. 40)		$1,393,811	
40	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Remove existing linemarking and install WCLT treatment with 9.0m cross section using existing formation width. Ch. 40.0 to Ch. 41.5.(~1.5 km)	$126,270	$404,290	3.20
ALL (SD)	Reduce Speed Limit to 80/90 km/h (by 10 km/h)	1.11	Reduce posted speed[5] between Ch. 30 to Ch. 42.8	$200,000	$5,936,449	29.68
ALL (SG)	Install New Signing - Guide Signs	1.07	Upgrade all signs and guideposts that are not located within one of the sites above	$20,000	$323,437	16.17
			TOTAL	**$14,374,171**	**$38,766,415**	**2.70**

[4] ATLM = Audio Tactile Line Marking
[5] This is subject to the outcome of a formal speed review

Table 4 Segment 4 – Preferred solution

Site	Treatment			Total Outturn Cost ($)	Total Benefits ($)	BCR
	Name	No.	Description			
55.2	New Roundabout (2 lanes)	3.02	Upgrade existing priority tee intersection (Cook Street) to a roundabout	$1,987,579	$2,781,511	1.40
			TOTAL	**$1,987,579**	**$2,781,511**	**1.40**

Consistent with other HRR projects in the district, the design works undertaken during the Business Case have been prepared in 2 dimensions using only aerial photos, the TMR digital video road (DVR) viewer and supported by site inspections. While the types of treatments do not include realignments, the level of detail is less than what would be typically adopted if each site was delivered as a standalone business case. The accuracy of the quantities presents the greatest risk (and opportunity) for this project and while this has been mitigated through the preparation of a P90 risk adjusted price in accordance with the Project Cost Estimating Manuel (PCEM), the risk cannot be reduced until such time as a detail survey is undertaken at each site and the design is advanced.

Under the HRR framework, the first round Business as Usual process will require Business Cases to be approved by Program Delivery and Operations (PDO) Regional Directors by mid-2018, with construction commencing in 2018 – 2019 to 2021 – 2022. The expected approval and delivery timeframe requirements raise the urgency of the proposed project. However, the need for safety improvements along the identified high-risk sections of Gillies Range Road cannot be understated. These safety risks are experienced by all road users, including commuter and tourism traffic, and those accessing the urban areas of Gordonvale, Yungaburra and Atherton. It is in the community's best interests to deliver the targeted safety improvements quickly and efficiently, to maximise the road safety benefits produced by the recommended treatments.

The cost benefit analysis that was undertaken as part of the above assessment yielded a combined BCR of 2.62 for all four segments at a discount factor of 6%. This confirms that the preferred solutions offers value for money and the available crash data clearly demonstrates that there is an immediate need to address the safety issues being experienced on the Gillies Range Road. At an officer level, both Cairns Regional Council (CRC) and Tablelands Regional Council (TRC) have reviewed the options and were supportive of the proposed upgrades.

Based on the above, it is recommended that funding of $18.2 million, refer Table 5 below, be approved to proceed to the detailed design stage. A clear project management plan has been prepared for the subsequent stage and this is provided in Section 9 of this report.

Table 5 Funding Summary

Segment	Total (ex. GST)	Benefit Cost Ratio
1	$166,703	11.59
2	$1,655,397	2.47
3	$14,374,171	2.70
4	$1,987,579	1.40
TOTAL	**$18,183,850**	**2.62**

A set of plans showing the location of each sites along the full length of the link is provided in **Annexure D**.

1. Purpose of this document

The purpose of this document is to finalise scope definition of and concept estimate for the selected option, evaluate benefits and obtain the customer's commitment to funding and agreement to the project's inclusion in the QTRIP.

2. Definitions

Table 6 Specific terms, abbreviations, and acronyms

Terms, abbreviations and acronyms	Meaning
3PCM	Portfolio, Program, Project and Contract Management
AADT	Average Annual Daily Traffic
ARMIS	A Road Management Information System
ATLM	Audio Tactile Line Marking
BAL	Basic Left-turn
BAR	Basic Right-turn
BCR	Benefit Cost Ratio
BS	Black Spot
CAS	Contract Administration System
CBA	Cost Benefit Analysis
Ch.	Chainage
CHL	Channelised Left-turn
CHR	Channelised Right-turn
CRC	Cairns Regional Council
Customer	Decision maker 'owning' the new asset
E&T	TMR's Engineering and Technology Branch
ECS	Engineering Consultant Scheme
EDD	Extended Design Domain
HRR	High Risk Roads
ITS	Intelligent Transport Systems
LTS	Land Transport Safety
MCA	Multi Criteria Analysis
NDD	Normal Design Domain
PCEM	Project Cost Estimating Manual
PP&CM	Project Planning & Corridor Management

Terms, abbreviations and acronyms	Meaning
PUP	Public Utility Plant
QTRIP	Queensland Transport and Roads Investment Program
RRPM	Retro-reflective Pavement Marker
Sponsor	Head of the Delivery Group
SRA	Safety Risk Assessment
SRS	Safer Roads Sooner
TRC	Tablelands Regional Council
TMR	Queensland Department of Transport and Main Roads
TRSP	Targeted Road Safety Program
VAS	Vehicle Activated Signs
WBS	Work Breakdown Structure
WCLT	Wide Centre Line Treatment
WMS	Work Management System

3. Governance

The project will be managed in accordance with the project management policy of April 2012 and the principles on the OnQ website under governance. Governance arrangements for the project are set out below.

3.1 Key Roles

The key project management roles are:

Table 7 Key project management roles

Project Role	Nominated Officer
Project Customer	Sanjay Ram, Regional Director (North Queensland)
Project Sponsor	Sandra Burke, District Director (Far North District)
Project Director	Darryl Jones, Manager (Project Planning and Corridor Management)
Project Manager	Kent Lo, Engineer (Civil)
Advisory Group	Land Transport Safety Branch

3.2 Project organisation structure

The organisational governance structure for the project is outlined in **Figure 3** below including reporting and communication responsibilities for each role during this phase of the project.

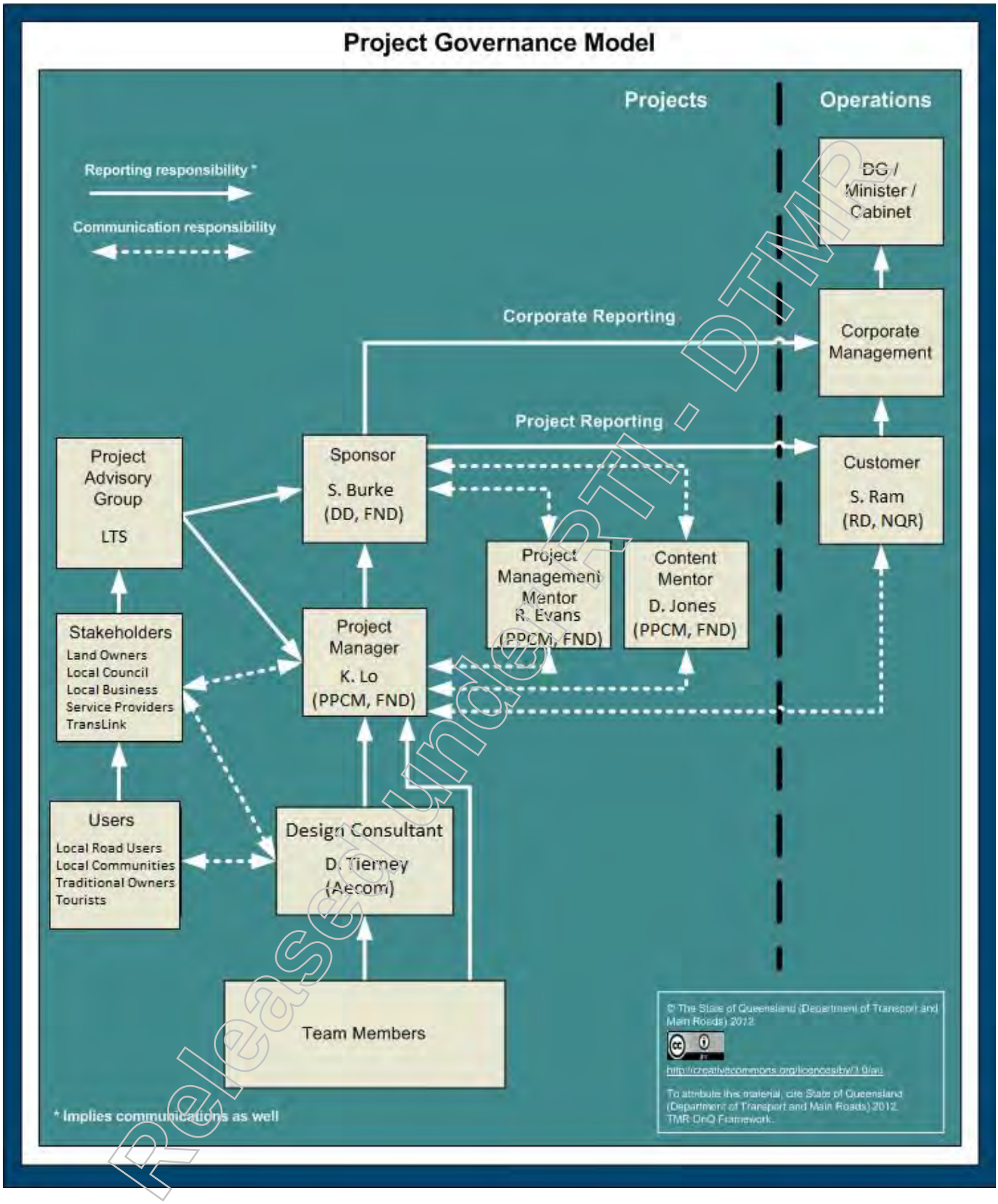


Figure 4 **Project governance structure**

3.3 Higher level requirements

No higher level requirements have been identified as applicable to this submission.

3.4 Whole of government requirements/strategic focus

The *National Road Safety Strategy 2011 – 2020* represents the commitment of federal, state and territory governments to an agreed set of national road safety goals, objectives and action priorities. It is framed by the guiding vision that no person should be killed or seriously injured on Australia's roads. As a step towards this long-term vision, the strategy presents a 10-year plan to reduce the annual n umbers of both deaths and serious injuries on Australian roads by at least 30 per cent.

The *National Road Safety Strategy* is based on the Safe System approach to improving road safety. This involves a holistic view of the road transport system and the interactions among roads, roadsides, travel speeds, vehicles and road users. It is an inclusive approach that caters for all groups using the road system, including drivers, motorcyclists, passengers, pedestrians, cyclists, and commercial and heavy vehicle drivers.

3.5 Departmental corporate/strategic requirements

The vision and targets of the National Road Safety Strategy are expressed by the Queensland Government through its Safer Roads, Safer Queensland: Queensland's Road Safety Strategy 2015 – 2021, which committed to a vision of zero road deaths and serious injuries and aims to:

- Reduce fatalities from 303 (average 2008 – 2010) to 200 or fewer by 2020
- Reduce hospitalised casualties from 6,670 (average 2008 – 2010) to 4,669 or fewer by 2020.

Under the Safer Roads, Safer Queensland strategy, four guiding principles have been adopted:

1. The true road toll is broader than fatalities – we will expand our understanding of the 'road toll' to all fatal and hospitalised casualties.
2. We need an ambitious vision with interim targets to inspire and motivate action – we will adopt an ambitious long-term vision, supported by interim targets.
3. Safe system principles are the foundation for action – we will entrench the mindset that the whole system must be safe at every level of road safety management, and develop solutions based on evidence and innovation.
4. Road safety is everyone's issue and everyone's responsibility – we will drive a fundamental change in the culture and attitude to road safety.

The Safer Roads, Safer Queensland: Queensland's Road Safety Action Plan 2017 – 2019 outlines 29 initiatives to be implemented over the two year timeframe of the plan. The priority areas of the plan include:

- Delivering safer roads for Queenslanders
- Getting people in safer vehicles
- Encouraging safer road use
- Planning our future and strengthening our partnerships

The aims of delivering safer roads for Queenslanders are implemented through the Targeted Road Safety Program (TRSP) which delivers infrastructure safety interventions by monitoring trends in crash data and working in close collaboration with stakeholders. It aims to reduce road trauma by targeting the delivery of high-benefit, cost-effective treatments on the network in locations that are known for, or have the potential for, high severity crashes. The majority of TRSP funding is sourced from revenue collected from speed and red light offences caught on camera. Key activities administered through the Targeted Road Safety Program

include Safer Roads Sooner, the Blackspot Programme, Flashing School Zone Lights, Targeted Safety Interventions and route based treatments such as those delivered through the High Risk Roads package.

High Risk Roads (HRR) is a new framework adopted by TMR to identify high risk locations, analyse specific safety risks at these locations and develop affordable candidate project proposals based on the most appropriate treatment solutions to address safety deficiencies for funding under the TRSP.

With the expected HRR approach, the department expects to achieve the targeted program benefit of the TRSP by:

- Maximising Road Safety Benefits by maximising reductions in fatal and serious injury casualties;
- Investigating Value for Money solutions to ensure an efficient delivery of the program works;
- Providing consistent customer experience by applying engineering standards and treatments consistently along a high risk road to assist road users in managing risks;
- Collaboration among internal and external stakeholders to work closely throughout the development and implementation phases to ensure the best outcome to be achieved; and
- The latest design, traffic, procurement and construction research to be applied to ensure the best practice approaches are employed throughout the life of the program.

3.6 Portfolio management requirements

It is proposed that this project will be part of the Queensland Transport and Roads Investment Program (QTRIP) which is a portfolio managed by TMR's Policy Planning and Investment Division (PPI).

Project specific governance requirements relevant to this project are:

- Approval of this OnQ Business Case Report including the preferred solutions
- Inclusion of the project into the QTRIP submitted to parliament

3.7 Program management requirements

TMR's Land Transport Safety branch (LTS) developed the HRR program and guidelines to address safety deficiencies at a route level. The HRR approach recognises that some of the factors contributing to high risk locations are systemic or route based. Unlike traditional road safety programs (e.g. Safer Roads Sooner or Black Spot) designed to treat isolated high risk locations, the HRR approach is expected to treat multiple safety issues over a stretch of road in one project.

The High Risk Roads Gillies Range Road (642, Gordonvale to Atherton) project is one of the 26 High Risk Roads identified in the HRR program across the state. Program Delivery and Operations (PDO) regions and districts prioritise development of the HRR identified for their area according to the HRR project development guidelines. Projects must demonstrate sufficient road safety benefits to fulfil the requirements of the TRSP investment program which is administered by LTS.

3.8 Business and program benefits of the project

The benefits of the HRR approach includes improved cost effectiveness, reduced traffic disruption and crash risk associated with temporary road works, improved safety and consistent user experience.

By analysing and assessing these safety issues together, and treating them in a single coordinated delivery approach, the advantages of the High Risk Roads Gillies Range Road project are:

- Systemic or route based issues planned and treated together rather than in a piecemeal approach over a number of years

- Improved cost effectiveness from the delivery efficiencies associated with delivering larger projects rather than a series of smaller projects in an uncoordinated manner
- Reduced traffic disruption and crash risk associated with temporary road works
- Improved safety and a consistent user experience by treating all location in a route with the same treatment/cross section/layout.

The key difference with the HRR approach and the established nomination and development process used for approving SRS and BS Program projects, is that the HRR Framework will:

- Holistically assess all road safety deficiencies identified on the route (including intersections)
- Enable development of a comprehensive treatment solution for the whole route
- Implement solutions in line with a delivery strategy.

The upgrade of various sections along the Gillies Range Road between Gordonvale and Atherton will deliver significant benefits to Far North Queensland such as:

- Safety improvements for all road users by substantially reducing the number of crashes
- Improved operational functionality through improved high risk road sections and intersections

Delivery of value for money outcomes to achieve expected TRSP benefits along an important transport link between Cairns and Atherton for all road users and stakeholders, including tourism industries that provide an important contribution to the economic growth in Far North Queensland.

3.9 Approvals

The LTS branch leads the assessment and prioritisation process of all candidate project proposals under the HRR program. LTS works closely with PDO regions/districts during the development and assessment of project proposals. Funding will be prioritised based on factors such as value for money, effectiveness, delivery efficiencies, funding availability and other relevant factors to determine the preferred solution.

Recommendations for candidate projects are forwarded to the TRSP Steering Committee for approval.

3.10 Reviews and reporting

This project will follow the OnQ monthly reporting methodology. Where there is no internal departmental reporting system and/or format, the OnQ Monthly Project Report pro forma can be used, together with the reporting requirements planner. The report will typically cover:

- Progress during the month
- Risk and issues
- Activities for next period
- Resourcing
- Project control (including earned value (if possible), schedule performance, expenditure relative to budget, estimate to complete, change log).

Once available resources are known, reviews will be conducted by responsible individuals according to the resource management plan (refer to OnQ tools > Worksheets and pro forma > Staff Roles and Responsibilities or the Responsibility Assignment Matrix).

3.11 Project management method

The proposed project will follow TMR's policy of using OnQ project management methodology for the four phases of Proposal, Options Analysis, Business Case, and Project Plan stages. This will involve preparation of the 4in1 – Infrastructure T1&2 – Project Proposal, Options Analysis, Business Case, Project Plan template.

Following the Implementation Phase of the project, the OnQ Finalisation Phase Handover Report and Completion Report will be prepared. To evaluate the performance of the asset once the project has long been completed, a Post Implementation Review may be completed to provide learnings regarding the impact of the project's operations upon future strategy.

3.12 Technical standards and processes

All relevant departmental technical standards will be followed. These include:

- Austroads Guides and Australian Standards
- Drafting and Design Presentation Standards
- TMR surveying standards
- TMR Technical notes on Wide Centre Line Treatment (WCLT)
- TMR Technical notes on traffic engineering
- TMR Technical Notes on Pavements, Materials and Geotechnical
- TMR High Risk Roads Program Development Guidelines
- TMR High Risk Roads Project Development Guidelines
- Engineering Consultant Scheme
- Environmental Processes Manual
- Guideline for Audio Tactile Line Marking
- Guidelines for Road Design on Brownfield Sites
- Manual of Uniform Traffic Control Devices (MUTCD)
- Materials Testing Manual
- Pavement Design Supplement
- Pavement Rehabilitation Manual
- Preconstruction Process Manual
- Project Cost Estimating Manual
- Project Development Guidelines – High Risk Roads
- Road Drainage Manual
- Road Planning and Design Manual (RPDM, 2nd Edition)
- Road Safety Audit Policy and Guidelines
- Traffic and Road Use Management Manual (TRUM)
- Transport Infrastructure Asset Management Policy

4. Project definition

4.1 Location

The proposed project covers the entire length of the Gillies Range Road between Ch. 0.00 km at the Bruce Highway in Gordonvale and Ch. 55.9 km at the Kennedy Highway (32B) in Atherton.

Gillies Range Road forms a vital road link for both freight and tourism tasks between the Tablelands regional centres of Atherton, Tolga, Malanda, Yungaburra, including those further inland, and the east coast of Queensland. The link also provides the primary access for rural communities to Cairns for employment, health, education and commerce.

The project has been divided into four segments with similar characteristics for project development purposes, as follows:

- Segment 1 – Gordonvale to bottom of Range (Ch. 0 to 10.0 km)
- Segment 2 – Gillies Range (Ch. 10.0 to 30.0 km)
- Segment 3 – Top of Range to Yungaburra urban area (Ch. 30.0 to 44.0 km)
- Segment 4 – Yungaburra urban area to Atherton urban limit (Ch. 44.0 to 55.9 km)

The project location is shown in **Figure 5** below which also identifies the four segments.

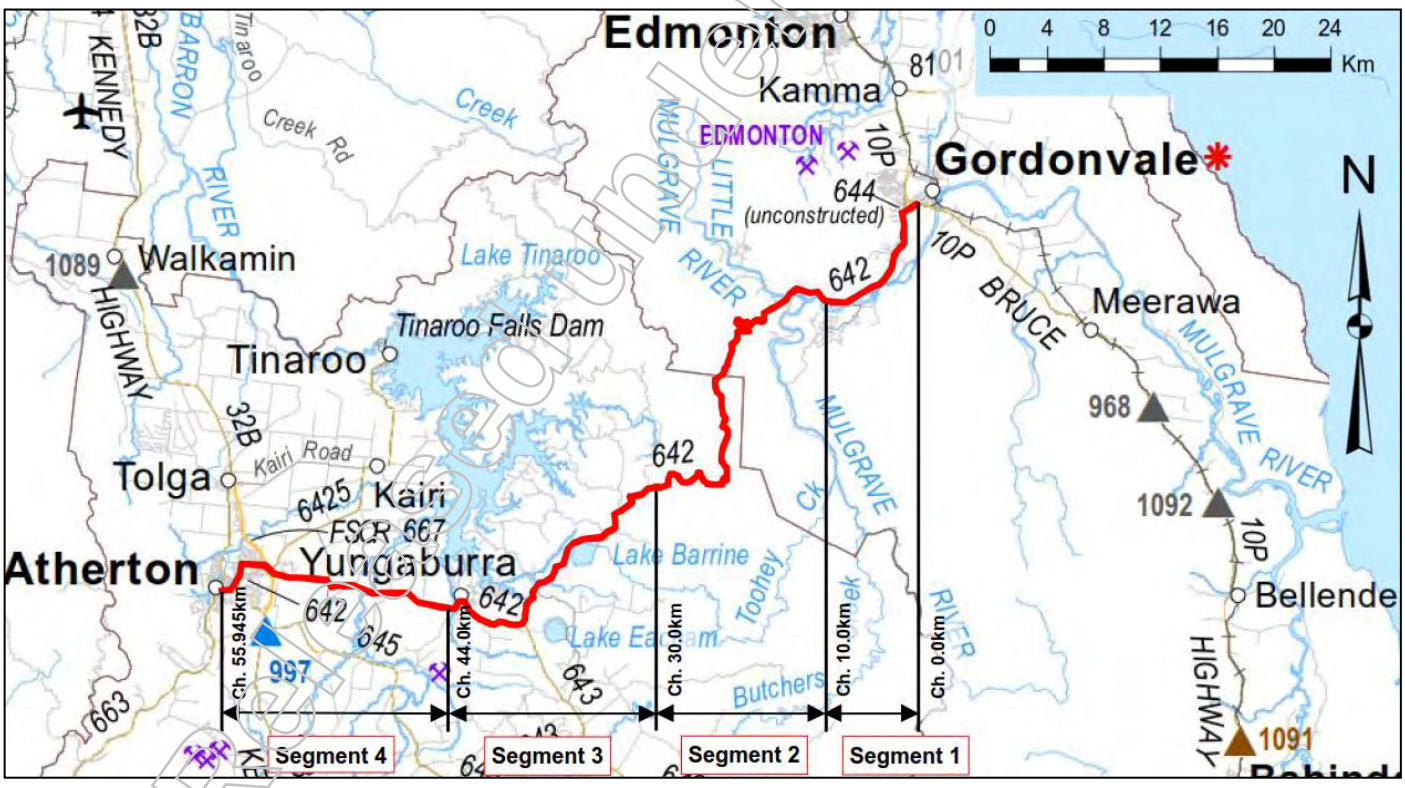


Figure 5 **Project location**

4.2 Background

4.3 High Risk Roads project

The Gillies Range Road corridor has been shortlisted for further investigation as part of TMR's High Risk Roads (HRR) program. The HRR framework is a relatively new approach which has been adopted by TMR to:

- identify high risk locations
- analyse specific safety deficiencies/risks at a route level and determine potential safety treatments
- develop a prioritised list of candidate projects for further development and potential funding through the Targeted Road Safety Program (TRSP).

Unlike traditional road safety programs (e.g. Safer Roads Sooner or Black Spot) designed to treat isolated high risk locations, the HRR approach is expected to holistically treat multiple safety issues over a stretch of road in one project.

To identify HRR for further investigation, TMR's Land Transport Safety Team (LTS) conducted a state-wide review of crash data for the most recent five year period to estimate the level of risk for each road section across the state road network. The following measures were used as key risk indicators:

- number of fatal crashes
- number of fatal and serious injury (FSI) crashes
- crash cost per kilometre
- crash cost per 100 million vehicle kilometres travelled.

To be classified as a HRR, at least one of these measures must be ranked as very high risk, or at least two measures ranked as high risk.

Of the 220 road sections identified as HRR, 26 road sections were shortlisted for further investigation including Gillies Range Road between Ch. 0.00km and 40.0 km. For completeness and to ensure a consistent approach, this project extended the study area to include the entire 55.9 km length of the Gillies Range Road. Road crash data used during this assessment was extracted from the WebCrash v2.3 database for the continuous period from 2009 to 2015. This section of road was shortlisted for further investigation due to:

- VERY HIGH – Number of Fatal Crashes (4 crashes in the 5-year reporting period)
- HIGH – Number of Fatal or Serious Injury (FSI) Crashes (49 crashes in the reporting period)
- HIGH – Cost of crashes per kilometres per year ($194,000)
- HIGH – Cost of crashes per 100 million vehicle kilometres travelled ($24 million)

A safety risk assessment was then conducted for Gillies Range Road to identify existing deficiencies and treatment locations. Data was analysed from a range of sources including the Gilles Range Road Link Plan, crash data, video footage, AusRap data, project data, pavement asset data and site visits undertaken during day and night time conditions. Key issues identified included tight horizontal curves, insufficient seal width, roadside hazards and substandard intersection treatments, consistent with the findings of the link study.

Following this, an options analysis was conducted for each site along Gillies Range Road. This involved developing and assessing potential safety treatments, comparative costing of options, identification of risks and preparing an Options Analysis report. Options considered varied from minor capital work options (e.g. linemarking and signage) to more complex capital works (e.g. curve realignment /widening and intersection upgrades). The Options Analysis report was approved in April 2018 and the current business case work has refined the preferred options and identified a preferred solution for each segment. Further details on the refinement is provided in Section 7.

4.4 Gillies Range Road Link Study

Prior to the HRR Gillies Range Road study, TMR commissioned a link study on Gillies Range Road in 2012. The study assessed the existing performance and deficiencies along the corridor, determined the future performance objectives and conducted a 'gap analysis' to develop candidate projects necessary to achieve TMR's 20-year (2031) vision.

A summary of the key issues and deficiencies identified in the Gillies Range Road Link Plan is provided below:

- Crash history – the analysis showed a high level of severe casualty crashes occurred along the corridor, with the majority involving run-off-road type crashes. The tight horizontal and vertical road alignments, high speed environment, narrow seal widths and proximity of roadside hazards within the clear zone were identified as contributing factors. A high proportion of severe motorcycle crashes were also recorded on weekends.
- Seal width – The consistently minimal seal width was identified as a contributing factor to crashes and the driveability of the road. 60% of the study route has seal widths of 8m or less, with the majority of this around 7 m. An overall seal width of 9.0 m was identified as the 20-year vision.
- Roadside hazards – The majority of the Gillies Range section contains cliff faces and sharp drop-offs within the clear zone. Significant roadside hazards were also identified at the bottom of the range with significant corresponding crash histories recorded.
- Intersection safety – As a result of increased traffic volumes along Gillies Range Road, a number of intersections have been identified as below the warrants for current traffic flows and are recommended for upgrades. Auxiliary and channelised turning lanes are proposed at a number of intersections to separate turning movements from through traffic and treat identified safety issues.

A total of 38 potential projects were identified and prioritised using a multi-criteria analysis in accordance with TMR's Project Evaluation justification matrix. Of these projects, approximately 53% involved intersection improvements, 18% involved provision of overtaking lanes and 11% involved roadside hazard treatments. The remainder projects focused on safety improvements targeted at pedestrians/cyclists, heavy vehicles and driver fatigue.

4.5 Current situation

Gillies Range Road predominantly consists of a two lane, undivided carriageway with a winding alignment through hinterland and rural environments. The road travels through urban areas at Gordonvale, Yungaburra and the outskirts of Atherton. Overall the highway is characterised by narrow widths and intersection sight distance issues. The Gillies range section is characterised by poor vertical and horizontal geometry, narrow widths, and poor overtaking and pull-over opportunities. The posted speeds range from 60 km/h to 100 km/h.

Traffic volumes (2016) on the link vary from 7,114 vehicles per day near the Bruce Highway, decreasing to 2,092 vehicles per day at the bottom of the range to the outskirts of Yungaburra. Traffic volumes then increase to 7,946 vehicles per day near the Kennedy Highway in Atherton. Traffic using the road comprises a mix of commuter, tourism and freight traffic. Heavy vehicles comprise up to 10 per cent of the total traffic volume.

Gillies Range Road is not an approved route for multi-combination vehicles but it is still traversed by heavy vehicles, including 19m semi-trailers. It is also a major tourist route with 4WD vehicles, mobile homes and cars with caravans intermixed with tourist buses and rent-a-cars.

At the time of preparing this business case report, there had been two incidents documented on Facebook of illegal vehicles1 traversing the range.

[1] https://www.facebook.com/groups/CairnsDashCam/permalink/1606647942754763/
https://www.facebook.com/TheCairnsPost/videos/1692350924141010/

As noted previously, Gillies Range Road has a history of high crash rates, compared to other state roads. As a result, the corridor was shortlisted for further investigation under the HRR program. Key contributing factors identified in the Options Analysis Report, and reconfirmed during this Business Case, were tight horizontal curves, insufficient seal width, roadside hazards and substandard intersection treatments.

As part of the options analysis study, road crash data for the entire Gillies Range Road corridor (642) between Ch. 0.00 km and Ch. 55.9 km was extracted from the WebCrash v2.3 database for the five-year period from 1 May 2012 to 30 April 2017. 110 injury crashes were reported for this time period, including four fatal crashes and 67 Fatal or Serious Injury crashes. 38 of the total reported crashes involved motorcyclists.

The most commonly occurring crash types along the entire corridor were:

- "Off-carriageway on curve, hit object" – 22% of reported crashes (24 crashes, 16 FSI crashes)
- "Head-on" - 16% of reported crashes (18 crashes, 13 FSI crashes)
- "Out of control on curve" - 14% of reported crashes (15 crashes, 9 FSI crashes).

Other trends in crashes were:

- Majority of crashes occur during daylight hours
- 45% of crashes (50 crashes) occurred on the weekend
- 27% of crashes (30 crashes) occurred on wet road surfaces
- 35% of crashes (38 crashes) involved at least one motorcyclist. The majority (74%) of these crashes occur on weekends
- The majority of crashes involving motorcyclists occur within Segment 2: Gillies Range (24 crashes).

The key safety issues that were identified in the Options Analysis report are summarised in **Table 8** below, along with a summary of the crash analysis for each road segment. These safety issues were identified from the Safety Risk Assessment Report, desktop review of AusRap data, crash data and video footage, and site visits undertaken during daytime and night time conditions.

Table 8 Key safety issues identified and crash analysis findings per segment

Segment	Safety issues	Crash analysis (based on the five year period from 1 May 2012 to 30 April 2017)
Segment 1 Gordonvale to bottom of Range (Ch. 0 to 10.0 km)	No shoulders / narrow shoulders Tight horizontal geometry Restricted sight distance due to cut batters Poor geometry at intersections Insufficient / inadequate signage Insufficient delineation	25 reported crashes, 17 were FSI (no fatal crashes reported) 28% of reported crashes involve at least one motorcycle 32% of reported crashes occurred on wet road surfaces The most commonly occurring crash types along Segment 1 were: • "Out of control on curve" - 16% of reported crashes (4 crashes, 2 FSI crashes) • "Rear end" - 16% of reported crashes (4 crashes, 3 FSI crashes) • "Exceptions" - 16% of reported crashes (4 crashes, 3 FSI crashes)
Segment 2 Gillies Range (Ch. 10.0 to 30.0 km)	Tight horizontal geometry Steep embankment on inside curves	45 reported crashes, 28 were FSI (no fatal crashes reported)

Segment	Safety issues	Crash analysis (based on the five year period from 1 May 2012 to 30 April 2017)
	Long straights followed by tight horizontal geometry No shoulders / narrow shoulders Narrow lanes Restricted sight distance due to geometry and vegetation Inadequate guardrail Poor location, insufficient width and length, lack of signage at pull over bays	30 crashes recorded Unit 1 travelling towards Gordonvale (down the range) and for 15 crashes Unit 1 was travelling towards Atherton (up the range) 53% of reported crashes involve at least one motorcycle (63% of whole route crashes involving motorcycles). 83% of which occur on the weekends 40% of reported crashes occurred on wet road surfaces The most commonly occurring crash types along Segment 2 were: • "Off carriageway on curve, hit object" - 38% of reported crashes (17 crashes, 11 FSI crashes) • "Out of control on curve" - 20% of reported crashes (9 crashes, 5 FSI crashes) • "Head-on" - 20% of reported crashes (9 crashes, 6 FSI crashes)
Segment 3 Top of Range to Yungaburra urban area (Ch. 30.0 to 44.0 km)	No shoulders / narrow shoulders Poor geometry at intersections Restricted sight distance due to geometry and roadside verge Road speed does not match speed environment Narrow turn lanes at intersections / no shoulder widening at intersections Poor visibility to intersections and accesses at night time	21 reported crashes, 13 were FSI (3 fatal crashes reported) 29% of reported crashes involve at least one motorcycle Majority of reported crashes occurred on dry road surfaces The most commonly occurring crash types along Segment 3 were: • "Head-on" - 29% of reported crashes (6 crashes, 4 FSI crashes) • "Off carriageway on curve, hit object" - 14% of reported crashes (3 crashes, 2 FSI crashes) • "Rear end" - 10% of reported crashes (2 crashes, 1 FSI crash)
Segment 4 Yungaburra urban area to Atherton urban limit (Ch. 44.0 to 55.9 km)	No shoulders / narrow shoulders Poor geometry at intersections Road speed does not match speed environment (Atherton township) Poor visibility to intersections and accesses at night time	19 reported crashes, 9 were FSI (1 fatal crash reported) 5% of reported crashes involve at least one motorcycle Majority of reported crashes occurred on dry road surfaces The most commonly occurring crash types along Segment 4 were: • "Intersection from adjacent approaches" - 32% of reported crashes (6 crashes, 1 FSI crash) • "Rear end" - 21% of reported crashes (4 crashes, 3 FSI crashes)

Segment	Safety issues	Crash analysis (based on the five year period from 1 May 2012 to 30 April 2017)
		• "Entering roadway" - 11% of reported crashes (2 crashes, 0 FSI crashes)

Recent upgrade works along the road may have mitigated some of the key safety issues identified above for particular locations. These works are as follows:

Segment 1

- Minor Safety Works including widening and Asphalt Overlay / Corrector. Chainage 3.885-5.955 (Job No. 274/642/200, 15/10/2015)

Segment 3

- Safety Improvements/Widening of Russell Pocket Road and Wrights Creek Road Intersections (Job No. 281/642/400, 17/07/2015)

4.6 Objectives

In accordance with the HRR framework, the aim of this project is to investigate the Gillies Range Road (642) between Ch. 0.00 km at the intersection with the Bruce Highway (10P) in Gordonvale and Ch. 55.9 km at the intersection with the Kennedy Highway (32B) in Atherton:

- Determine any potential safety treatment projects; and
- Develop a prioritised list of candidate projects (i.e. a preferred solution for each segment), for further development and potential funding through TRSP.

The principles of the HRR approach are:

- Maximise road safety benefits – to maximise reductions in fatal and serious injury casualties;
- Achieve value for money – to implement a "value for money" approach for targeted safety improvements at various locations over a stretched length;
- Provide a consistent customer experience – to apply engineering standards and treatments consistently along the road to assist road users in managing potential safety risk;
- Collaborate – to work closely with all stakeholders through the Development and Implementation phases to achieve the expected safety improvement and project common goals, and
- Apply the latest design, road safety, traffic engineering, procurement, and construction research to ensure the best practice approaches are employed through the life of the project.

Assessment and prioritisation of candidate project proposals for approval will be based upon providing direct safety benefits typically measured in crash reduction potential which produces a suitable benefit – cost ratio (BCR).

4.7 Proposed project

In accordance with the HRR framework, this project will allow multiple safety issues to be treated concurrently, and enable the development of a prioritised, strategic program of works for implementation along the Gillies Range Road between the Bruce Highway at Gordonvale (Ch. 0.0 km) and the Kennedy Highway at Atherton (Ch. 55.9 km). Treatment locations were identified from the Safety Risk Assessment Report, desktop review of

AusRap data, crash data and video footage, and site visits undertaken during daytime and night time conditions.

The proposed safety treatments consider:

- Straight and curved alignments
- Priority controlled intersections and roundabouts
- Property accesses
- Slow vehicle turnouts, pull-over bays and overtaking lanes
- Township entry treatments
- Other miscellaneous assets, such as roadside signage, guardrail and road lighting.

4.8 Delivery strategy

The Transport Infrastructure Project Delivery System (TIPDS) (2014) has been used to provide guidance in regard to developing the best delivery strategy. In this case, where there is a degree of risk and complexity, a high level of relationship management will be required to facilitate interaction between TMR, the Consultant and/or Constructor, and where applicable, subcontractors. Based on the project characteristics and knowledge of similar completed projects in the region, the delivery strategy is likely to be a 'Design and Document, and then Construct' model. Subsequent infrastructure works would be delivered using the Transport Infrastructure Contract – Construct Only (TIC-CO) contract. This model reduces the risk to TMR by transferring most of the complex and high-risk elements to the Consultants/Constructors.

In accordance with the requirements of the Queensland Procurement Policy, TMR has adopted a national system for prequalification of organisations that seek to tender for transport infrastructure projects, in order to minimise the risk of not meeting project objectives. The following prequalification levels are suggested as a basis for limiting registration of interest applications:

1. Roadworks level: R2/R3 (depending on location and complexity)
2. Bridgeworks level: B4 (if required)
3. Financial level: F10 (depending on packaging of works).

These levels may be reduced to encourage competition, application by local suppliers and smaller contractors, and/or generate a larger pool of tenderers. Alternatively, levels may be raised to ensure tenderers have the financial and technical capacity to complete the work.

4.9 Project performance measurement/success criteria/KPIs

Standard OnQ project management processes will be followed to encourage good planning; effective scoping and resourcing; realistic expectations of outcomes; and strong management support. The effectiveness of these processes, and thus project performance, may be indicated by:

- Completion on-time
- Completion within budget
- Incident-free construction
- Achievement of the required milestones
- Customer/stakeholder satisfaction
- Effective handover from project to Region

- Completion and approval of handover report documentation
- Completion and approval of completion report documentation
- Few remedial works required during the defects liability period
- Satisfactory completion of all remedial works during the defects liability period.

4.10 Product performance measurement/success criteria/KPIs

The project manager does not control the usage or network impacts; however, it is important for them to know what is required so that 'before' measurements can be taken to enable later comparison. This exercise may also identify potential operating issues that can be escalated promptly to the customer. The success criteria for achievement of the project operational objectives may include those suggested in **Table 9**.

Table 9 Proposed performance criteria

Project objectives	Operational objectives	Suggested performance measures
Maximise road safety benefits	Reduced number of fatal and serious injury crashes Reduced severity of crashes	TMR data base (RoadCrash2) Police data base Police report forms
Achieve value for money	Benefits of safety treatments outweigh the costs	NPV BCR Cost effectiveness ratio (CER, i.e. number of crashes prevented / cost of measures)
Provide consistent customer experience	Consistent application of engineering standards and treatments for a safe road environment End-user satisfaction	Before-and-after RSA focussing on principles for safe design and operation of intersections, non-intersections, and location of devices (Austroads Guide to Road Safety Part 8) Road user surveys
Collaborate	All internal and external stakeholders work closely throughout the development and delivery phases	Records of regular consultation with all relevant internal and external stakeholders Stakeholder satisfaction surveys
Apply best practice	The latest design, road safety, traffic engineering, procurement and construction research standards are employed through the life of the project	RPEQ approval and sign-off Record of Senior Road Safety Auditor input Reference to Austroads and TMR publications to support decisions and treatments.

5. Project scope

5.1 In scope

Based on the project objectives and TRSP requirements, the project scope includes:

- Review preferred treatments identified during Options Analysis phase and refine preferred treatment options, where required
- Targeted stakeholder consultation (CRC and TRC)
- Document preferred solution including concept sketches and P90 cost estimates
- Risk analysis and record
- Benefit cost analysis (BCA) (BCR calculated by LTS)
- Develop OnQ Business Case
- Assemble a handover package to facilitate the transition to the Development phase.

TMR's Far North District office will manage public consultation, and preliminary environmental and cultural heritage components, if required.

As part of the Business Case phase, work has focussed on refining the detail of each site and working out a how to implement the works in a staged approach.

5.2 Out of scope

Any works that did not contribute to a safety outcome were considered out of scope, including:

- Capacity enhancement without significant safety benefits (including sites where there is no crash history or solutions that produce little or no crash reduction benefits)
- Upgrading drainage capacity to address flooding issues
- Realignment of horizontal and vertical geometry (unless the geometry is causing the safety issue, for example sight distance or concealed driveways)
- Modification of bridge structures (lengthening or improving barrier on bridge approaches however is in scope)
- Maintenance or repair of existing assets, such as repairing/replacing damaged safety barrier or correcting pavement surface defects.

5.3 Constraints

There are a number of constraints involved in the development of this project. These include:

- Safety treatment options should ideally be confined to the existing road reserve (land resumptions would only be considered where there is a significant BCR to the proposed treatment accounting for resumption costs as per the Functional Specification)
- A section of the road under consideration is located in the Wet Tropics World Heritage Area resulting in stringent environmental requirements through part of the project site (Wet Tropics Management Authority and Flora Trigger Zones). The project cost estimates have provided sufficient contingency to cover related stakeholder management and approvals to enable works to proceed.

- There are tight timeframes for TMR to facilitate the inclusion of projects identified through the Options Analysis and Business Case within the budget for the following financial year.
- Land resumptions should be avoided.
- Relocation or alteration to Public Utility Plant (PUP) should be avoided.

5.4 Assumptions

The selection of safety treatment options was based on suitability of the treatment to the existing site and the ability to implement works within the existing road reserve. The project acknowledges the following assumptions:

- Public Utility Plant: the normal constraints around utility services are expected. Conflicts will need to be identified by enquiry through the "Dial Before You Dig" service offered by the Queensland State Government.
- Location of property boundaries were assessed based on DCDB information available at the time of this report. Cadastral surveyors have not been commissioned to confirm the location of property boundaries on the ground.
- Funding will continue to be available for subsequent phases of the project, in line with the proposed project schedule anticipated in this report.
- Resources will continue to be available to complete subsequent phase of the project, within the expected timeframe as anticipated in this report.
- Detailed survey and pavement investigation will not cause delay to the project design activities.
- Stakeholders will be efficiently engaged and consulted as early as possible during subsequent stages of the project.
- Native Title and Cultural Heritage issues may impact on options developed and will need to be assessed as part of subsequent phases of the project.
- The concept layouts, prepared over aerial photos, are sufficient in detail to prepare the risk adjust cost estimates and to provide a clear framework for the subsequent stages of the project.

Where assumptions pose a risk to the success of the project, they have been captured in the risk register (planned and unplanned risk) used for the cost estimates for each segment.

5.5 Related projects/proposals/planning studies

The following projects and planning studies are relevant to the project:

- Queensland Road Safety Strategy 2015 – 2021
- High Risk Roads Gillies Range Road Options Analysis Report (AECOM, 2018)
- Cairns TMR Far North District Road Curve and Signage Audit (TMR, 2017)
- Safety Risk Assessment Gillies Highway (Tdist 0.00 to 40.00) (TMR, 2015)
- Gillies Range Road Link Plan Bruce Highway to Tinaroo Falls Dam Road (AECOM, 2012)
- Atherton Bypass Final Planning Report (SKM, 2010)
- Yungaburra Bypass: Corridor Planning Report (Maunsell AECOM, 2009)

- Gordonvale – Atherton Road: Safety Upgrades – Rationalisation of Overtaking and Passing Opportunities (SKM, 2008)
- Gordonvale – Atherton (Gillies Road): Road Safety Audit – Existing Road (GHD, 2007)
- High Risk Roads Safety Improvements Gillies Range Road – Options Analysis (AECOM, 2018).

5.6 Urgency

The proposed project has been developed in line with the Australian Government's *National Road Safety Strategy 2011 – 2020* as well as the Queensland Government's *Safer Roads, Safer Queensland*: *Queensland's Road Safety Strategy 2015 – 2021 (QRSS)*. These strategies have a guiding vision that no person should be killed or seriously injured on Australia's roads. The casualty reduction targets for 2020 plan to reduce deaths and serious injuries by at least 30 per cent from the 2008 – 2010 baseline period. The QRSS targets for 2020 are ambitious but achievable.

$185.2 million of funding for road safety treatments has been allocated over the next two years through the TRSP. Under the HRR framework, the first round Business as Usual process will require Business Cases to be approved by Program Delivery and Operations (PDO) Regional Directors by mid-2018, with construction commencing in 2018 – 2019 to 2021 – 2022.

The expected approval and delivery timeframe requirements raise the urgency of the proposed project. However, the need for safety improvements along the identified high-risk sections of the Gillies Range Road cannot be understated. The risk is experienced by all road users including commuter and tourism traffic, and those accessing the urban areas of Gordonvale, Yungaburra and Atherton. It is in the community's best interests to deliver the targeted safety improvements quickly and efficiently, to maximise the road safety benefits produced by the recommended treatments.

6. Stakeholder impacts

This section identifies stakeholders that have an impact on, or are impacted by, the project.

6.1 Internal

Table 10 Stakeholders having internal impact on the project

Stakeholder	Impact/Interest in the project
State Minister for Main Roads	Awareness of rationale for recommended option(s). Support for the project as "fit for purpose" solution. To be briefed on project start and finish dates and key developments (including potential media opportunities and stakeholder issues).
Deputy Director-General (Infrastructure Management & Delivery)	Awareness of rationale for recommended option(s). Support for the project as "fit for purpose" solution.
General Manager (Program Delivery & Operations)	Awareness of rationale for recommended option(s). Support for the project as "fit for purpose" solution.
General Manager (Portfolio Investment & Programming)	Awareness of rationale for recommended option(s). Optimising benefits from available investment.
Executive Director (Strategic Investment & Asset Management)	Awareness of rationale for recommended option(s).
Executive Director (Program Development & Performance)	QTRIP impacts, including ability to balance funding over life of the four-year program.
Regional Director (North Queensland)	Awareness of rationale for recommended option(s). Support for the project as "fit for purpose" solution. To be advised of project throughout all phases.
Project Customer	Ensures the project fulfils a business need and its scope is fit for purpose. Provides resources to represent the Customer interests. Approves any changes to project scope and deliverables.
Project Sponsor	Provides high profile support and visibility for the project. Approves the detailed project delivery budget. Advises the Customer of any budget/ allocation/scope issues. Provides final approval of the project deliverables. Approves recommended solutions to resolve complex issues. Approves recommended solutions to any conflicts with other projects/organisations. Approves changes to project scope and deliverables, together with changes to the project budget and schedule which are outside of the contingency allowances.
Project Manager	Liaises with the program manager or Sponsor to achieve project objectives. Liaises with suppliers, consultants, or contractors as required. Prepares, manages, reviews, and updates the project plan. Prepares and manages key knowledge area plans including risk and communications, in conjunction with other project staff. Manages project scope, constraints, and scope creep. Manages project variations and changes, and maintains the change control process.

Stakeholder	Impact/Interest in the project
	Manages project cost estimating, budgeting, monitoring, and contingency. Prepares progress reports and communicates with key stakeholders.
Strategic advisory group	Identifies and advises on any emergent issues or risks to the project. Provides advice on likely organisational response to proposed changes. Provides a sounding board for how changes will be accepted in their organisation. Prepares their organisation for the changes resulting from the project.
Team members	Work on assigned activities according to the quality and timeframe agreed with the Project Manager, project component manager, or project team leader. Report and act on potential delays and issues.
Traffic Management Centre	To be advised of start and finish dates and potential effects on road network.

6.2 External

Table 11 Stakeholders having external impact on the project

Stakeholder	Impact/Interest in the project
Road users	Safety of highway through site. Timing and extent of potential travel delays. Impact on potential change of routes during the construction period especially for tourism access.
Local community	Potential disruption.
Tourism industry	Traffic management impacts, which may affect travel time reliability.
Local industry	Potential effect on productivity. Potential effect on site access.
Transport/haulage companies	Potential delays and disruption. Safety of highway through site. Impact on potential change of routes during the construction period.
Emergency services	To be advised of project and traffic management impacts, which may affect travel time reliability.
Environment authorities	Minimising potential environmental impacts and managing residual impacts. Approvals of methodologies for removing and disposing of waste materials. Review of proposals and granting of permits.
Public utility providers	Protection of services affected by works.
Workplace Health and Safety, Queensland	Minimising potential workplace safety impacts.
Political – Federal, state and local council MPs	To be advised of project and rationale for investment. To be briefed on project developments.
Local Councils	To be advised of project and rationale for investment. To be briefed on project developments. To be consulted on risks and potential impacts of proposed works.

7. Preferred option development

7.1 Naming convention

For the purpose of this Business Case, the project has been divided into four segments with similar characteristics. The following naming convention has been adopted:

- The highway has been divided into four ***Segments*** (Segment 1, Segment 2, Segment 3, and Segment 4).
- A potential suite of treatment options, within each segment, has been identified by a unique project ***site*** number which corresponds to the location (chainage).
- To allow for the works to be staged, each site generally had 2 ***options*** identified as following:
  - An initial package of works = ***Stage 1***
  - The long term package of works = ***Stage 2.***

The outcome of this work is a **preferred solution** for each segment (i.e. four in total), that is comprised of a combination of sites within the segment. The preferred solution incorporates either the Stage 1 or Stage 2 option for each site, or a combination of Stage 1 and Stage 2 options.

7.2 Overview

The extensive options analysis phase of the Gillies Range Road High Risk Road project identified a number of safety deficiencies along the road corridor and developed a set of preferred treatment packages for the four road segments as follows:

- Segment 1 – Gordonvale to bottom of Range (Ch. 0 to 10.0 km)
- Segment 2 – Gillies Range (Ch. 10.0 to 30.0 km)
- Segment 3 – Top of Range to Yungaburra urban area (Ch. 30.0 to 44.0 km)
- Segment 4 – Yungaburra urban area to Atherton urban limit (Ch. 44.0 to 55.9 km).

The following key tasks were undertaken during the Business Case in order to identify and refine the preferred options that, when combined, yielded the preferred solution for each of the four road segments. The preferred solutions will form the basis of a funding request under the current round of High Risk Roads program of works funding.

1. Review outcome of OA phase and work completed post workshop
2. Prepare revised quantities for each site based on the available data (i.e. DVR, aerial photo and site inspections)
3. Develop P90 risk adjusted price for Segment 1, 2 and 4
4. MCA for Russell Pocket Road in segment 3 (due to the site specific constraints and difficulty in achieving the necessary sight distance). Refer to **Annexure H** for details.
5. First pass CBA for Segments 1, 2 and 4 (by LTS)
6. Review and challenge type cross section for the WCLT. Refer to **Annexure I** for details.
7. Identification of separate work packages within each segment
8. Develop P90 risk adjusted price for Segment 3
9. Second pass of CBA for all four segments
10. Revised initial preferred solution for each segment

11. Updated CBA and identification of a separate BCR for each preferred solution

12. Identification of future work packages for each segment.

The above process was undertaken in collaboration with the TMR District Office and LTS to identify treatment options that best meet Safe System requirements at each location. An overriding objective of this work was to identify a preferred solution that has a high likelihood of being funded under the current HRR program of works.

7.3 Updated design scope (criteria) and assumptions

As noted earlier, consistent with other HRR projects in the district, the design works undertaken during the Business Case have been prepared in 2 dimensions using only aerial photos, the TMR digital video road (DVR) viewer and supported by site inspections.

In addition to this, using the design criteria adopted from other projects along the link, the design team prepared a scope of works that was used to prepare the cost estimate (**Annexure E**) and to inform the detailed design reports as part of the next stage of works.

Details of this scope are as follows:

In scope

- Seal new pavement areas only - 2 coat seal
- Removal of other line marking by strip seal only
- Pavement widening minimum width 1.5 m for constructability
- Pavement base course – 250 mm cement modified
- Pavement subbase – 200 mm cement treated
- 30% of new pavement areas treated with subgrade treatment type I – rock replacement
- PUP protection
- PUP relocation where deemed appropriate based on DBYD only
- New signage and guide posts
- Topsoil and hydromulch to exposed batters
- Concrete lining of drains through cut batters greater than 2.0 m
- Guardrail replacement in widened areas
- New guardrail if widening embankment greater than 2.0 m high
- Minor percentage allowance for culvert extensions
- No resumptions
- One lane of traffic during construction
- Environment and erosion control during construction
- Vehicle actuated signs are self-contained and solar powered with no communications or power connections required

Out of scope

- Full width reseals
- Asphalt surfacing to intersections
- Upgrade of culverts
- Widening of bridges
- Street lighting
- Public Consultation
- Provision for fish passage
- Batter stability works
- Excavation in rock
- Capacity upgrades

7.4 Preferred solution

A summary of the package of preferred solutions for Segments 1 to 4 is provided in **Tables 12, 13, 14** and **15** below. These are the Stage 1 initial package of works.

Table 12 Segment 1 – Overview of preferred solution

Site	Treatment			Total Outturn Cost ($)
	Name[1]	No.[2]	Description	
4.4	Install (Vehicle Actuated Signage) VAS Warning Signs	1.1	Install four (4) VAS for the curves between Ch. 4.4 and Ch. 4.8	$146,702
1C	Reduce Speed Limit to 80/90km/h (by 10km/h)	1.11	Reduce posted speed[3] between Ch.1.82 and Ch. 3.6.	$20,000
			TOTAL	**$166,702**

[1] Denotes treatment name as defined in the HRR BCR tool
[2] Denotes the treatment number as defined in the HRR BCR tool
[3] This is subject to the outcome of a formal speed review

Table 13 Segment 2 – Overview of preferred solution

Site	Treatment			Total Outturn Cost ($)
	Name	No.	Description	
11.1	Install shoulder from "no shoulder or unsealed" to "0.5-1 m sealed"	5.09	Remove pullover bays on range and reallocate shoulder width to lane width on curves starting at Ch.11.1	$469,233
11.8	Install w-beam guardrail on road side from no existing shoulder	5.19	Additional curve warning signage & additional guardrail (extensions) at Ch. 11.8, 12.9, 13.0, 13.3, 13.8 and 14.6	$195,924
15.9	Install w-beam guardrail on road side from no existing shoulder	5.19	Separate run-off area with guardrail around curve at Ch. 15.9	$90,683

	Install curve alignment markers (CAMs) on outside of curve	5.25	Install CAM's for curve at Ch. 15.9	
21.1	Install New Signing - Warning Signs	1.08	Install ITS (solar powered) signage for warning of approaching traffic (seven sites)	$608,381
26.3	Install curve alignment markers (CAMs) on outside of curve	5.25	Vegetation clearing, additional signage / CAMS, re-linemark, and relocate guardrail for the curve at Ch. 26.3	$291,175
			TOTAL	**$1,655,397**

Table 14 Segment 3 – Overview of preferred solution

Site	Treatment			Base Year Cost ($)
	Name	No.	Description	
30.8	Install Wide Centre Line Treatment (WCLT) with ATLM[4]	2.03	Install WCLT treatment with 10.5m cross section Ch. 30.8 to Ch. 32.3 (~1.5 km)	$5,203,681
	Install shoulder from "no shoulder or unsealed" to">1 m sealed"	5.08		
32.4	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 10.5m cross section and upgrade Powley Road (Site 32.3) with BAR/BAL treatments Ch. 32.3 to Ch. 33.1 (~0.8 km)	$2,845,189
	Install shoulder from "no shoulder or unsealed" to">1 m sealed"	5.08		
36.7	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 9.0m cross section Ch. 36.7 to Ch. 38.1 (~1.4 km)	$3,040,626
38.2	Install VAS Warning Signs	1.1	Install Vehicle Actuated Signage (VA) and additional static signs for the approach to the Russell Pocket / Wrights Creek Road Intersection	$150,345
	Install New Signing - Guide Signs	1.07		
38.4	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Install WCLT treatment with 9.0m cross section Ch. 38.4.to Ch. 39.7.(~1.3 km)	$2,484,789
39.8	Move Limit Lines Forward Using Paint Markings	3.19	Move stop line and associated raised islands at the Lake Barrine Road intersection	$303,272
39.8	Reduce Speed Limit to 80/90 km/h (by 10 km/h)	1.11	Reduce posted speed to 90km/h prior to Lake Barrine Road (Ch. 39.8 to Ch. 40)	
40	Install Wide Centre Line Treatment (WCLT) with ATLM	2.03	Remove existing linemarking and install WCLT treatment with 9.0m cross section using existing formation width. Ch. 40.0 to Ch. 41.5.(~1.5 km)	$126,270
ALL	Reduce Speed Limit to 80/90 km/h (by 10 km/h)	1.11	Reduce posted speed[5] between Ch. 30 to Ch. 42.8	$200,000
ALL	Install New Signing - Guide Signs	1.07	Upgrade all signs and guideposts that are not located within one of the sites above	$20,000
			TOTAL	**$14,374,171**

[4] ATLM = Audio Tactile Line Marking
[5] This is subject to the outcome of a formal speed review

Table 15 Segment 4 – Overview of preferred solution

Site	Treatment			Total Outturn Cost ($)
	Name	No.	Description	
55.2	New Roundabout (2 lanes)	3.02	Upgrade existing priority tee intersection (Cook Street) to a roundabout	$1,987,579
			TOTAL	**$1,987,579**

7.5 Future work packages and considerations

The Options Analysis and Business Case phases utilised a rigorous and methodical approach to the identification, assessment and prioritisation of projects. This has resulted in a significant number of potential projects, well in excess of what can be delivered under HRR funding.

While a large number of these projects were not able to be justified under the HRR funding criteria, they are nonetheless valid projects that are likely to be required in the future as traffic volumes increase and the level of safety reduces. These projects are placed into the long term package of works as the Stage 2 options.

A full list of these projects is provided in **Annexure F** and along with costings in **Annexure E**. This project listing provides TMR with a valuable pool of safety improvement projects for future road safety initiatives.

8. Project cost and quantifiable benefits

The overall project cost estimate includes departmental costs (i.e. concept, development, implementation and finalisation phase), risks and contingencies and escalation costs. A separate cost estimate has been prepared for each segment, based on the construction dates as set out in Section 9.2 of this Business Case report.

The date of the last stage estimate is

- Segment 1 – February 2018
- Segment 2 – March 2018
- Segment 3 – June 2018
- Segment 4 – March 2018

This estimate is a category (3) business case level estimate.

The method of contingency estimation was probabilistic.

The final figure given is a P90 estimate and a copy of the full schedule is provided in **Annexure E**.

The confidence level in these estimates is low.

Table 16 Estimate of project phase costs

Project Phase	Segment 1	Segment 2	Segment 3	Segment 4	Total ($)
Concept	Refer to Section 9.3, Table 19 Concept phase costs				
Development	$9,174	$76,615	$900,542	$140,324	$1,126,655
Implementation & Finalisation	$9,174	$76,615	$900,542	$140,324	$1,126,655

Base Estimate	$103,670	$1,021,532	$8,186,741	$1,116,982	$10,428,925
Contingency	$35,080	$377,126	$3,443,583	$454,589	$4,310,378
Total Project Cost	$157,098	$1,551,888	$13,431,408	$1,852,219	$16,992,613
Escalation Amount	$9,604	$103,508	$942,763	$135,360	$1,191,235
Out-turn Cost	$166,703	$1,6585,397	$14,374,171	$1,987,579	$18,183,850
Amount of any funding/contributions approved to date					Nil identified to date

Notes:

1. The cost estimates in Annexure E, prepared for each segment, assume that all of the sites within the segment are constructed as a single package of works. Refer to Annexure F for a list of all sites within each segment.
2. While the direct construction cost has been calculated from first principles for each site, the “Client”, “Risk” and “Escalation” costs have been calculated as a percentage of the direct construction costs for the full package of works on each segment.
3. As the preferred solution is a subset of the full segment, a pro rata approach was adopted for the Client, Risk and Escalation values reported above. Refer to Annexure E for further details.
4. No allowance has been made for any property acquisition as part of the preferred solution. It is noted that the proposed roundabout at Cook Street will encroach into the hospital land and adjacent reserve, and it has been assumed that this land will made available through a title transfer and that no payment of compensation for the land is required.

Quantifiable benefits have been calculated by LTS and the Benefit Cost Ratio for each segment (for the preferred solution) is contained in **Table 17**. This work has been prepared using a spreadsheet tool and copies of the outputs from this process are provided in **Annexure G**.

Table 17 Summary of costs and benefits for all segments

Segment	Total Outturn Cost ($)	Total Benefits ($)	BCR
1	$166,703	$1,931,827	11.59
2	$1,655,397	$4,088,935	2.47
3	$14,374,171	$38,766,415	2.70
4	$1,987,579	$2,781,511	1.40
TOTAL	**$18,183,850**	**$47,568,688**	**2.62**

Note: In determining the BCR for the wide centreline projects, the treatment life was increased from 5 years to 20 years. Previous advice provided by LTS, which was reconfirmed with LTS by the District Planning Manager as part of this project, is that the treatment remains effective over the 20 year period if the linemarking is repainted every 5 years.

9. Project management plan

9.1 Scope

Scope will be managed by proceeding through the development phase to detail the works for each site as summarised in Section 7. Out of scope items are documented below for clarity. TMR's Project Manager shall manage the scope of the subsequent (Detailed Design) design stage based on this scope definition. A detailed description of the works for each site is provided in **Attachment D**, with the overall scope being summarised as follows:

In scope

- Detailed feature survey
- Subsurface investigations (subgrade, pavement, and PUP's)
- Detailed Environmental Assessment
- Detailed Cultural Heritage Assessment
- Condition assessment of all culverts
- Subgrade treatments for widened areas
- PUP protection and or relocation where an impact cannot be avoided
- New signage and guide posts
- Topsoil and hydromulch to exposed batters
- Concrete lining of drains through cut batters greater than 2.0 m
- Guardrail replacement in widening areas
- New guardrail if widening an embankment greater than 2.0 m high
- Ongoing key stakeholder consultation.

Out of scope

- Full width reseals
- Asphalt surfacing to intersections
- Upgrade of drainage immunity
- Widening of bridges
- Street lighting
- Public Consultation
- Provision for fish passage
- Batter stability works
- Capacity improvements.

Once the scope is finalised, any changes will be identified, costed and their implications for time and quality determined, using the *OnQ site> tools> proformas> project change* request and change log, or other required/existing organisational processes. Any changes to estimated cost will be handled through the cost variation process in sub-section 3 below on cost.

9.2 Time

The following information will provide input to development of an electronic schedule for later phases. These timeframes have been derived from the HRR guidelines and will be subject to district resources, weather, project prioritisation, etc.

Table 18 Timeline of project phases

Activity	Planned Date
Business case approved	July 2018
Assessment and Approval of Prioritised Projects for TRSP Funding	July 2018
Establish Project in 3PCM	October 2018
Undertake detailed survey, pavement investigations, PUP survey	November 2018 – February 2019
Undertake environmental and cultural heritage assessments	November 2018 – February 2019
Undertake procurement for detailed design	March 2019 – May 2019
Commence detailed design	June 2019
Detailed design completed	September 2019
Approval to proceed to implementation	October 2019
Commence Tender Period	November 2019 – January 2020
Contract award	February 2020
Construction duration	Segment 1 – 4 months Segment 2 – 5 months Segment 3 – 11 months Segment 4 – 5 months
Works complete	June 2021
Handover documents prepared and project closeout	September 2021

It should be noted that the Project is a program of works along the entire Gillies Range Road corridor, rather than a discrete project.

Progress will be reviewed and reported monthly, initially against the above milestones, and at later stages, against the P6 schedule. Extensions of time (EOTs) will be recorded in a change log for major contracts.

For projects that are mandated in RPM, TMR's Reporting and Performance Management system, the project manager will enter commentary on any time or financial variances, preferably as they occur, but by the sixth working day of the month at the latest.

9.3 Cost

The table below summarises the costs to complete the Concept Phase, including costs to date.

Table 19 Concept Phase Costs

Activity	Total ($)
Principal's Cost (Estimated)	$41,000
Consultant's Cost (Options Analysis and Business Case)	$282,120
Total Phase Cost (up to Business Case Approval)	$323,120

The table below summarises the forecast cost to complete the Development and Implementation phases for each segment.

Table 20 Forecasted costs for future phases

Activity	Total ($)
Client Cost	$18,348
Property acquisition	$0
Construction (ex. PUP)	$103,670
PUP relocation	$0
Risk	$35,080
Escalation	$9,604
Segment 1 Subtotal	*$166,702*
Client Cost	$153,230
Property acquisition	$0
Construction (ex. PUP)	$1,021,532
PUP relocation	$0
Risk	$377,126
Escalation	$103,508
Segment 2 Subtotal	*$1,655,397*
Client Cost	$1,801,084
Property acquisition	$0
Construction (ex. PUP)	$8,186,741
PUP relocation	$0
Risk	$3,443,583
Escalation	$942,763
Segment 3 Subtotal	*$14,374,171*
Client Cost	$280,648
Property acquisition	$0
Construction (ex. PUP)	$1,116,982
PUP relocation	$0
Risk	$454,589
Escalation	$135,360
Segment 4 Subtotal	*$1,987,579*
Total Phase Cost	$18,183,849

The total project budget will be managed through TMR's Oracle Primavera Portfolio Management (OPPM). Variations to the project total budget will be initiated and approved using the program submission form, formerly known as the M3131.

Approval to spend money on the project will be obtained in TMR's Financial Approval Process (FAP) system using the 'Financial approval for purchase of materials and services' form, formerly known as the M739.

Staff and contractor staff working in-house will use CATS timesheets, and apportion their times to appropriate cost codes determined by the project manager.

Expenditure will be recorded in SAP. General Ledger (GL) codes will be assigned to all expenditure, and detailed estimate items aggregated to a suitable level into either SAP WBS elements or internal orders. The structure of these needs to be determined by the project manager at the start of the job. The total of these estimated items becomes the project management budget for each cost code/internal order, which SAP expenditure will be monitored against.

SAP line items will be reviewed monthly, if necessary, to ensure no items have been charged to the wrong cost code, and that any such items are corrected.

Expenditure forecasts will be calculated and reviewed using 3PCM and Unifier, with the forecast cost to complete being estimated monthly.

Variations to project internal budget items will be identified by the project manager/team and submissions requesting financial approval will be approved as per the limit of each officer's financial delegation, with due consideration being given to the impact on total project budget.

Variations that need to be funded from contingencies will be identified by the project manager/team and the funds released by the program manager or the 'major project owner' for projects where the Major Projects Contingency and Savings Management Policy applies.

For projects that are mandated in RPM, TMR's Reporting and Performance Management system, the project manager will enter commentary on any time or financial variances, preferably as they occur, but by the sixth working day of the month at the latest.

9.4 Quality

The quality requirements of the end product will be addressed during the concept phase process of considering options and developing the business case. This process is designed to balance aspirations for project scope, completion date, cost and quality, all of which impact upon each other. Design standards and surface finish requirements will be considered in balancing these aspects of the project. Once these matters are settled and the project proceeds to implementation, then the quality standards will be incorporated into the contract brief and specification annexures.

9.5 Environment, cultural heritage and native title

Environment and cultural heritage will be managed in accordance with the Environmental Processes Manual as per the TMR EMS available on the TMR intranet.

9.6 Safety

A 'Zero Harm' policy exists within TMR which aspires to achieve an incident and injury-free work environment where every person comes to work and goes home again safely.

This covers all activities from the office based concept development, data collection and site investigations through to operations. Safety in Design criteria will be considered during the Business Case; however, these will also need to be considered during the preliminary and detailed design phases of the project and implemented in the final design.

A health and safety plan, including particular concerns relating to this project and how those concerns will be managed, will be developed by the civil works contractor as part of their tender documentation. A project specific construction safety plan (including the management of traffic through worksite) is to be approved by TMR before work on site commences.

All safety incidents and near-misses will be reported through Regional WHS coordinators, using WHS hotline as per standard organisational practice. All personnel are required to comply with the WHS legislation, relevant codes of practice, as well as site specific plans and rules as listed in site specific induction.

All project meetings during construction are to have safety on the agenda.

9.7 Functionality

Decisions on issues that could either reduce or increase functionality will be referred to the customer. Where substantial improvements in functionality become possible through performing additional work at additional cost, the customer shall be provided with appropriate cost options.

9.8 Human Resources

TMR staff shall be responsible for the management of this project. Staff shall be provided by the Far North Region, Cairns Office. The TMR project director leads the delivery team to achieve the objectives of the project. The TMR project manager manages the day to day tasks of the project including managing the design consultant and ensures timely delivery of the project.

9.9 Communications

TMR's Project Manager and Communication Advisor will develop a communication strategy for this project in the future development phases. The communication plan will follow the TMR OnQ procedures with the required template and worksheets completed and on file.

External to project

External to project communication will be managed as per TMR's external communications management plan and worksheets. This will cover both community engagement and stakeholder management.

Internal to project

Internal project communication will be managed as per TMR's Internal Communications management plan and worksheets.

9.10 Risk

The table below identifies the major risks or uncertainties likely to be encountered in this phase as well as the remaining phases of the project.

Table 21 Major risks and/or uncertainties

Risk details	Comment on likelihood, consequence and treatment
Overall Project Key Risks	
Funding priority changes/availability of funding	Likelihood – possible Consequence – high Treatment – ensure Business Case project stays within available funding envelope, liaise with TRSP program managers Residual rating - medium

Risk details	Comment on likelihood, consequence and treatment
Project cost estimate exceeds available funding/client expectations	Likelihood – possible Consequence – high (project delays, change of scope) Treatment – identify low cost options that provide high safety benefits during Business Case and project Development Phases Residual rating - medium
Unknown stakeholder requirements	Likelihood – possible Consequence – high (change of scope, delays to program) Treatment – undertake stakeholder consultation to ensure expectations and feedback on options is received from local residents, businesses, Council officers and political representatives during Business Case and project Development Phases Residual risk – medium
Options Analysis Phase Risks (previous stage)	
Concept design cost estimates were based on simple scope and could be too low	Likelihood – possible Consequence – high (project may cost substantially more than expected, change of scope, project delays) Treatment – prepare P50 cost estimates, further develop design and scope of preferred project during Development phase (detailed design) Residual rating - medium
Conflict with existing PUP	Likelihood – possible Consequence – high (increase in project cost, delays to program, increasing complexity in construction) Treatment – undertake PUP survey during project Development Phase Residual rating - low
Unknown condition of existing culverts and drainage infrastructure, accuracy of DCDB property boundaries, road formation width, horizontal and vertical geometry	Likelihood – possible Consequence – high (increase in project cost, delays to program, increasing complexity in construction, impact on adjoining properties, potential land resumptions) Treatment – undertake detailed survey as soon as Business Case is approved Residual rating – low
Unknown environment, cultural heritage and native title issues	Likelihood – possible Consequence – high (increase in project cost, delays to program, increasing complexity in construction) Treatment – undertake environmental and cultural heritage investigations during project Development Phase (e.g. Review of Environmental Factors and Cultural Heritage Risk Assessment) Residual rating – medium
Additional Risk identified in the current (Business Case) phase	
Reducing the posted speed (Segment 1 – Ch. 1.82 to Ch. 3.6 and Segment 3 - Ch. 30.0 to Ch. 42.8) is not supported by stakeholders and results in community backlash	Likelihood – almost certain Consequence – moderate (delays to program, change in scope, political intervention) Treatment – undertake a detailed speed limit review to provide engineering justification, consult with community prior to works, continue to monitor after works are constructed Residual rating - high
The cost estimate for the preferred solutions has been determined using a pro rata approach for the client, risk and escalation.	Likelihood – possible

Risk details	Comment on likelihood, consequence and treatment
This may result in the cost estimates being incorrect (either too high or too low).	Consequence – high (project may cost substantially more than expected, change of scope, project delays) Treatment – P90 risk adjusted estimates have been prepared, further develop design and scope of preferred project during Development phase (detailed design) Residual rating – medium
The proposed roundabout will encroach into the Hospital land (Lot 1 SP1718739) and the adjacent reserve (Lot 801 NR7480) It has been assumed that this land will be made available through a title transfer and that no payment of compensation for the land is required.	Likelihood – possible Consequence – high (roundabout may need to be designed to stay within the existing road reserve, project cost may increase, project delays) Treatment – Once funding is approved commence consult with the land owners, undertake detailed geometric modelling to confirm the optimal positions of the roundabout Residual rating – medium

This list will be further developed by:

- Expanding as the project scope and impacts are fully developed for each individual site,
- Referring back to the corporate risk prompt list, and
- Monitoring, reviewing and updating the risk register on a monthly/quarterly basis.

9.11 Procurement

The Development Phase (preliminary and detailed design) will most likely be carried out externally by a prequalified consultant with the likely contract type being open tender.

Table 22 Procurement Method

Consultancy/Contract/Service Required	Expected $ value	Procurement method
Options Analysis & Business Case (Consultant's fee)	$282,120	Procurement under Engineering Consultant Scheme (ECS)
Detailed Design (TBA)	TBA	To be determined by the district
Construction Contractor	TBA	Contract types to be confirmed during the development of detailed design

Procurement will be in accordance with the State Purchasing Policy and will be carried out in accordance with departmental procurement procedures including the Manual – Consultants for Engineering Projects, and MR 41/05 Prequalified Supplier Arrangement Manual.

Any contracts will be managed using the TMR Contract Administration System (CAS) Manual/other approved system.

All purchase orders will be processed in SAP and approval limits will be monitored in Unifier/3PCM.

Corporate Card will be used for purchase of small items provided these items are not cumulative to an amount in excess of the current limit.

Requisitions for goods/services and purchase orders will be created in SAP.

Accounts will be processed and paid through SAP.

9.12 Integration

This project management plan has been prepared taking into account the requirements of all knowledge areas, and so provides the means of integrating them, ensuring they can be progressed individually and as a seamless part of the whole project with cohesive inter-relationships. Management against this plan using the issues register on the OnQ site under tools> proformas will provide ongoing integration that will be supported by the regular project meetings and reporting outlined in this plan.

9.13 Phase transitions/handover/completion

The Development Phase of the project has been under the control of Manager (Project Planning & Corridor Management). During this phase, Delivery & Operations Branch have been included as key stakeholders. As the project moves from the Development Phase into the Implementation Phase, the project will be formally handed over to Manager (Delivery & Operations), who will assume the role of Project Director for the detailed design and then construction of the project.

The finalisation activities of handover and completion will also be included in the project schedule, together with such activities as closing ledgers, producing as-constructed plans and updating systems such as ARMIS and Asset Master.

The Project Management Plan will overview any known operational/traffic management issues, along with intended commissioning arrangements that may be required for M&E equipment/operating systems, as well as operations and maintenance manual preparation, asset transfer, handover, maintenance and warranty arrangements as well as durability assessment report.

9.14 Design development

Design considerations have been documented as part of this Business Case and it is expected that this will form the basis of the individual Design Development Reports that will be prepared as part of the next phase. The Design Development Reports will document existing conditions, design considerations, parameters and details, actions, technical decisions, design verifications and safety considerations. It will also document normal design domain and any use of extended design domain and design exceptions. The design team will also utilise the Design Services Operating System to document all aspects of the design process to ensure accurate records.

As-constructed plans are expected to be prepared progressively by the civil works contractor during the implementation phase.

9.15 Project Learnings

Learnings on the project will be progressively entered into the learnings register from the OnQ website. Project team members will add to this progressively throughout the project, and it will be an agenda item at monthly team meetings. This will provide a source of information for preparation of the completion report at the end of the project.

A key learning from the Options Analysis and Business Case is the process for the identification, assessment and prioritisation of projects leads to a significant number of potential projects, well in excess of what can be delivered under HHR funding. It is important that the projects which are not progressed through the HRR funding stream are retained for future consideration within other funding programs.

10. Recommendations

For the purpose of the business case, the project length was divided into four segments with similar characteristics, summarised as follows:

- Segment 1 – Gordonvale to bottom of Range (Ch. 0 to 10.0 km)
- Segment 2 – Gillies Range (Ch. 10.0 to 30.0 km)
- Segment 3 – Top of Range to Yungaburra urban area (Ch. 30.0 to 44.0 km)
- Segment 4 – Yungaburra urban area to Atherton urban limit (Ch. 44.0 to 55.9 km)

The Gillies Range Road High Risk Road project identified a number of safety deficiencies along the road corridor and developed a set of preferred treatments for the four road segments. A detailed options development and assessment process was undertaken to identify treatment options that best meet the HRR objectives at each location.

The outcome of this work has resulted in a significant number of potential projects, well in excess of what can be delivered under HRR funding. While a large number of these projects were not able to be justified under the HRR funding criteria, they are nonetheless valid projects that are likely to be required in the future as traffic volumes increase and the level of safety reduces.

It is therefore recommended that the projects summarised in Tables 12, 13, 14 and 15 within Section 7.4 Preferred Options to be approved with funding allocated to the Far North District and for progressions into the Development Phase. In addition to this, the full list of projects provides TMR with a valuable pool of safety improvement projects for future road safety initiatives.

11. Annexures

Annexure A – Crash Collision Diagrams

Annexure B – Existing (road) Condition Plans

Annexure C – Safety Review Summary

Annexure D – 1. Preferred Solution

2. Schematic Diagram – Preferred Solution

Annexure E – Cost Estimates

Annexure F – Future Work Packages

Annexure G – LTS Cost Benefit Analysis

Annexure H – MCA for Russell Pocket Road / Wrights Creek Road

Annexure I – Details of interim WCLT