

# Objective Two

We deliver a sustainable, cost-effective transport network accessible to all

## Strategies

1. Deliver long-term, innovative, value for money infrastructure solutions
2. Develop new technologies and systems in transport infrastructure construction, preservation and management
3. Manage and operate the state-controlled road network to ensure travel reliability and efficiency

## Performance areas

- Transport network efficiency
- Transport Infrastructure delivery

## How we performed

Majority of Strategic Plan performance measures are also Service Delivery Statement (SDS) measures. SDS performance tables are located in Appendix 2.

Performance area	Performance measure	Notes	2014–15 Result	2015–16 Result	Status
Transport network efficiency	<b>Road network efficiency – Average travel time per 10km</b>				
	AM peak		11.0	11.1	
	Off peak		9.8	10	
	PM peak		11.2	11.6	
	<b>Road network reliability – Percentage of the road network with reliable travel times</b>				
	AM peak		79	80	
	Off peak		90	89	
	PM peak		73	74	
	<b>Road network productivity – Percentage of the road network with good productivity</b>				
	AM peak		72	71	
	Off peak		76	74	
	PM peak		71	68	
	<b>Arterial intersection performance – Percentage of intersections congested less than 20 min per hour</b>				
	AM peak		87	85	
	Off peak		94	93	
PM peak		82	78		
Transport infrastructure delivery	Number of fatal crashes on state-controlled roads per 100 million vehicle kilometres travelled where the road condition was likely to be a contributing factor				
	Percentage of QTRIP projects >\$5 million				
	commencing no later than four months after the programmed commencement date	1	78	85	
	completed no more than four months after the programmed construction period		new	93	
	costing less than 10% of the published QTRIP figure		87	90	

On track Slight variance Significant variance

### Notes:

- Delays in the commencement of projects can be attributed primarily to procurement delays, design issues, the diversion of resources to higher priority Accelerated Works Projects and wet weather.

# Our highlights

In 2015–16, we continued to build and maintain our road, rail and marine infrastructure across the state. Some of our achievements are listed below.

## ✓ Cape York Regional Package

Continued works on the \$260.5 million package to upgrade infrastructure on Cape York Peninsula, including significant sealing works on the Peninsula Developmental Road ([see page 58](#)).

## ✓ Townsville Ring Road

Continued construction of the Townsville Ring Road. Once complete, this project will support the future economic growth of the North Queensland region, providing a freight bypass, better access to the Townsville Port and improved travel times and reliability for industry and motorists using the national highway ([see page 65](#)).

## ✓ Toowoomba Second Range Crossing

Began construction on the \$1.6 billion Toowoomba Second Range Crossing which will provide an alternative range crossing for road users improving driver safety and enhance liveability for the regions' residents ([see pages 55 and 75](#)).

## ✓ Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway

This project involves an upgrade of the Bruce Highway between Caloundra Road and the Sunshine Motorway to six lanes, including major upgrades to both interchanges and the delivery of a service road for local traffic on the western side of the highway.

It is among Queensland's highest priority road projects and is designed to meet the strategic transport needs of the Sunshine Coast region well into the future ([see page 79](#)).

## ✓ Gateway Upgrade North

As one of Brisbane's biggest road projects the \$1.143 billion Gateway Upgrade North project offers a range of benefits including reducing congestion, accommodating future growth and improving motorists' safety.

This extensive upgrade includes construction of additional lanes, wider shoulders, new safety

barriers and extension of on and off-ramps ([see page 86](#)).

## ✓ Accelerated Works Program (AWP)

As part of the Queensland Government's Accelerated Works Program (AWP), we have accelerated 21 infrastructure projects totalling \$144.6 million to generate jobs in northern Queensland.

The acceleration of works will boost economic activity, local employment, training opportunities and community confidence ([see page 53](#)).

## ✓ Gold Coast Road Network Improvement Projects (Commonwealth Games)

As part of this \$160.7 million package of road network improvement works, Southport–Burleigh Road (High Street, Ferry Road, Bundall Road and Bermuda Street), Labrador–Carrara Road (Olsen Avenue, Currumburra Road and Ross Street) and Nerang–Broadbeach Road (Gooding Drive roundabout and Hooker Boulevard) will be improved. These improvements will provide long term benefits to the community by increasing the road network capacity and improving the traffic flow across the Gold Coast. Delivery of these projects will help ensure the road network on the Gold Coast is in good shape ahead of the Commonwealth Games in 2018 ([see page 81](#)).

## ✓ Cooroy to Curra (Section C)

These major works involve constructing a four-lane highway on a new alignment between Traveston and Woondum.

The works will provide improved safety, transport efficiency and flood immunity and will be complete by mid 2018, weather permitting ([see page 73](#)).

## ✓ Transport Infrastructure Development Scheme

Accelerated an additional \$60 million in funding to 2015–16 and 2016–17 for infrastructure delivered through the Transport Infrastructure Development Scheme (TIDS). This is part of a new regional infrastructure funding program (the Building our Regions program) to provide funding for critical infrastructure in regional areas of the state ([see page 46](#)).

# We deliver long-term, innovative, value-for-money infrastructure solutions

## Major infrastructure works

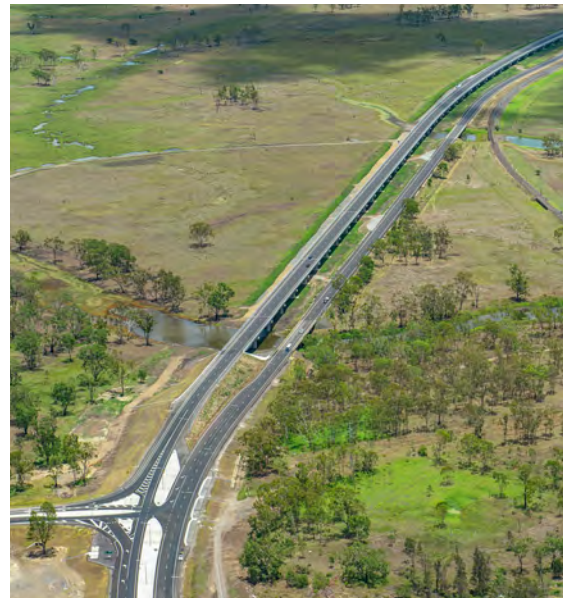
### Bruce Highway safety and capacity improvements

The federal government has committed \$6.7 billion and state government \$1.8 billion to improve safety and flood immunity, and enhance traffic capacity along the Bruce Highway over 10 years (2013–14 to 2022–23).

The department continued to plan for and manage significant upgrade works along the Bruce Highway in 2015–16.

#### Works included:

- completed design and started construction of new \$100.4 million Boundary Road Interchange with the Bruce Highway at Narangba
- completed construction of the Roys Road/ Bells Creek Road interchange at a cost of \$87.9 million and the Pumicestone Road interchange at a cost of \$88.85 million
- completed installation of ramp signalling on five southbound ramps between the Gateway Motorway and Caboolture, and 54 Variable Speed Limit Signs at a total cost of \$34.8 million
- started installation of wire rope barriers on the Bruce Highway centre median between Pine Rivers and Anzac Avenue as part of a \$7.4 million project to provide safety barriers through to Gympie
- started an \$8 million planning project for upgrades to the Bruce Highway between the Pine River bridges and the Caloundra Road Interchange
- continued design on a \$1.134 billion project to upgrade the Bruce Highway between Caloundra Road and Sunshine Motorway
- continued planning for a new Haughton River Bridge between Townsville and Ayr, at an estimated cost of \$515 million. Construction is scheduled to start in early 2019
- planning for the Cattle and Frances Creek upgrade, approximately ten kilometres south of Ingham. The project is scheduled to start construction in mid-2017 and be completed by late 2018 at an estimated cost of \$174 million
- continued construction of Yellow Gin Creek Bridge upgrade 30 kilometres south of Ayr at an estimated cost of \$45 million. Construction commenced in September and was completed after ten months
- planning and construction for the Arnot Creek Bridge upgrade, 12 kilometres north of Ingham at an estimated cost of \$10 million. Construction commenced in May 2016 and is expected to be completed in February 2017. This project is being delivered under the Queensland Government Accelerated Work Package
- construction of the Townsville Ring Road Section 4 completing the 22 kilometre Townsville Ring Road link and forming a new section of the National Network at an estimated cost of \$200 million. Construction commenced in March 2015 and is expected to be completed by January 2017
- awarding of a construction contract for the Veales to Pope Road widening and installation of wide centreline treatment at an estimated cost of \$3.45 million. Construction commenced in July 2016 and is expected to be completed by early 2017
- completed the \$170 million Yeppen South project.



Yeppen South Bridge, an elevated crossing of the floodplain on the Bruce Highway south of Rockhampton

The elevated crossing of the floodplain on the Bruce Highway south of Rockhampton, was delivered \$120 million under budget and opened to traffic in just two years. The project is jointly funded by the federal and state government. The project commenced in January 2014 and was commissioned in November 2015, providing 2.1 kilometres of new bridges across the Yeppen Floodplain, a high-level embankment for use during times of flood, an upgraded intersection at Edith Street and flood immunity improvements for the major Bruce Highway and Burnett Highway intersection, south of Rockhampton. Joining the high-level Yeppen Lagoon Bridge, access to the south of Rockhampton now has immunity above the largest recorded flood level, providing commuter certainty in all conditions.

The majority of the components for the project were manufactured in Central Queensland by local contractors or on site at the one-of-a-kind Egan's Hill manufacturing facility built by John Holland for the project including; 1300 concrete piles, which have been set up to 27 metres into the floodplain, and 391 girders, each weighing more than 70 tonnes.

The project was delivered with minimal disruption to the more than 5000 vehicles per day that use this section of the Bruce Highway.

In 2016, building on the road safety program principles established for Tranche 1 of reducing the risk and severity of head-on, run-off-road and

intersection crashes, we commenced high level planning for Tranche 2 of the Bruce Highway Safety Program which is due to commence delivery in 2019–20.

More information: [www.tmr.qld.gov.au/About-us/Corporate-information/Publications/Bruce-Highway-Action-Plan.aspx](http://www.tmr.qld.gov.au/About-us/Corporate-information/Publications/Bruce-Highway-Action-Plan.aspx)

### Cooroy to Curra (Section A)

The \$490 million Section A project was fast-tracked by the federal and state governments under a 50:50 funding arrangement. The Section A project will deliver a new 13.5 kilometre, four-lane divided highway between the existing interchange south of Cooroy and the recently completed section of highway in Federal (near Sankeys Road) and will be complete by early 2017, weather permitting. In April 2016 Contract 2 was completed. This included opening the all-movements Cooroy northern interchange and diverting traffic on to the new highway alignment between the interchange and Sankeys Road. Contract 3 involves constructing six kilometre of new northbound lanes to duplicate the existing Cooroy bypass, rehabilitating the existing highway to make southbound lanes, upgrading the existing Cooroy southern interchange and constructing new bridges over Six Mile Creek.



Aerial photo of works underway to upgrade the Cooroy southern interchange

## Cooroy to Curra (Section D)

In April 2016, a contract was awarded for the Detailed Design phase of Section D: Woondum to Curra. Section D bypasses Gympie city and includes 26 kilometres of new four-lane, dual-carriageway highway, 43 bridges, new interchanges at Woondum, Gympie Connection Road and Curra and north facing ramps at Penny Road. The detailed design took into consideration that this section has the highest crash rate of the Cooroy to Curra stretch.

The existing highway is a two lane road with numerous conflict points (56 intersections and 106 property accesses). It also regularly floods south of Gympie, severing access to Gympie and communities further north, with the highest average duration of closure being 69 hours. The upgrade will improve flood immunity, road safety and traffic efficiency.

## Bruce Highway upgrade – Caloundra Road to Sunshine Motorway

The \$1.134 billion project involves an upgrade of the Bruce Highway between Caloundra Road and the Sunshine Motorway to six lanes, including major upgrades to both interchanges and the delivery of a service road for local traffic on the western side of the highway. Jointly funded by the federal and state governments on an 80:20 basis, it is among Queensland's highest priority road projects and is designed to meet the strategic transport needs of the Sunshine Coast region well into the future.

A revised preferred planning layout was released in July 2015. The revised preferred planning layout was used as a reference design for an Early Contractor Involvement (ECI) process for the design and construction of the project. The ECI process commenced in September 2015. Two contractors were shortlisted to progress through the ECI process in November 2015. The department expects to award the design and construction contract in August 2016.

More information: [www.tmr.qld.gov.au/brucehwy-caloundra2sunshinemwy](http://www.tmr.qld.gov.au/brucehwy-caloundra2sunshinemwy)

## National Highway Upgrade Programme

The department commenced upgrade works on key arteries of the national highway network in Queensland under the state government's National Highway Upgrade Programme ([see glossary](#)).

Improvement works underway in 2015–16 included:

- the provision of a further overtaking lane, pavement widening works and intersection upgrades on the New England Highway

- road widening and strengthening on the Flinders Highway between Hughenden and Cloncurry
- upgrading of the Landsborough Highway between Morven and Kynuna
- road rehabilitation on the Cunningham Highway between Mutdapilly and Warrill View

The state government contributed \$12.3 million to these projects, with the federal government providing \$49.3 million.

## Accelerated Works Program

As part of the Queensland Government's Accelerated Works Program (AWP), we have brought forward 21 infrastructure projects to generate jobs in northern Queensland.

The department has accelerated \$144.6 million in directly delivered infrastructure projects as part of this program. This represents approximately 30 per cent of this government's total announced AWP value of \$443 million.

The acceleration of works will boost economic activity, employment and community confidence across the state. The department is committed to creating local jobs and training across the state.

As part of the AWP, the department has implemented additional requirements over and above the current state government policy position to enhance training and local content opportunities for AWP projects as follows:

- a requirement for contractors to provide 50 per cent additional training over and above that mandated by the Queensland Government Building and Construction Training policy. Deemed training hours have been increased from 0.03 per cent to 0.045 per cent of the contract sum for each project
- a requirement for contractors to develop an enhanced Local Industry Plan with more detailed reporting on geographically local subcontractor and supplier engagement.

The first AWP project, the \$1 million Townsville Port Road road train decoupling pad, was completed in May 2016, two months early.

The announced projects are located in the North and Central Queensland regions and includes safety and infrastructure improvement works such as wide centre line treatments ([see glossary](#)), additional overtaking lanes in problems areas and new or widening of bridges and their approaches. A sample of each region's projects are listed below.



AWP road train decoupling pad, Townsville Port Road

### Townsville

- \$6.17 million – wide centre line treatments on 13 kilometres of narrow section of Herveys Range Road between Lynam Road and Black River Road. Construction started in March and involved road widening and wide centre line markings to improve safety. Work was completed in April 2016.
- \$1 million – Townsville Port Road – road train decoupling pad completed in May which involved the construction of a new heavy vehicle decoupling facility for heavy vehicle operators in Townsville.
- \$10 million – construction started in May on the Arnot Creek Bridge upgrade replacing the existing bridge and approaches on the Bruce Highway. The project is expected to be completed in January 2017.

### Mackay

- \$28 million – the two Vines Creek Bridges will be replaced on the Mackay – Slade Point Road construction is expected to start in April 2017. As the sole bridges for heavy vehicles travelling to the Port of Mackay, the new bridges will increase mass limit and support industry growth in the region.
- \$7 million – two new overtaking lanes both 1.3 kilometres in length on the Bruce Highway at Dingo Creek (northbound) and Emu Creek (southbound). Preliminary works commenced early August 2016 and are expected to be completed in February 2017.

### Cairns

- A north bound overtaking lane is being constructed on the Bruce Highway at Alooomba as part of the Bruce Highway (Ingham to Cairns) Overtaking Lane Strategy. Based on the strategy this section has been identified as one of the highest priority. The \$2.5 million project is currently at tender with tender award expected in late September 2016 and scheduled for completion in December 2016, weather permitting.
- The aim of the Bruce Highway Overtaking Lane project is to contribute toward improving safety and operation performance of the National Land Transport Network Brisbane–Cairns corridor to handle growing traffic volumes and an increasing freight task.
- There has been one fatality and one crash requiring hospitalisation at this location. This project was included in the Accelerated Works Package.

### Central

- \$12.5 million – 10.8 kilometres section of pavement strengthening and widening of the Landsborough Highway immediately south of Barcaldine. Construction is expected to commence in 2017.

More information: <http://www.tmr.qld.gov.au/Projects/Name/A/Accelerated-works-program-northern.aspx>

## Road Infrastructure

### Wide Centre Line Treatment

Wide centre line treatment refers to painting two white lines one metre apart, which is wider than usual, in the centre of the road to provide greater separation for opposing traffic. Painting the centre lines at a greater distance apart results in a significant reduction in the likelihood of head-on crashes. This treatment has been applied to highly trafficked, high-speed roads (for example the Bruce Highway) targeting a reduction in the incidence and severity of head-on crashes on these roads. To date, more than 890 kilometres of wide centre line treatment has been constructed across the network.

Benefits of implementing wide centre line marking include:

- Providing motorists with opportunities to avoid head-on crashes by providing more response time
- Providing for safer overtaking by improving the motorist's view of on-coming traffic
- Allowing more space when motorists are passing cyclists and vehicles that are stopped on the side of the road.

In conjunction with other safety initiatives, the first few years of wide centre line treatment implementation from 2013–14 has seen the number of fatalities reducing on the Bruce Highway from 53 in 2012, to 36 in 2013, 17 in 2014, and 30 in 2015. While every fatality is one too many, the number of fatalities on the Bruce Highway to the end of June 2016 was nine.

The roll-out of the wide centre line treatment on the Bruce Highway won the Australasian College of Road Safety's 3M Diamond Road Safety Award, which recognises exemplary innovation and effectiveness to save lives and injuries on roads.



Wide Centre Line treatments have reduced crash rates by 60% on certain parts of the Bruce Highway.

[Data source: <http://bit.ly/2c7zLSv>]

### Warrego Highway Upgrade

Works on the \$635 million Warrego Highway upgrade continued during the year. The significant program of works comprises 15 projects designed to upgrade the highway between Toowoomba and Miles by 2019, and will improve the highway to an acceptable national standard.

In July, we completed the Oakey Duplication Stage 1, which delivered nearly six kilometres of four-lane divided highway and a newly constructed overpass at Troys Road, west of Toowoomba.

In October, we commenced construction to widen the Warrego Highway (Brigalow-Chinchilla) for 11 kilometres, with completion scheduled for late 2016.

The program is jointly funded with the federal government contributing \$508 million and the state government contributing \$127 million.



Grade separation at Troys Road will increase safety

### Toowoomba Second Range Crossing (TSRC) underway

The department is delivering an alternative crossing of the Toowoomba Range for all classes of heavy and super heavy vehicles to improve freight efficiency and driver safety, relieve pressure on Toowoomba's roads, and enhance liveability for the city's residents.

In April, construction work began on the \$1.6 billion Toowoomba Second Range Crossing (TSRC) project.



Jointly funded by the federal and the state government on an 80:20 basis, the project will enhance safety on the existing range crossing and across the Toowoomba Central Business District (CBD) road network.

The TSRC is expected to significantly reduce travel times—up to 40 minutes in travel time through Toowoomba for heavy freight vehicles.

The final design will include separated connections to Mort Street and Boundary Street, two lanes built each way from the Warrego Highway East Interchange to Warrego Highway West, and grade separated interchanges at Warrego Highway West, Toowoomba–Cecil Plains Road and the Gore Highway.

The TSRC will be delivered as a Public Private Partnership with the Nexus consortium, and is expected to be completed in late 2018.

The TSRC will result in the following benefits to the region and the state:

- improved road and driver safety
- reduced travel time by up to 40 minutes and greater time travel reliability
- avoiding up to 18 sets of traffic lights
- relieved pressure on Toowoomba’s local roads by redirecting heavy vehicles away from Toowoomba’s CBD
- removal of over-dimensional and all classes of dangerous goods vehicles from the suburban streets of Toowoomba
- increased freight efficiencies
- enhanced liveability of the Toowoomba and Lockyer Valley areas.

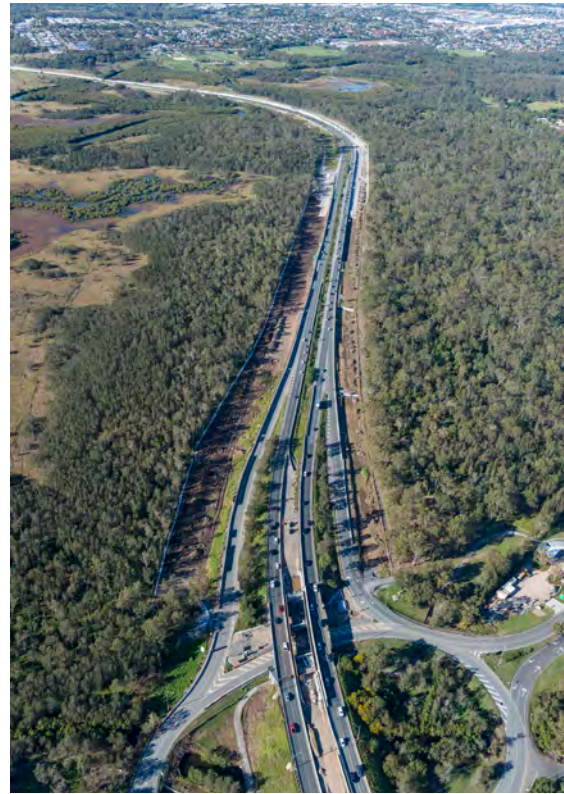
More information: <http://www.tmr.qld.gov.au/Projects/Name/T/Toowoomba-Second-Range-Crossing.aspx>

(Related story [see page 75](#))

## Gateway Upgrade North

The Gateway Motorway between Nudgee and Deagon is a four-lane motorway providing a critical transport corridor for more than 83,000 vehicles each day. It also services the Brisbane Airport, Port of Brisbane and the Australia TradeCoast precinct.

During the year, the department progressed the delivery of the \$1.143 billion Gateway Upgrade North project jointly funded by the federal and state governments on an 80:20 basis.



Gateway Motorway

The project includes:

- upgrading 11.3 kilometres of the motorway from four to six lanes between Nudgee and Bracken Ridge
- reconfiguring the Nudgee interchange including a new Nudgee Road overpass and a relocated extended northbound on-ramp
- providing a grade separated interchange between the Gateway Motorway and the Deagon Deviation at Deagon
- widening the Deagon Deviation between Depot Road and Bracken Ridge Road to provide two lanes in each direction
- modifications to the Bicentennial Road interchange including extended on and off-ramps
- construction of an off-road shared pedestrian and cycle path between Nudgee and Bracken Ridge
- installation of variable speed limit signs, variable messaging signs, traffic monitoring cameras and ramp metering
- pavement rehabilitation and safety works from the Deagon Deviation at Bracken Ridge to the Wyampa Road overpass.

The project is expected to be completed by late 2018.

## Ipswich Motorway (Rocklea to Darra)

This section of the Ipswich Motorway currently carries more than 85,000 motorists daily, including up to 12,000 heavy vehicles. Stage 1 is funded equally by the federal and state governments committing \$200 million each in March. Procurement for this critical project commenced in May.

Rocklea to Darra Stage 1 includes:

- upgrading the motorway from four to six lanes
- seven new bridges and major culverts including higher bridges at Oxley Creek to improve flood immunity
- new southern service road connection from Rocklea industrial precinct to the Oxley commercial and retail areas
- new traffic signals at the Suscatand Street intersection.

The tender process for the design and construction contract is currently underway and will be awarded in early 2017. Major construction is expected to commence in 2017. Early works are expected to be completed in August 2016 to improve safety on the motorway's eastbound off-ramp at the roundabout on Oxley and Blunder Roads.

More information: <http://www.tmr.qld.gov.au/Projects/Name/I/Ipswich-Motorway-Upgrade-Rocklea-to-Darra-Stage-1-Package-1-Granard-Road-to-Oxley-Road>

## Peak Downs Highway

Construction on the Peak Downs Highway Upgrade works at Eton Range, west of Mackay started in April 2016 and is expected to be completed in late 2018. The \$189 million project, jointly funded by the federal and state governments, aims to improve the safety and reliability of the Peak Downs Highway, which is the only designated B-double route from Mackay west to the Northern Bowen Basin.

The works include widening to four lanes, a split carriageway, and partial realignment of the existing Eton Range crossing, which will reduce the need to close the range for oversized vehicles. Due to the complex nature of the project, extensive geotechnical works were undertaken in 2014 and 2015 to inform the design and tender process.

## Overpass named after local war veteran

The newly-constructed rail overpass, which is part of the Bruce Highway upgrade from Vantassel Street to Cluden Drive, was officially named 'Percival Pacific Andrews Overpass' in May 2016 in honour of World War I veteran Percival Pacific Andrews.

Following community suggestions, the overpass was named in grateful recognition of Percival's service to Australia and the North Queensland community.

Percival Pacific Andrews enlisted for World War I service as a driver with the 7th Infantry Brigade Train, Army Service Corps, 17th Company, on 25 January 1915. Percival served in Egypt, Gallipoli, France and then Belgium, where in 1918 he was promoted to the rank of Sergeant and awarded the Meritorious Service Medal for 'gallant conduct and devotion to duty in the field'.

As part of the Queensland Anzac Centenary commemoration the department plans to name other infrastructure assets in the near future in honour of the Australian's who served our country.

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The original Angellala Creek bridge was destroyed by a truck explosion in 2014. The replacement bridge will be the second piece of transport infrastructure to be named in honour of our ANZACs.

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More information: <http://www.tmr.qld.gov.au/Projects/Name/B/Bruce-Highway-Upgrade-Vantassel-to-Cluden>

## Natural Disaster Relief and Recovery Arrangements (NDRRA)

During the year, we restored approximately 112 kilometres of state roads through the Natural Disaster Relief and Recovery Arrangements (NDRRA) program at a cost of \$41.4 million. The majority of works to reconnect the community following Tropical Cyclone Marcia, which struck near Yeppoon in February 2015, were completed including nine kilometres of pavement restoration and 141 earthworks sites on the Leichhardt Highway (Westwood–Taroom) and the Burnett Highway (Biloela–Mt Morgan).



Director-General, Neil Scales, with Managing Director of the Myuma Group, Colin Saltmere (front row, third from left), at Camooweal with the graduating class from Myuma Group's Dugalunji Prevocational Training and Employment Program.

## Cape York Region Package – Peninsula Developmental Road

During the year, we delivered four sealing projects on the state-controlled Peninsula Developmental Road (PDR), located on the Cape York Peninsula, to improve road safety, travelling conditions, and access throughout the region.

The sealing works, through the Cape York Region Package, were carried out on the following sections: Mein Deviation, South of Morehead River, Sourayas Hill, and South of Hann River. These four projects resulted in an additional 44.5 kilometres of bitumen seal.

Training, employment and business opportunities for Indigenous communities on the Cape are an important part of the road upgrade projects. During the year 24 Indigenous trainees worked on the projects and 15 local Indigenous businesses gained work.

On 2 June 2016, the associated Peninsula Developmental Road Priority Agreement won the Partnership Category at the 2016 Queensland Reconciliation Awards. This agreement was developed in consultation with Traditional Owners and ensured that work carried out on the Peninsula Developmental Road complied with Native Title and cultural heritage requirements.

The works will improve accessibility to Cape York, support the growth of the local industry and secondary economies and strengthen local and Indigenous communities.

The Cape York Region Package is a jointly funded program of works, with the federal government contributing \$208.4 million and the state government contributing \$52.1 million.

## Mein Deviation gravel supply on Peninsula Developmental Road

The department was engaged to project manage the sourcing of suitable gravel material for a significant project on the Peninsula Developmental Road.

The geographic remoteness of the project, and Cape York Land Council Native Title, meant accessing pavement gravel through a commercial quarry or from natural reserves proposed a high level of risk. To manage the risk, we were granted tender exemption to source and/or manufacture 180,000 tonnes of suitable gravel material.

The department achieved a number of key outcomes on this unique and challenging project:

- 130,000 tonnes of suitable quality gravel produced, ahead of program, meeting quality and environmental requirements, despite a short delivery timeframe and significant cultural heritage factors
- Traditional Owners worked on country carrying out cultural heritage survey and monitoring. Over the year, approximately 4245 cultural heritage monitor hours were accumulated across the projects being delivered on the Peninsula Developmental Road through the Cape York Region Package, and at the peak of construction there were more than 80 Indigenous employees employed on the projects.
- 50,000 tonnes of gravel sourced from a local quarry, providing a secondary benefit to the contractor of the option to source from two locations
- compliance with local, state and federal environmental requirements.

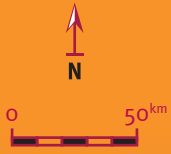


# Our Districts

To assist in managing and delivering the department's infrastructure program, our program delivery and operations is undertaken across six regions made up of 12 districts with staff located in a number of offices across the state. These offices represent the department across south-east and regional Queensland, and are one of the infrastructure delivery areas of TMR.

Each district is responsible for a program of work and delivers on a number of economically and socially beneficial transport and road infrastructure projects throughout the year. The following pages provide a snapshot of the great work the department is doing in delivering infrastructure across the state.

# Far North District



**\$260.5M**

(Total CYRP)

**Cape York Region Package**

**Peninsula Developmental Road**

Extend bitumen seal  
(various sections)

*Construction*

Weipa

**\$10M**

**Endeavour Valley Road**

Extend bitumen seal  
(delivered as part of  
Cape York Region Package)

*Construction*

**\$50M**

**Bruce Highway**

Wide Centre Line Treatment  
Priority locations

*Construction*

Mareeba

Cairns

Atherton

Innisfail

Tully

**\$6.2M**

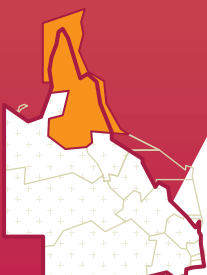
**Kennedy Highway–Millstream Section**

Seal and widen

*Completed*

## Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road



**The Far North District covers an area of about 273,158 km<sup>2</sup>, or around 15.8 per cent of Queensland. It extends from the Torres Strait Islands in the north to the top of the Cardwell Range in the south, and from Cairns in the east to Croydon in the west.**

**The district has an estimated residential population of about 272,609 or around 5.9 per cent of Queensland's total population. The district looks after about 2941 kilometres of other state-controlled road and about 217 kilometres of the National Land Transport Network.**

### Endeavour Valley Road sealing works

Stage two of the Endeavour Valley Road sealing program of works, which involved sealing a 1.6 kilometre section of road, between Paw Paw Gully and Williams Creek, was completed in November 2015. The work included earthworks, drainage upgrade and bitumen sealing.

Stage three of the Endeavour Valley Road sealing program, which involved sealing a 900 metre section, between Endeavour Falls and Paw Paw Gully, was completed in late June 2016. This program of works aims to complete the seal (11 kilometres) through to Hope Vale over a four-year period. Work on stage one, a 780 metre section on the approach to Williams Creek, was completed at the end of 2014.

The funding is part of the Cape York Region Package, a \$260.5 million program of works, jointly funded by the federal and state governments, to upgrade priority infrastructure on Cape York Peninsula.

More information: <http://www.tmr.qld.gov.au/Projects/Name/E/Endeavour-Valley-Road-sealing-works>

### Hopevale Aboriginal Community Memorandum of Understanding (MOU)

The department has developed a Memorandum of Understanding (MOU) with Hopevale Aboriginal Shire Council (HVASC) which provides funding to seal the final 11 kilometres of the Endeavour Valley Road (EVR) between Cooktown and Hopevale over a period of four years and build capability of the local Indigenous communities.

The MOU focuses on using this program to encourage maximum involvement from HVASC resources while upskilling community members in road construction and maintenance capability.

We have taken on the role of program and project manager for the works package and is also providing HVASC staff with training and support. The twin cab

grader is unique and has been used exclusively here for the last two years. Two years into the program, the agreement has delivered 2.1 kilometres of seal. The capability improvement plan for this program is flexible and has evolved as improved understanding and trust has developed between both teams. All parties to the MOU have been positive with the progress.

### Bruce Highway Wide Centre Line Treatment

A \$50 million jointly federal and state government funded program of works will improve safety for motorists on various sections of the Bruce Highway between Ingham and Cairns. Priority sections of the highway will be widened to an 11-metre seal, including a one metre gap between the north and southbound lanes, under the Bruce Highway Safety Program works. The widening will allow for the installation of Wide Centreline Treatment (WCLT).

A number of intersections will also be upgraded during these works. Work commenced in March 2016 and the program is expected to be finalised by December 2016, weather permitting.

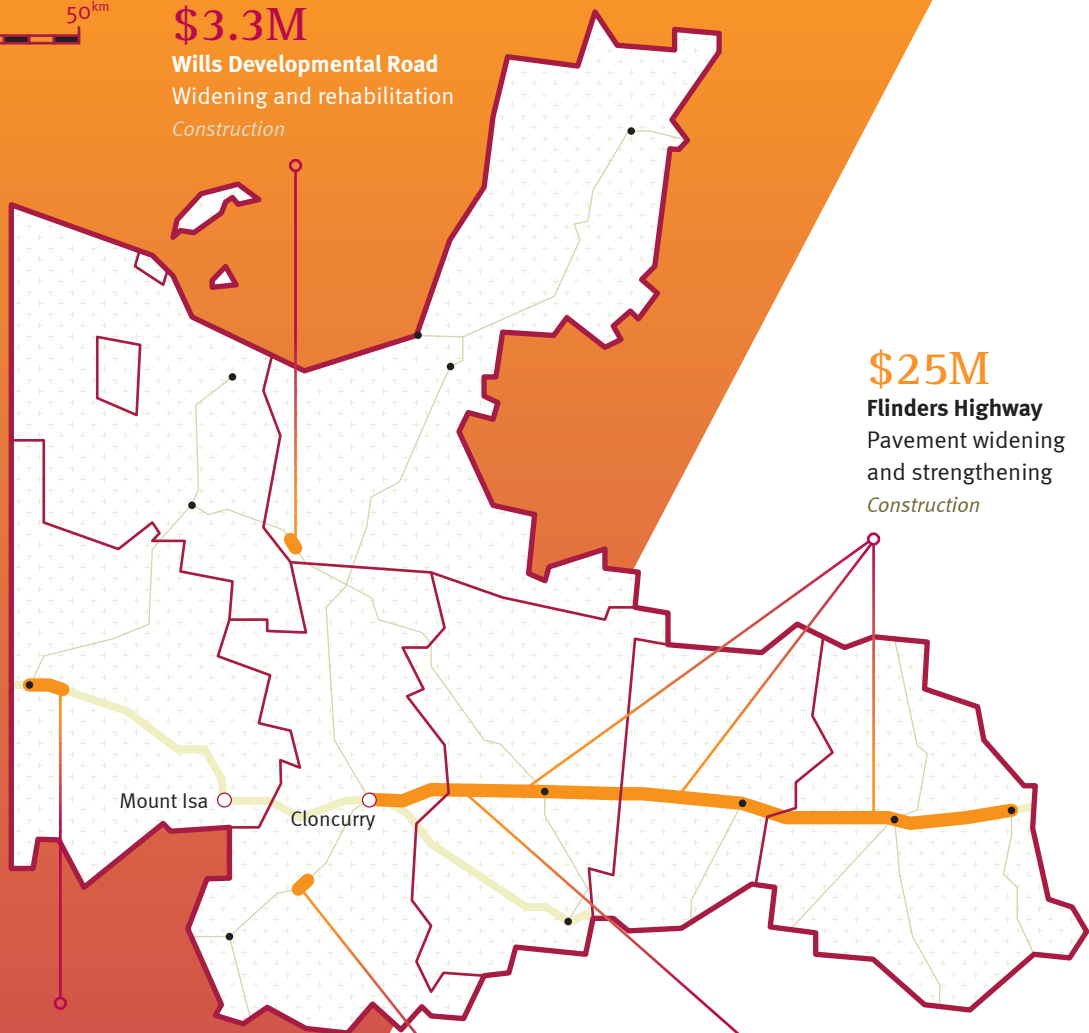
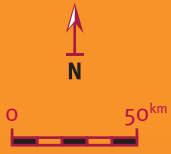
### Millstream section, Ravenshoe

In September, the department completed works to widen and strengthen a three kilometre section of the Kennedy Highway, near Ravenshoe. During the \$6 million project, the highway was widened from 7.4 metres to 8.5 metres. The works helped improve safety and travelling conditions and reduced the impacts of flooding on the important inland highway link.

### Gillies Range Road

Two sections of Gillies Range Road were widened and sealed as part of the Safer Roads Sooner program from May to June 2015 and from September to October 2015. In total, about two kilometres of the road was widened and sealed during the works at a cost of \$2.35 million. Between 2008 and 2013, there had been 16 crashes on these two sections of Gillies Range Road. The works help improve safety and travelling conditions on Gillies Range Road, which helps connect areas south of Cairns with the Atherton Tablelands.

# North West District



**\$3.3M**  
**Wills Developmental Road**  
 Widening and rehabilitation  
*Construction*

**\$25M**  
**Flinders Highway**  
 Pavement widening and strengthening  
*Construction*

**\$1.4M**  
**Camooweal Safety Upgrade (Barkly Highway)**  
 Enhance driver and pedestrian safety  
*Completed*

**\$5M**  
**Western Roads Upgrade Program**  
 Paving and sealing  
*Construction*

**\$2.3M**  
**Ramsay Street Asphalt Works (Flinders Highway)**  
 Enhance driver and pedestrian safety  
*Completed*

**Legend**

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all

The North West District covers an area of about 307,833 km<sup>2</sup>, or around 17.8 per cent of Queensland. It extends from the Gulf of Carpentaria in the north to Kynuna in the south, and from Torrens Creek in the east to the Northern Territory border in the west.

The district has an estimated residential population of about 35,327 or around 0.8 per cent of Queensland's total population. The district looks after about 2551 kilometres of other state-controlled roads and about 1024 kilometres of the National Land Transport Network.

### Camooweal Safety Upgrade (Barkly Highway)

Driver and pedestrian safety enhancements were completed on the Barkly Highway through the town centre of Camooweal. The \$1.4 million project delivered new signage, median strips, profiling, lighting and pavement marking. Work started in August 2015 and the project was finished in December 2015.

### Ramsay Street Asphalt Works (Flinders Highway)

We also undertook \$2.3 million of driver and pedestrian safety enhancements on the Flinders Highway through the town centre of Cloncurry, with a new asphalt pavement surface, line marking, improved drainage in priority sections and reduced speed limit. Work started in November 2015 and the project was finished in December 2015.

### National Highway Upgrade Programme (Flinders Highway)

We commenced the \$25 million Flinders Highway Pavement Widening and Strengthening Program as part of the National Highway Upgrade Programme. There are five projects on the Flinders Highway between Hughenden and Cloncurry being delivered by Flinders, Richmond and McKinlay Shire Councils as well as RoadTek. The program commenced in April 2016, with an anticipated completion of December 2016.

### Western Roads Upgrade Program

The department also undertook \$2.5 million of paving and sealing of several unsealed sections of the Cloncurry-Dajarra Road between Cloncurry and Duchess, funded by the Queensland Government's \$5 million Western Roads Upgrade Program. We commenced work in March 2016 and the project was finished in June 2016. A second section of paving and sealing will be completed in 2016–17 by Cloncurry Shire Council.

### Wills Developmental Road

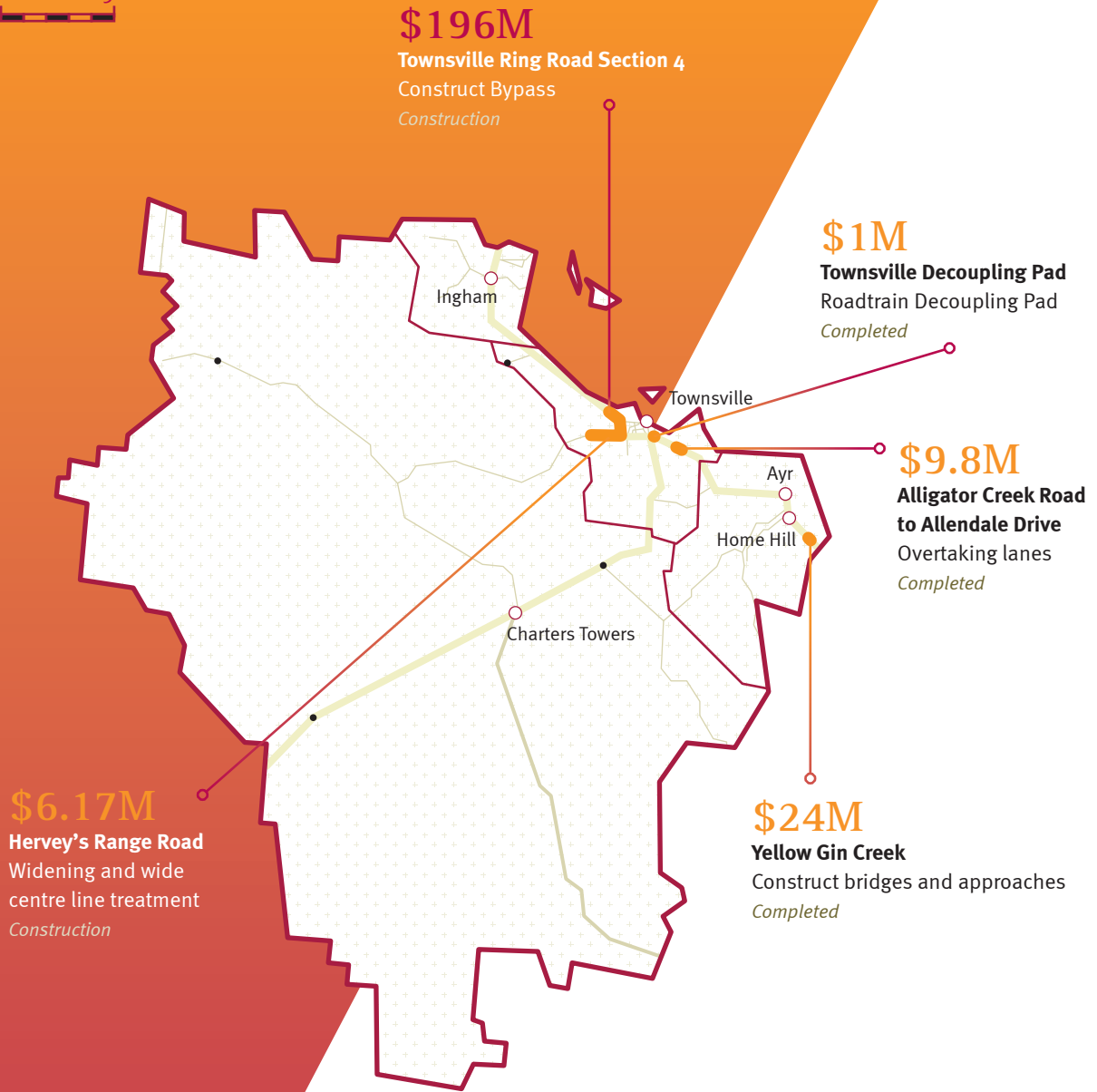
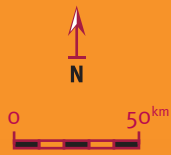
We completed \$3.3 million widening and rehabilitation of a priority section on the Wills Developmental Road between the Burke and Wills Junction and Gregory. This work was completed by Myuma Pty Ltd, an indigenous employment and training organisation providing opportunities in real road construction projects between November 2015 and July 2016.



Plant in operation on the Cloncurry-Dajarra Road (Cloncurry-Duchess) as part of the Western Roads Upgrade Program



# Northern District



### Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all

**The Northern District covers an area of about 80,249 km<sup>2</sup>, or around 4.6 per cent of Queensland. It extends from the Cardwell Range in the north to 50km south of Lake Buchanan, and from Townsville in the east to the west of Charters Towers.**

**The district has an estimated residential population of about 233,907 or around 5.0 per cent of Queensland's total population. The district looks after about 1143 kilometres of other state-controlled roads and about 515 kilometres of the National Land Transport Network.**

### Townsville Port Road road train decoupling pad

This project involved the construction of a new heavy vehicle decoupling facility for heavy vehicle operators in Townsville. It was delivered under the Queensland Government's Accelerated Works Program (see page 53).

### Thuringowa Drive / Hinchinbrook Drive and Thuringowa Drive / Burnda Street

Safety works were completed in June 2016 on two roundabouts on Thuringowa Drive under the Queensland Government's Safer Roads Sooner program. The \$1.4 million works are aimed at reducing the amount of accidents at the busy intersections of Burnda Street and Hinchinbrook Drive.

### Townsville Ring Road (Section 4)

Construction started in March 2015 on the Townsville Ring Road (Section 4) project to connect the existing ring road at Kalynda Chase with the northern suburbs of Townsville, completing the 22 kilometre Townsville Ring Road link and forming a new section of the National Network. The total cost of the project is \$200 million with \$160 million contributed by the federal government and \$40 million by the state government. It is expected to be completed in January 2017.

Benefits of the project include freight connectivity, efficiency and reliability of the network, improved flood immunity and reduced congestion on the local road network to support long-term economic growth for the Townsville region.

More information: <http://www.tmr.qld.gov.au/Projects/Name/T/Townsville-Ring-Road-Section-4>

### Alligator Creek Road to Allendale Drive overtaking lanes

This \$9.8 million project involved the construction of a set of overtaking lanes on the Bruce Highway at Alligator Creek, south of Townsville. Construction started in November 2015 and practical completion was achieved on 30 June 2016. This upgrade has created safer overtaking opportunities for motorists and improved efficiency on the highway. The project was delivered on time under the state government's Accelerated Works Program.

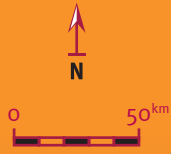
### Bruce Highway bridge upgrade (Yellow Gin Creek)

This project involved the construction of a new higher-level bridge and approaches at Yellow Gin Creek, 30 kilometres south of Ayr. Construction commenced in September 2015 and was completed in June 2016. This \$24 million upgrade has improved flood immunity, safety and freight connectivity on the Bruce Highway.

### Hervey Range Road widening works

This project involves widening, wide centre line and safety works on a 13 kilometre narrow section of Hervey Range Road, between Lynam Road and Alice River Bridge. Construction commenced on this \$6.17 million project in April 2015 and will be completed in September 2016, ahead of schedule. This upgrade will improve safety and travelling conditions for road users.

# Mackay/Whitsunday District



**\$1.5M**

**Mackay-Eungella Road and Kenny's Road**  
Installation of traffic signals  
*Completed*

**\$13.8M**

**Mackay Showgrounds and Shakespeare Street**  
Intersection upgrade  
*Completed*

**\$2.5M**

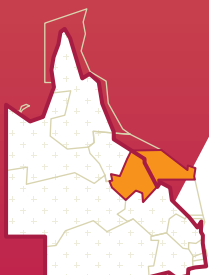
**Greenmount Wollingford Road**  
Safety upgrades  
*Completed*

**\$189M**

**Peak Downs Highway**  
Safety Works  
Safety Upgrade  
*Construction*

**\$560M**

**Mackay Ring Road (Stage 1)**  
Detailed Design  
*Preconstruction*



## Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

**The Mackay/Whitsunday District covers an area of about 90,362 km<sup>2</sup>, or around 5.2 per cent of Queensland. It extends from north of Bowen to south of St Lawrence, and west to Clermont and the Bowen Basin.**

**The district has an estimated residential population of about 180,200 or around 3.9 per cent of Queensland's total population. The district looks after about 2222 kilometres of other state-controlled roads and 451 kilometres of the National Land Transport Network.**

## Mackay showgrounds Intersection Upgrade

The Bruce Highway intersection upgrade between the Mackay Showgrounds, Shakespeare Street and corner of Gordon and Milton Street in Mackay was completed in December 2015.

The intersection upgrade aims to reduce crash numbers and severity, reduce travel times, increase lane capacity, improve overall safety and traffic management and improve the conditions of public amenities.

The completed project delivered a new protected bicycle lane, cycle specific crossing lights, kerb ramps to allow use of either on-road or off-road cycle facility and a three metre off-road shared path along the Bruce Highway on the showgrounds side.

## Mackay Ring Road (Stage 1)

As part of the Bruce Highway improvement plan, the Mackay Ring Road (Stage 1) is progressing through the detailed design phase based on feedback from the public, council and industry consultation and activities.

The construction of the ring road will increase road safety by reducing hazardous loads travelling through the city centre and improve the operation of local, regional and national road networks. Access will be improved between industrial areas and the Mackay Port and the community's connections to homes and jobs.

It will reduce the frequency of hazardous loads travelling through the city centre, and significantly improve the operation of local, regional and national road networks.

The improvements include:

- access arrangements for private properties
- a new underpass at Stotts Road and another south of Gibsons Road for local traffic and farming activities
- modification of the on-ramp from the Peak Downs Highway to the ring road near Te Kowai Foulden Road

- extension of a southbound overtaking lane from Lagoons Creek to south of Peak Downs Highway overpass.

Safety improvements include relocation of vehicle inspection bays near Te Kowai Foulden Road and curve approaching the Bruce Highway north intersection.

Mackay Ring Road (Stage 1) includes a two-lane rural highway deviation with 13 bridges between Stockroute Road to Bald Hill. Construction is expected to start in August 2017.

More information: <http://www.tmr.qld.gov.au/Projects/Featured-projects/Mackay-Ring-Road.aspx>

## Mackay-Eungella and Kennys Road

Construction works to upgrade the intersection of Mackay-Eungella Road and Kennys Road were completed in February 2016. The \$1.5 million project was jointly funded by the Queensland Government and Local Government. The works which started in October 2015, focussed on improving safety at the intersection through the installation of traffic signals and providing a pedestrian crossing of Mackay-Eungella Road.

## Greenmount Wollingford Road

The Greenmount Wollingford Road intersection upgrade included the provision of right turn facilities at the intersections on the Peak Downs Highway at Old Rocky Waterholes and Wollingford Road/Greenmount Road. The \$2.47 million project was funded by the Queensland Government under the Safer Roads Sooner Program. Works began in August 2015 and were completed in December 2015.

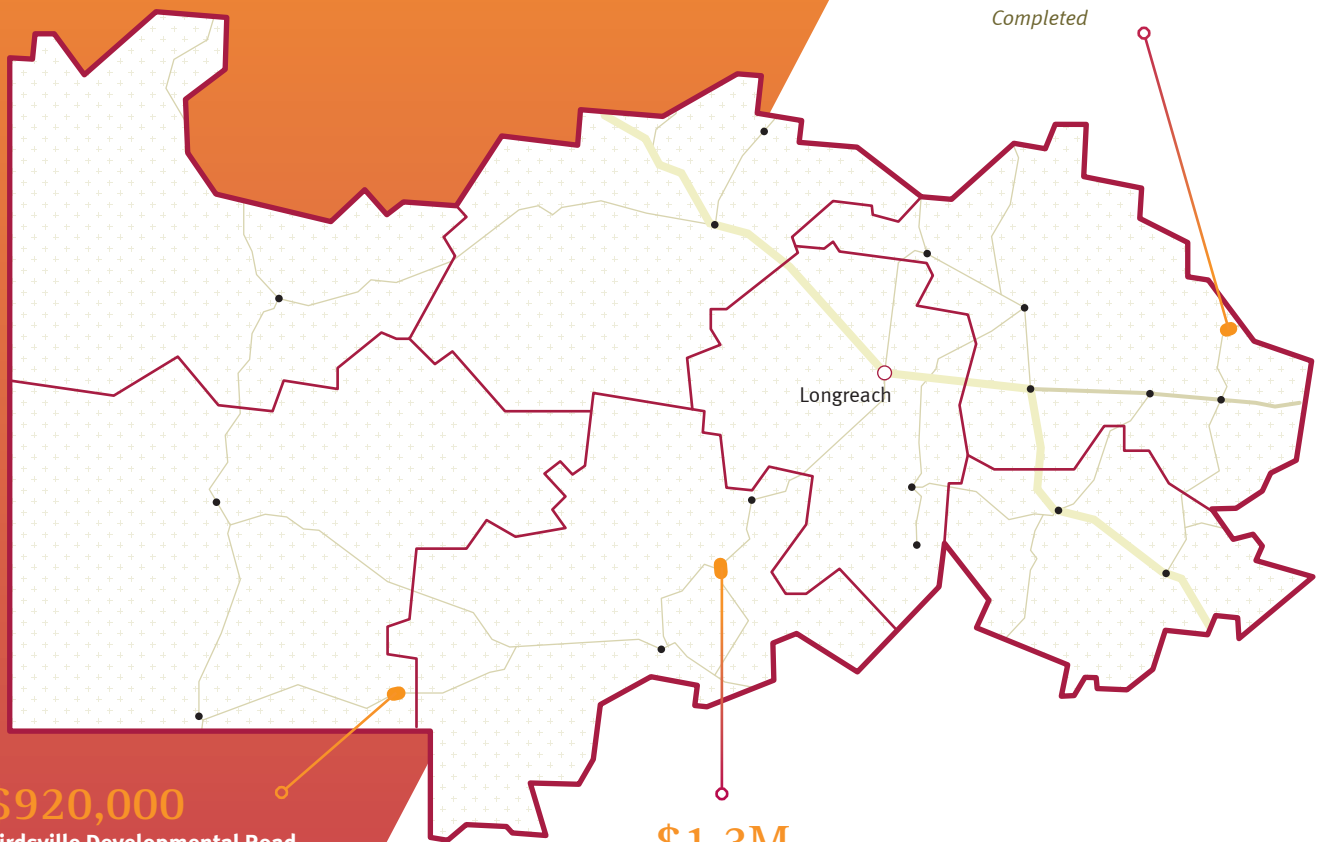
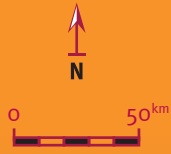
## Peak Downs Highway Safety Works

The \$189 million project, jointly funded by the federal and state governments, aims to improve the safety and reliability of the Peak Downs Highway, which is the only designated B-double route from Mackay west to the Northern Bowen Basin.

The works include widening to four lanes, a split carriageway, and partial realignment of the existing Eton Range crossing, which will reduce the need to close the range for oversized vehicles.

Construction on the Peak Downs Highway Safety Works at Eton Range, west of Mackay started in April 2016 and is expected to be completed in late 2018.

# Central West District



**\$920,000**

**Birdsville Developmental Road (Betoota)**

Pave and seal

*Completed*

**\$1.3M**

**Jundah - Quilpie Road**

Pave and seal

*Completed*

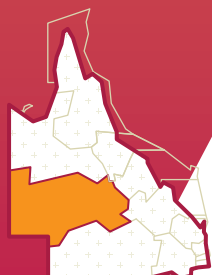
**\$7.4M**

**Clermont - Alpha Road**

Native Companion Creek

New concrete bridge

*Completed*



## Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

The Central West District covers an area of about 396,650 km<sup>2</sup>, or around 22.9 per cent of Queensland. It extends from near Kynuna in the north to the South Australia border in the south, and from the Drummond Range east of Alpha to the Northern Territory border in the west.

The district has an estimated residential population of about 12,458 or around 0.3 per cent of Queensland's total population. The district looks after about 3682 kilometres of other state-controlled roads and about 693 kilometres of the National Land Transport Network.



Native Companion Creek Bridge

### Birdsville Developmental Road (Morney – Birdsville) – Betoota

The \$920,000 Birdsville Developmental Road project between Morney and Birdsville at Betoota was completed in September 2015.

The Outback Regional Roads and Transport Group funding to pave and seal a 4.1 kilometre section of the contract was awarded to Diamantina Shire Council in May 2015.

Benefits include:

- asset preservation – reduced maintenance costs
- safety – improved running surface
- operational functionality – improved trafficability, particularly in the wet due to sealed surface
- network functionality – minor savings in time and damage to transport operators and reduced maintenance costs.

### Clermont – Alpha Road – Native Companion Creek Bridge

The \$7.4 million Clermont – Alpha Road at Native Companion Creek project, funded under the Regional Bridge Renewal Program was completed in October 2015.

The contract was awarded to construct a new concrete bridge on the Clermont – Alpha Road, 64 kilometres north of Alpha.

Benefits include:

- increased access during wet weather and flooding by improvements to the flood immunity of the bridge
- increases trafficability and capacity by replacing the single lane bridge with a two lane bridge
- reduced ongoing maintenance costs
- savings in time and damage to transport operators and reduced maintenance costs
- improved road safety.

### Jundah – Quilpie Road

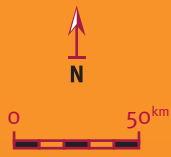
The \$1.3 million pave and seal project on a five kilometre section of the Jundah – Quilpie Road was completed in May 2016. The project, immediately south of Jundah, was funded by the state government (\$742,000) and local government (\$500,000).

The contract was awarded to Barcoo Shire Council in September 2015.

Benefits include:

- asset preservation – reduced maintenance costs
- safety – improved running surface
- operational functionality – improved trafficability, particularly in the wet due to sealed surface
- network functionality – minor savings in time and damage to transport operators and reduced maintenance costs.

# Fitzroy District



**\$170M**

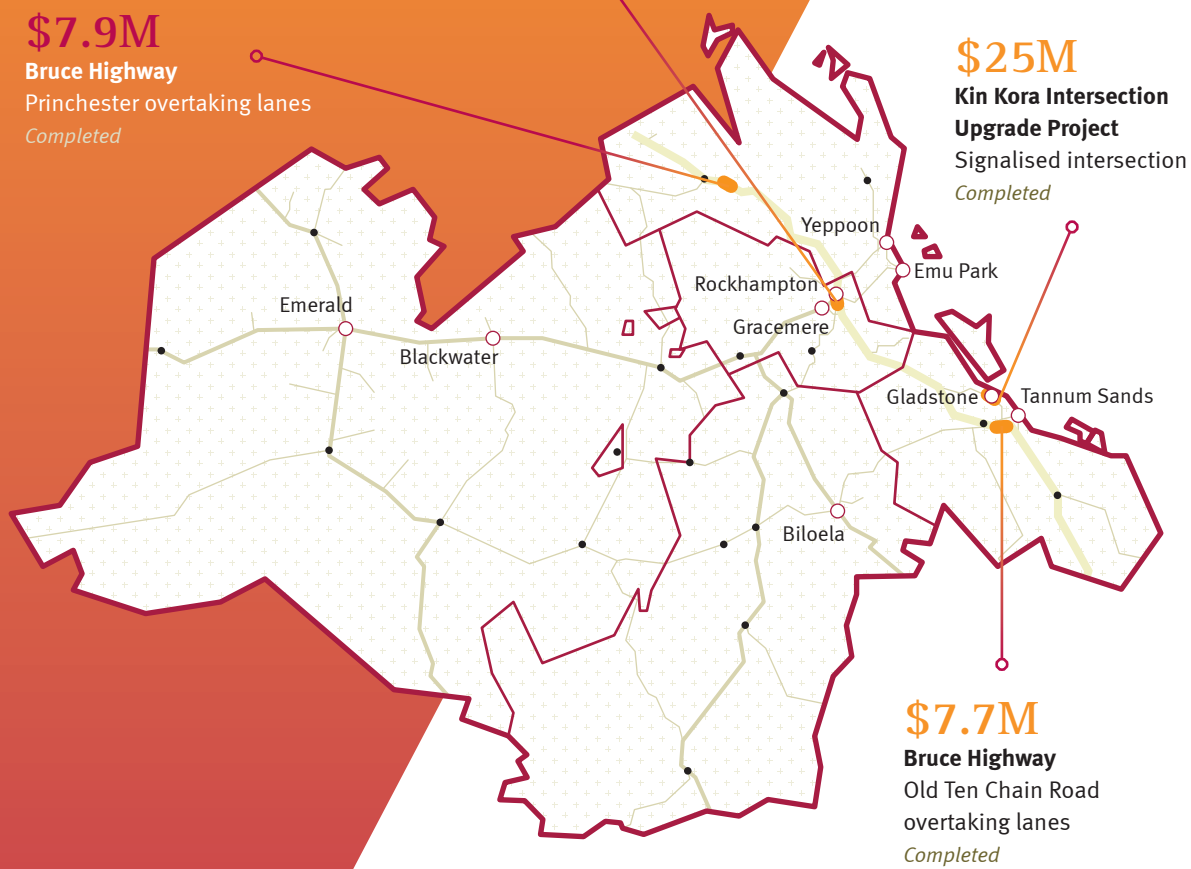
**Bruce Highway, Yeppen South Project**  
New bridges across the Yeppen Floodplain  
*Completed*

**\$7.9M**

**Bruce Highway**  
Princhester overtaking lanes  
*Completed*

**\$25M**

**Kin Kora Intersection Upgrade Project**  
Signalised intersection  
*Completed*



**\$7.7M**

**Bruce Highway**  
Old Ten Chain Road overtaking lanes  
*Completed*

## Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

**The Fitzroy District covers an area of about 117,813 km<sup>2</sup>, or around 6.8 per cent of Queensland. It extends from north of Capella to south of Taroom, and from Gladstone in the east to west of Emerald.**

**The district has an estimated residential population of about 229,483 or around 4.9 per cent of Queensland's total population. The district looks after about 3163 kilometres of other state-controlled roads and about 366 kilometres of the National Land Transport Network.**

### Kin Kora Roundabout – Dawson Highway

Safer traffic movements and less delays are outcomes for the Gladstone community since completion of the major upgrade on the Dawson Highway and Philip Street intersection at Kin Kora, in May 2016.

The \$25 million project, jointly funded by the federal and state governments, included removal of the existing roundabout and installation of new traffic signals, substantially improving safety and traffic flow at Gladstone's busiest intersection.

The signalised intersection, additional traffic lanes catering for both through and turning traffic, improved pedestrian access and new bus stops also increases capacity at the intersection, which already services over 45,000 vehicles per day.

### Yeppen South Project

The \$170 million Yeppen South project, constructed between January 2014 and October 2015, provides an elevated crossing of the Bruce Highway across the Yeppen Floodplain, from the Burnett Highway intersection to the Yeppen roundabout, south of Rockhampton.

The elevated Yeppen South crossing of the Yeppen Floodplain is at Q100 (1 in 100 year flood level) from the Burnett Highway intersection to the Yeppen roundabout. Historically, the Bruce Highway crossing of the Yeppen floodplain had a flood immunity of Q15 (1 in 15 year flood level).

The highlighted features of this major Central Queensland infrastructure project included:

- A 1.6 kilometre bridge crossing the floodplain and 540 metre slip lane bridge, each more than three metres higher than the existing floodplain crossing, providing immunity above the highest previously-recorded flood level.
- Rebuilding of the existing Bruce Highway, between the Yeppen roundabout and Scrubby Creek.

- Major safety upgrades and realignment of the Edith Street and Egan Street intersections at Egan's Hill, including new bus pull-over areas.
- Upgrade to the Bruce Highway and Burnett Highway intersection delivering flood immunity improvements and increased intersection capacity, along with the addition of a slip-lane for motorists travelling into Rockhampton.

### Princhester Overtaking Lanes

Bruce Highway traffic north of Rockhampton have a further overtaking opportunity at Princhester, north of Rockhampton, following the construction of 3.4 kilometres of new overtaking lanes.

The \$7.9 million Australian Government funded project will reduce driver frustration and the likelihood of risky manoeuvres motorists might perform to overtake vehicles on the 200 kilometre trip between Rockhampton and St Lawrence.

In addition to the overtaking lanes, the project also included a one-metre wide centre line to increase the distance between traffic.

While delivering the project north of Rockhampton, We worked with Ecologica Consulting and Livingstone Shire Council to salvage a total of 174 protected plants from within the footprint of construction. In total, 72 *Capparis thozetiana*, 57 *Cycas Ophiolitica* (Marlborough Blue), 33 *Macrozamia serpentina* (Zamia Palm) and 12 *Stackhousia tryonii* were salvaged.

### Old Ten Chain Road Overtaking Lanes

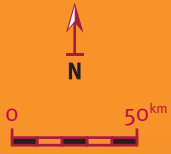
Bruce Highway traffic are benefiting from additional overtaking lanes between Benaraby and Calliope in central Queensland, with the completion of a \$7.65 million project funded by the Australian Government.

The 2.16 kilometres of new overtaking lanes, adjacent to the Old Ten Chain Road intersection, also included a one-metre wide centre line to increase distance between traffic. It will provide motorists with another opportunity to safely pass trucks, buses and vehicles towing caravans.

Completed in February 2016, the new overtaking lanes between Benaraby and Calliope have contributed to increased safety and efficiency along Queensland's vital freight and tourism link.



# Wide Bay/Burnett District



**\$11.4M**

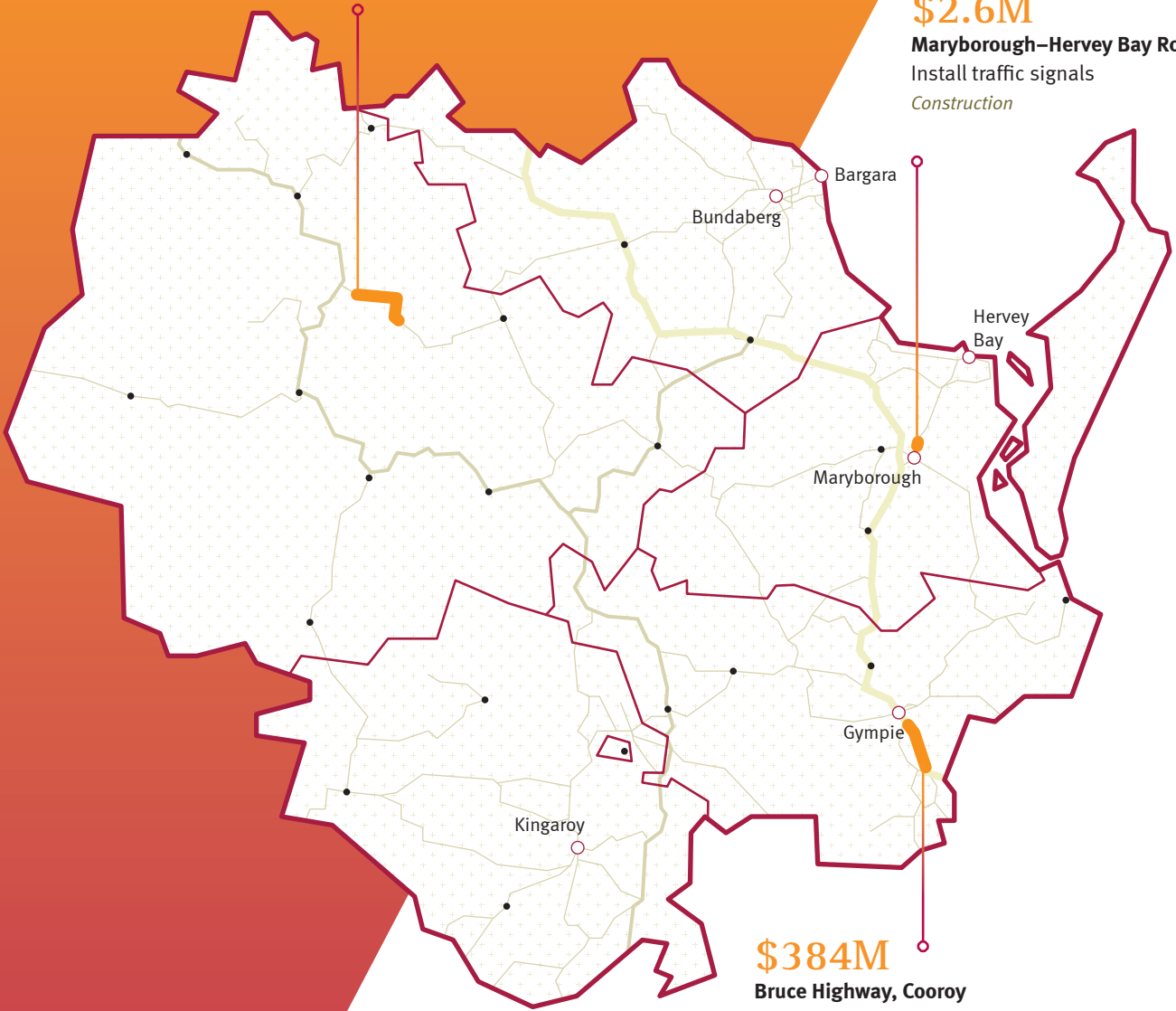
**Monto–Mount Perry Road**  
Construct to sealed standard  
*Completed*

**\$2.6M**

**Maryborough–Hervey Bay Road**  
Install traffic signals  
*Construction*

**\$384M**

**Bruce Highway, Cooroy to Curra, Section C**  
*Construction*



### Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

The Wide Bay/Burnett District covers an area of about 48,599 km<sup>2</sup>, or around 2.8 per cent of Queensland. It extends from Kalpowar in the north to south of Nanango, and from Bundaberg, Maryborough and Gympie in the east to west of Eidsvold.

The district has an estimated residential population of about 286,705 or around 6.2 per cent of Queensland's total population. The district looks after about 2690 kilometres of state-controlled roads and about 272 kilometres of the National Land Transport Network.

### Monto–Mount Perry Road

Almost 12 kilometres of gravel road was widened and sealed across three sections between the Burnett River and Eastern Creek, creating about 18 kilometres of continuous bitumen road. Construction commenced in January 2015 and the new section of road was opened to traffic in October 2015. The project, valued at \$11.4 million, formed part of the Royalties for the Region program.

### Bruce Highway – Cooroy to Curra (Section C)

The Section C: Traveston to Woondum major works has been underway since March 2016 and involves constructing a four-lane highway on a new alignment between Traveston and Woondum. The new highway will offer improved safety, transport efficiency and flood immunity and will be completed by mid-2018, weather permitting. The project is valued at \$384 million. In March 2016, an early package of safety works for Section C was completed ahead of schedule. The early works involved upgrading the existing highway between Woondum and Six Mie Creek, to address urgent safety needs

### Maryborough–Hervey Bay Road

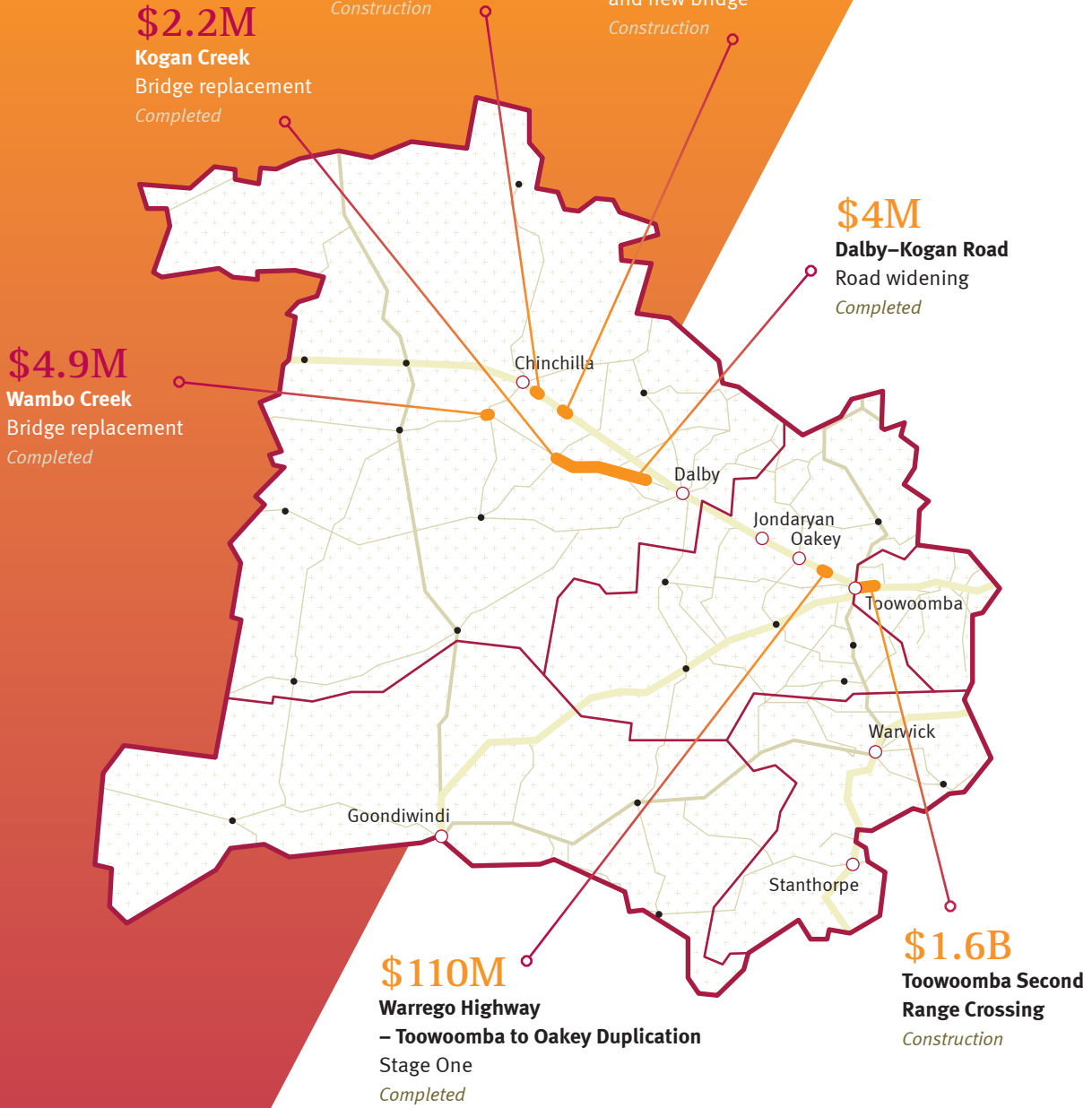
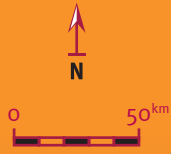
Traffic signals were installed in May 2016 on Maryborough–Hervey Bay Road (Saltwater Creek Road) at St Helens State School to improve safety and efficiency, particularly during peak school times.

Detailed design is underway to formalise the existing school parking facilities at St Helens State School and achieve optimum traffic flow at the new traffic signals. The project is valued at \$2.6 million.



Progress on Cooroy to Curra Section C – looking north from Traveston interchange (June 2016)

# Darling Downs District



### Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all

The Darling Downs District covers an area of about 79,661 km<sup>2</sup>, or around 4.6 per cent of Queensland. It extends from Wandoan in the north to the New South Wales border in the south, and from Hatton Vale in the east to Glenmorgan in the west. The district has an estimated residential population of about 277,988 or around 6.0 per cent of Queensland's total population.

The district looks after about 3847 kilometres of other state-controlled roads and about 687 kilometres of the National Land Transport Network, which support a diverse array of industries including retail, tourism, sport, education, manufacturing, freight and construction; agriculture including beef cattle, fruit, dairy cattle, sheep, viticulture, cotton and grain; and mining including coal, oil and gas.

### Toowoomba Second Range Crossing

A \$1.6 billion project jointly funded by the federal government (\$1.137 billion) and the state government (\$321 million) and being delivered in a 25-year Public Private Partnership with the Nexus Infrastructure (Nexus) consortium.

The 41 kilometre long toll road will pass Toowoomba on its norther side linking the Warrego Highway at Helidon Spa in the east and the Gore Highway at Athol in the west, via Charlton.

Major construction commenced in late April 2016 and is expected to take approximately 2.5 years to complete.

### Warrego Highway Upgrade Program (WHUP)

The Warrego Highway Upgrade Program (WHUP) comprises 15 projects that are planned to be delivered between 2014–15 and 2018–19, designed to upgrade the Warrego Highway between Toowoomba and Miles.

WHUP is funded by the federal and state governments on an 80:20 funding split arrangement of \$635 million (\$508 million federal funding and \$127 million state funding).

### Brigalow to Chinchilla Upgrade Program

A \$36 million project to widen 11 kilometres of the Warrego Highway on the eastern approach to Chinchilla. Construction commenced in October 2015 and is expected to be completed by late 2016.

### Jingi Jingi Creek Upgrade

A \$35 million project to replace the existing deteriorated culverts at Jingi Jingi Creek, 53 kilometres west of Dalby, with a new concrete bridge. Construction is expected to be completed in March 2017.

### Toowoomba to Oakey Duplication – Stage One

A \$110 million project to extend the four lane Warrego highway west from Nugent Pinch Road to west of Charlton, including construction of a grade separated interchange at the Charlton Connection road intersection.

Construction commenced in February 2015 and was completed ahead on schedule in late July 2016.

### Kogan Creek Bridge replacement

The Kogan Creek Bridge was replaced in the Kogan Township, on the Dalby Kogan Road at a total cost of \$2.2 million which was jointly funded by the federal and state government.

### Dalby–Kogan Road widening

In May 2016 a \$4.2 million road widening and sealing was completed on along various sections of the Dalby–Kogan Road from approximately Daandine–Nandi Road through to Healeys Crossing road. The works was funded by LNG Proponent Fund.

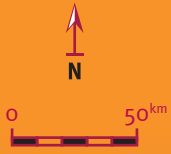
### Wambo Creek Bridge replacement

The Wambo Bridge replacement occurred in April 2016 and included the replacement of the bridge approaches. The total cost of the bridge and associated works costed \$4.9 million which was funded under the LNG Proponent Fund.



Wambo Creek Bridge

# South West District



**\$292,000**  
**Quilpie–Adavale Road**  
 Sealing  
*Completed*

**\$110,000**  
**Type 2 roadtrain access through Charleville**  
 Intersection upgrades  
*Completed*

**\$370,000**  
**Type 2 roadtrain access through Roma**  
 Improve safety at two intersections  
*Completed*

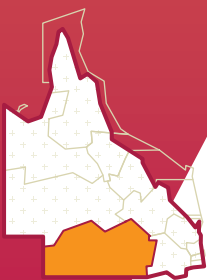


**\$368,000**  
**Bulloo Developmental Road (Thargomindah–Bundeena)**  
 Curve widening  
*Completed*

**\$7.5M**  
**Angellala Creek Bridge**  
 New bridge  
*Completed*

**\$4.5M**  
**Noondoo–Thallon Road**  
 Pave and seal the remaining unsealed section  
*Completed*

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all



**Legend**

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

The South West District covers an area of about 319,854 km<sup>2</sup>, or around 18.4 per cent of Queensland. It extends from north of Augathella to the New South Wales border in the south, and from Jackson in the east to the South Australia border in the west.

The district has an estimated residential population of about 26,716 or around 0.6 per cent of Queensland's total population. The district looks after about 3531 kilometres of other state-controlled roads and about 418 kilometres of the National Land Transport Network.

### Angellala Creek Bridge completed

The \$7.5 million project to replace the bridge over Angellala Creek, on the Mitchell Highway 30 kilometres south of Charleville, commenced in October 2014 with the construction of a sealed side track. Construction on the new bridge commenced in June 2015 and was completed in November 2015, after only five months. The original bridge was destroyed when a truck carrying ammonium nitrate rolled and exploded on 5 September 2014.

The Mitchell Highway is a vital road train transport route as well as serving as an important link for the communities in the Downs South West region, supporting the agricultural sector in the area as well as providing a major transport route for towns across the west.



New bridge over Angellala Creek

### Type 2 Road Train Access

Two projects, to improve freight efficiency and livestock welfare, were completed in November 2015.

One of these was a \$110,000 project to widen the intersection of the Warrego and Landsborough highways to allow Type 2 Roadtrains to travel safely between Morven and Charleville. The second was a \$370,000 project to improve safety at two intersections in Roma to allow Type 2 Roadtrains carrying livestock to travel to and from the Roma Breakdown Pad and the Roma Saleyards between 7.30pm and 5.00am.

### Noondoo–Thallon Road

This \$4.5 million project involved improving the Noondoo–Thallon Road through paving and sealing a further of a one kilometre section of the road. Works commenced in September 2015 and were completed in February 2016.



Noondoo–Thallon Road pave and seal

### Quilpie–Adavale Road

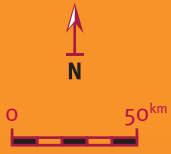
To improve road safety and accessibility Quilpie Shire Council undertook a \$292,000 project to seal the Quilpie–Adavale Road. Work commenced in January 2016. The project was completed in March 2016 and was funded by South West Regional Roads Transport Group (SWRRTG) on their 2015–16 approved program.

### Bulloo Developmental Road (Thargomindah–Bundeena)

To improve safety and to meet current design standards Bulloo Shire Council undertook a \$368,000 project to widen various curves, including correcting the superelevation, on the Bulloo Developmental Road (Thargomindah–Bundeena).

The project was completed in June 2016 and was funded by South West Regional Roads Transport Group (SW RRTG) on their 2015–16 approved program.

# North Coast District



**\$1.134B**

**Bruce Highway – Caloundra Road to Sunshine Motorway Upgrade: 6-lane**

*Preconstruction*

**\$490M**

**Bruce Highway Cooroy to Curra (Section A) Upgrade: 4-lane divided highway**

*Construction*

**\$87.9M**

**Bruce Highway/Roys Road/ Bells Creek Road**

**Interchange upgrade**

*Completed*

**\$88.9M**

**Bruce Highway/ Prumicestone Road**

**Interchange upgrade**

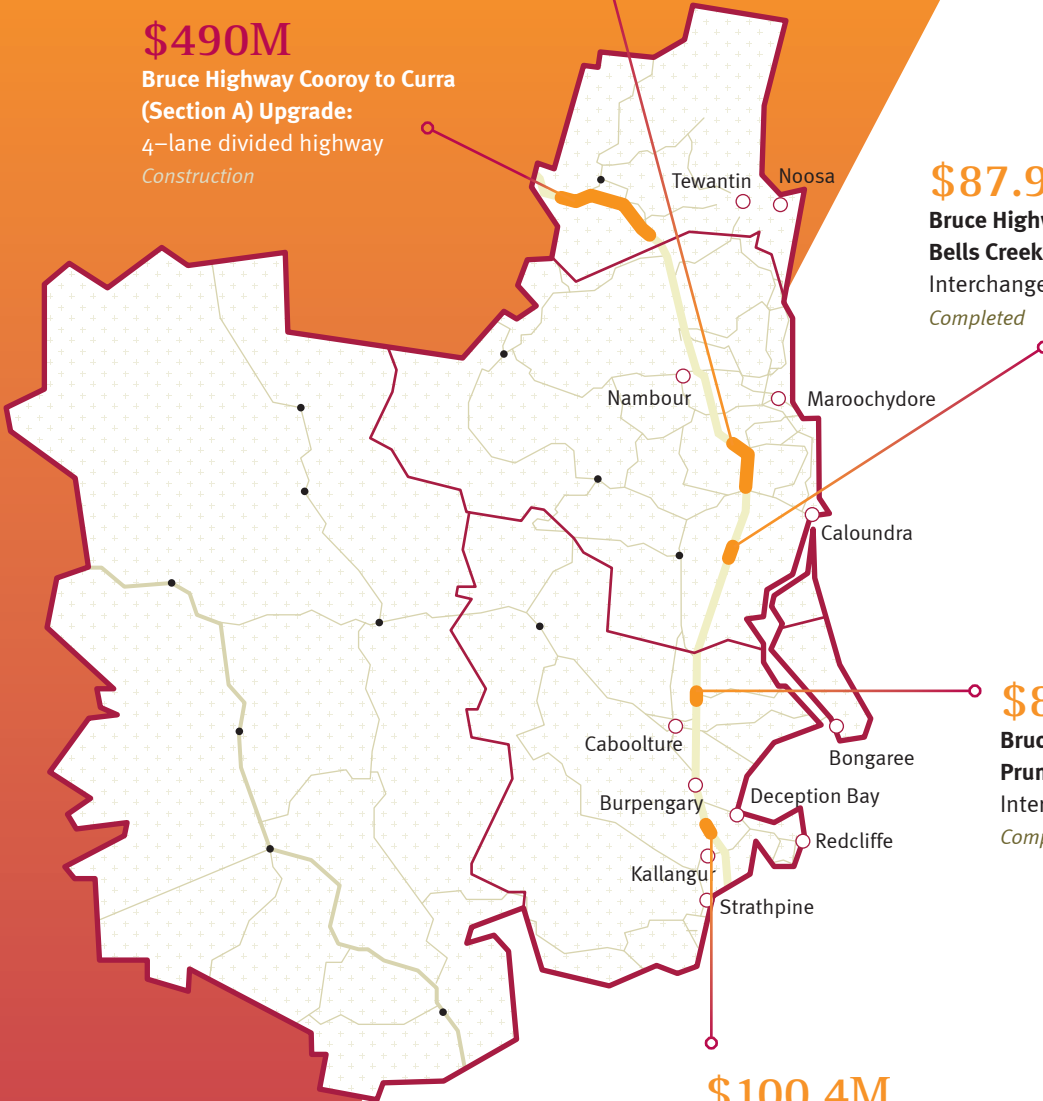
*Completed*

**\$100.4M**

**Bruce Highway/ Boundary Road**

**Interchange upgrade**

*Construction*



**Legend**

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all

The North Coast District covers an area of about 10,546 km<sup>2</sup>, or around 0.6 per cent of Queensland. It extends from Noosa in the north to Redcliffe in the south and from Caboolture in the east to west of Esk.

The district has an estimated residential population of about 762,699 or around 16.4 per cent of Queensland's total population. The district looks after about 1229 kilometres of other state-controlled roads and about 129 kilometres of the National Land Transport Network.

### Bruce Highway Upgrade – Caloundra Road to Sunshine Motorway

This project will involve an upgrade of the Bruce Highway between Caloundra Road and the Sunshine Motorway to six-lanes, including major upgrades to both interchanges and the delivery of a service road for local traffic on the western side of the highway. We commenced a double early contractor involvement process to progress design for the project. It is among Queensland's highest priority road projects and is designed to meet the strategic transport needs of the Sunshine Coast region in this area well into the future. The project is funded by the federal and state government in an 80:20 split.

### Bruce Highway upgrade – Cooroy to Curra (Section A)

The \$490 million Section A project forms part of the Bruce Highway (Cooroy to Curra) Upgrade. It will deliver a new 13.5 kilometres, four-lane divided highway between the existing interchange south of Cooroy and the new section of highway in Federal (near Sankeys Road). The project is funded by the federal and state government in a 50:50 split.



Cooroy to Curra (Section A) looking south, December 2015

### Bruce Highway/Roys Road/Bells Creek Road interchange upgrade

A new interchange was constructed, including a two lane overpass over the Bruce Highway near the Bells Creek Road intersection, new northbound and southbound entry and exit ramps, local road connections, a bridge over Mellum Creek and new pavement on the southbound lanes of a 4.5 kilometre section of the highway north of Coochin Creek. This project was fully funded by the federal government.

### Bruce Highway/Pumicestone Road interchange upgrade

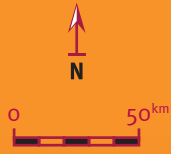
A new 6.5 metre high, two-lane overpass over the Bruce highway was constructed with pedestrian and cyclist facilities, upgraded entry and exit ramps to and from the highway, upgraded ramp and local road intersections, relocation of Old Toorbul Point Road and Rutters Road to the east along state forest boundary.

### Bruce Highway/Boundary Road interchange upgrade

Design was completed and construction started to upgrade the Bruce Highway/Boundary Road interchange which will include a new six-lane bridge over the highway, longer on and off-ramps, improved bridge clearance to avoid the need for high loads detouring on other roads and a new shared user path increasing safety for pedestrians and cyclists. The project is funded by the federal and state government in an 80:20 split.



# South Coast District

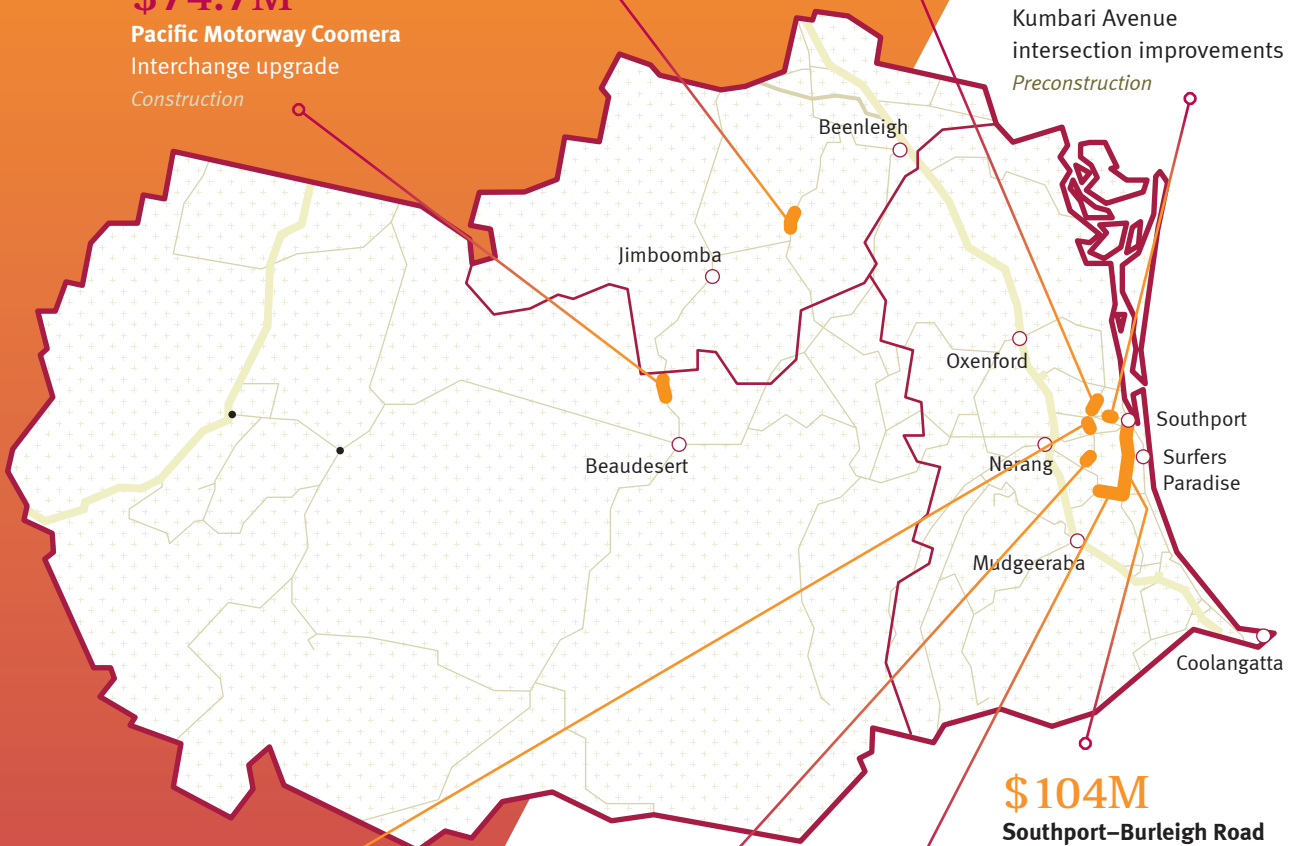


**\$40M**  
**Waterford–Tamborine Road**  
 (Anzac Avenue to Hotz Road)  
 Intersection upgrades  
*Preconstruction*

**\$118.1M**  
**Labrador–Carrara Road**  
 (Smith Street/Olsen Avenue)  
 Intersection upgrades and improvements  
*Preconstruction*

**\$74.7M**  
**Pacific Motorway Coomera**  
 Interchange upgrade  
*Construction*

**\$3M**  
**Smith Street Motorway**  
 Kumbari Avenue intersection improvements  
*Preconstruction*



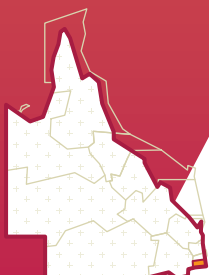
**\$104M**  
**Southport–Burleigh Road**  
 Widen from four to six lanes  
*Preconstruction*

**\$18M**  
**Labrador–Carrara Road**  
 (Olsen Avenue)  
 Six-laning  
*Preconstruction*

**\$26M**  
**Labrador–Carrara Road**  
 (Ross Street/Ashmore Road)  
 Intersection upgrade  
*Completed*

**\$7.2M**  
**Nerang–Broadbeach Road**  
 Gooding Drive and Rio Vista Boulevard improvements  
*Preconstruction*

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all



## Legend

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

The South Coast District covers an area of about 6548 km<sup>2</sup>, or around 0.4 per cent of Queensland. This area extends from Logan in the north to the New South Wales border in the south, and from the coastline in the east to Cunningham's Gap in the west.

The district has an estimated residential population of about 876,910 or around 18.8 per cent of Queensland's total population. The district looks after about 917 kilometres of other state-controlled roads and about 130 kilometres of the National Land Transport Network. Other major transport infrastructure in the district includes the Gold Coast light rail system, integrated bus network and cycling facilities.

### Pacific Motorway Coomera Interchange (Exit 54) upgrade

The Pacific Motorway's Coomera Interchange (Exit 54) provides access to both sides of the motorway to significantly growing residential areas, schools, commercial facilities, industrial zones and major attractions such as Dreamworld. This interchange will also be the main access for GC2018 venues at Coomera.

A \$74.7 million upgrade of the interchange (funded by the state government \$47.4 million; federal government \$10 million; and Queensland Investment Corporation/SCentre Group \$17.3 million) began in August 2015 and includes constructing a new bridge to the north of the existing overpass, upgrade of both existing roundabouts to signalised intersections, and an eastbound loop ramp providing a northbound M1 connection to Foxwell Road.

Bridge girders for the new overpass were complete ahead of schedule in January 2016, and the roundabout on the eastern side of the interchange was converted to a signalised intersection in March 2016. Construction is continuing on this upgrade until end 2016.



Exit 54 new bridge

### Smith Street Motorway and Olsen Avenue Interchange upgrade

The Smith Street Motorway and Olsen Avenue Interchange upgrade was completed in July 2015 as part of a \$118.1 million package of works to improve traffic flow, increase road safety, provide better connectivity to the new Gold Coast Health and Knowledge Precinct and cater for future traffic growth.

The upgrade included constructing a free-flowing loop ramp from Olsen Avenue onto Smith Street Motorway westbound; an auxiliary lane eastbound on the Smith Street Motorway; widening sections of the Smith Street Motorway and Olsen Avenue from four to six lanes; widening and lengthening the eastbound off-ramp to Olsen Avenue; constructing a new signalised intersection for access to the Parklands Athlete's Village.

### Gold Coast Road Network Improvement Projects

The state government is delivering a \$158.2 million package of road network improvements to cater for current and expected future traffic volumes and to ensure the road network on the Gold Coast is in good shape ahead of the Commonwealth Games in 2018.

The package of works includes:

- six-laning Southport–Burleigh Road (High Street, Ferry Road, Bundall Road and Bermuda Street) from Southport to Broadbeach Waters, including intersection upgrades and pedestrian and bicycle infrastructure upgrades
- signalising the intersection of Ross Street and Ashmore Road
- extending the six lanes on Olsen Avenue to Southport–Nerang Road, including intersection upgrades
- providing additional capacity along Nerang–Broadbeach Road at the Gooding Drive roundabout and other minor works near Bermuda Street
- improvements at the intersection of Smith Street Motorway and Kumbari Avenue.

Delivering these projects ensures Gold Coast motorists benefit sooner from the improvements with two of the six projects already completed.

A new signalised intersection, completed three months ahead of schedule, has removed traffic queues for up to 45,000 motorists daily through the Ross Street and Ashmore Road intersection.



Ross Street

An extra westbound lane is now open to traffic on Nerang–Broadbeach Road near Bermuda Street.

The department is also well advanced on widening an eight kilometre stretch of Southport–Burleigh Road between Southport and Broadbeach Waters. The first section, between Fremar Street and Rudd Street, is due for completion late 2016.

- Work was completed in mid-2016 on a \$1.237 million project south of Rathdowney. This project included installation of guardrail and rubra l on unprotected road sections, installation of additional warning and curve advisory signs over a seven-kilometre section.
- A \$908,000 project was completed in late 2015 and included a channelised right turn from the Mount Lindesay Highway into Worendo Street at Veresdale.

### Safer Roads Sooner projects on the Mount Lindesay Highway

\$7 million to signalise the intersection of the Mount Lindesay Highway and Camp Cable Road. Work on this busy intersection is expected to be completed in September 2016.

As a result of Mount Lindesay Highway Safety Review undertaken in the second half of 2015, \$4.1 million in funding was provided for projects at Veresdale Scrub Road and Gleneagle State School access at Gleneagle and Undullah Road at Woodhill.

These projects were completed in 2016:

- \$2.256 million has been allocated for a project about four kilometre south of Beaudesert. This project will include shoulder widening and installation of wide centre line treatment for a one-kilometre section. This project is expected to start in the fourth quarter of 2016.

### Black Spot project on Beaudesert–Nerang Road

A \$1.3 million Black Spot Project at the intersection of Beaudesert–Nerang Road and Arunta Drive was completed in the first half of 2016.

The project has improved safety along a 600 metre section of Beaudesert–Nerang Road at Mount Nathan. The work included installing a wide centre line treatment to separate traffic, widening road shoulders, installing some guardrail and removing the uneven road surface.



Beaudesert–Nerang Road

## Behm Creek Bridge replacement, Woongoolba

This \$5.26 million project commenced in May 2016 and will construct a new 25 metre single span deck unit structure with a concrete deck slab over Behm Creek on Stapylton–Jacobs Well Road. The new permanent bridge will replace the existing bridge which was found to be in poor condition following years of exposure to the aggressive environment.

Stapylton–Jacobs Well Road is a two lane, undivided rural road, linking the rural communities of Jacobs Well, Cabbage Tree Point and the Horizon Shores Marina through to the Pacific Highway. The road carries a substantial number of heavy vehicles, generated by the cane farming and quarry industries, together with local and tourist vehicles generated by the township of Jacobs Well.

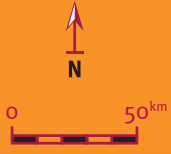
## Waterford–Tamborine Road Intersection upgrade: Anzac Avenue to Hotz Road

Waterford–Tamborine Road is a major arterial road, connecting Logan to the Gold Coast hinterland, which currently carries 14,000 vehicles per day. The intersection upgrade will provide long-term benefits to the community by increasing the road network capacity and improving traffic flow and safety for all road users. This \$40 million intersection upgrade is being delivered in partnership with Economic Development Queensland.



Behm's Creek bridge replacement

# Metropolitan District



**\$13.1M**  
**North Brisbane Bikeway**  
 Stages 1A – Section 2 and 1B  
 Additional cycle paths 1A  
*1A Section 2 complete, 1B completed*

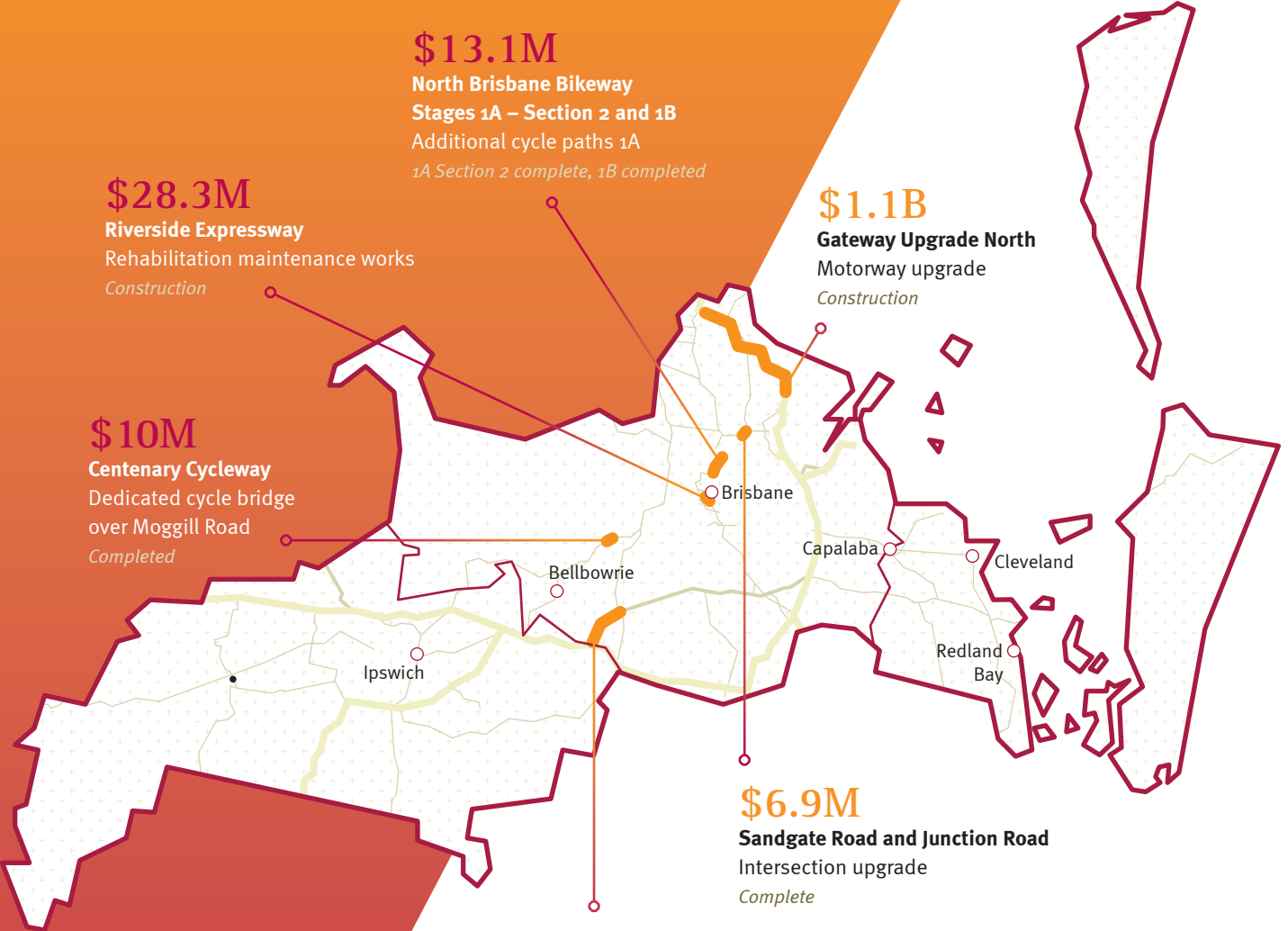
**\$28.3M**  
**Riverside Expressway**  
 Rehabilitation maintenance works  
*Construction*

**\$1.1B**  
**Gateway Upgrade North**  
 Motorway upgrade  
*Construction*

**\$10M**  
**Centenary Cycleway**  
 Dedicated cycle bridge  
 over Moggill Road  
*Completed*

**\$6.9M**  
**Sandgate Road and Junction Road**  
 Intersection upgrade  
*Complete*

**\$400M**  
**Ipswich Motorway Upgrade**  
 Rocklea to Darra  
*Preconstruction*



**Legend**

- QTRIP Projects
- National road network
- State strategic road network
- State regional and other district
- Local government boundary road

Objective Two — We deliver a sustainable, cost-effective transport network accessible to all

The Metropolitan District covers an area of about 2,968 km<sup>2</sup>, or around 0.2 per cent of Queensland. It straddles the Brisbane River and extends from Mount Glorious in the north to Logan City in the south, and from Point Lookout in the east to west of Helidon and the major centre of Ipswich.

The district has an estimated residential population of about 1,461,733 or around 31.4 per cent of Queensland's total population. The district looks after about 414 kilometres of other state-controlled roads, about 112 kilometres of the National Land Transport Network, and is responsible for marine infrastructure and busway assets. Other major transport infrastructure in the district includes cycling facilities delivered as part of the South East Queensland Principal Cycle Network Plan.



Moggill Road

### Corner of Sandgate Road and Eliza Street, Clayfield – traffic signal and pedestrian safety improvements

Work on this 350 metre stretch of road included installation of traffic signals and a pedestrian crossing, new linemarking and relocation of two bus stops to reduce the potential for collisions and improve traffic flow. The upgrade cost \$700,000 and included changes on Junction Road, Gellibrand and Eliza Streets. These works will reduce the risk of potential crashes and improve safety at this intersection for road users, pedestrians and the local community.

### Sandgate and Junction Road Intersection upgrades

A \$6.9 million upgrade has been completed on this intersection. The works include extensions and improvements to turning lanes, traffic signals and signage upgrades, road widening, and improvements to median areas, footpaths and pedestrian facilities.

Motorists, businesses and the community will benefit from improved safety, travel times, efficiency and reliability at this intersection, which experiences more than 51 000 vehicles passing through daily.



Sandgate Road and Junction Road intersection – one of Brisbane's busiest with 51,000 vehicles passing through daily

### Centenary Highway and Mount Ommaney traffic flow improvements

This \$2.4 million project is part of the Safer Roads Sooner program. It involved lengthening merge facility for vehicles entering the highway via the Mt Ommaney northbound on-ramp, widening the median area for inner lane realignment and upgrading lighting.

All these improvements contribute to decreasing collisions as vehicles merge with traffic travelling at high speed on the highway. These works will improve safety for motorists by reducing the likelihood and severity of side-swipes and run-off-road crashes.

### Moggill Road, Pinjarra Hills between Grandview Road and Bainbridge Drive – Road safety improvements

This \$1.9 million project improved safety by making changes to u-turn facilities and widening the road shoulders, centre line, and median lanes. The safety improvement works will increase safety for all road users by decreasing opportunity for collisions.

### North Brisbane Bikeway – Stages 1A-Section 2, and 1B

The North Brisbane Bikeway is a \$13.1 million critical cycle corridor for greater Brisbane, connecting the CBD through to Chermside.

This high-quality dedicated bikeway has health and connectivity benefits for locals, by encouraging cycling and walking, as well as positive benefits for tourism. Separated cycle facilities reduce the need for interaction between motorists and cyclists on

roads, and cyclists and pedestrians on footpaths, which improves safety, comfort and travel times for everyone. It is also expected to reduce the number of cars on the road between the CBD and Chermside.

Stages 1A-Section 2 (from the RNA showgrounds to O'Connell Terrace Bowen Hills), and Section 1B (from Federation Street, Bowen Hills to Somerset Street, Windsor) were completed in 2015–16. Stages 2 and 3 are in design with the department aiming to start construction in late 2018.



North Brisbane Bikeway Stage 1A-1

## Gateway Upgrade North — Motorway Upgrade

The \$1.143 billion Gateway Upgrade North project will deliver improved traffic safety and efficiency on the motorway which provides a transport corridor for more than 83 000 vehicles each day. It is jointly funded by the federal and state governments on an 80:20 split.

The project includes:

- upgrading the motorway from four to six lanes between Nudgee and Bracken Ridge
- reconfiguring the Nudgee interchange including a new Nudgee Road overpass and a relocated extended northbound on-ramp
- providing a grade separated interchange between the Gateway Motorway and the Deagon Deviation at Deagon
- widening the Deagon Deviation between Depot Road and Bracken Ridge Road to provide two lanes in each direction
- modifications to the Bicentennial Road interchange including extended on and off-ramps
- construction of an off-road shared pedestrian and cycle path between Nudgee and Bracken Ridge
- installation of variable speed limit signs, variable messaging signs, traffic monitoring cameras and ramp metering

- pavement rehabilitation and safety works from the Deagon Deviation at Bracken Ridge to the Wyampa Road overpass

Preliminary works to prepare the site began in 2014 with completion expected in late 2018.

## Centenary Cycleway — Dedicated cycle bridge over Moggill Road, Indooroopilly

The Moggill Road cycle bridge was an important extension to the Centenary Cycleway that eliminated the need for cyclists to stop and cross the busy Moggill Road intersection. This \$10 million addition, allows cyclists to enjoy an uninterrupted passage along the Western Freeway, improving safety and encouraging increased usage of the cycleway.

Construction began in the first half of 2015 and was complete in 2015–16.

## Riverside Expressway (REX) rejuvenation project

In January 2016, works started on the Riverside Expressway between Queensland University of Technology and Coronation Drive. These improvements, which include rehabilitation and maintenance on the joints and bearings of the expressway, and on and off ramps, will enable works to commence at the Queens Wharf Brisbane project, which is expected to begin in 2017.



New work practices including the custom design tooth to clean bridge joints.

This rejuvenation work is expected to be completed by the end of 2016. To reduce time and costs the department has developed alternative work practice methods such as fitting a vacuum truck with a custom designed and built tooth to clean bridge joints and the use of thinners to clean the bearings while minimising environmental impacts normal maintenance works would incur.

The Riverside Expressway is a critical element in the Brisbane road network. Rehabilitation and maintenance works will ensure the ongoing longevity and serviceability of the expressway.

### Ipswich Motorway Upgrade (Rocklea to Darra)

The federal and state governments have committed to the \$400 million Ipswich Motorway (Rocklea to Darra) – Stage 1 project, based on a 50:50 funding arrangement.

The \$400 million Stage 1 comprises:

- upgrading Ipswich Motorway from four to six lanes between Granard Road and Oxley Road (three kilometres)

- higher bridges at Oxley Creek to improve flood immunity, as well as seven new bridges plus major culverts
- new southern service road connection from Boundary Road to Factory Road
- new traffic signals at an upgraded intersection of Suscatand Street and the existing service road.

The tender process for a design and construction contract is currently underway and will be awarded in the first half of 2017. Major construction is expected to commence in 2017, weather permitting. Early works were completed in August 2016 to improve safety on the motorway's eastbound off-ramp at the roundabout on Oxley and Blunder Roads.

More information: <http://www.tmr.qld.gov.au/Projects/Name/I/Ipswich-Motorway-Upgrade-Rocklea-to-Darra-Stage-1-Package-1-Granard-Road-to-Oxley-Road>



Ipswich Motorway upgrades



## Royalties for the Regions

During the year, we administered the delivery of 27 projects under the state government's Royalties for the Regions program ([see glossary](#)) on behalf of the Department of State Development (DSD).

The Royalties for the Regions program, which committed to new and improved infrastructure over four years from 2012–13 to 2015–16, has now closed. Work continues on infrastructure projects funded under the program, including successful Round 4 projects. The majority of projects awarded under this program were for upgrades to Council infrastructure. The department administers the delivery, and report progress on roads related Council projects, for DSD. Four key projects delivered this year were:

### Lyndhurst Lane Bridge Replacement Project (\$2.8 million)

Completed in May, Lyndhurst Lane connects the Cunningham Highway with Warwick–Allora bypass, providing an alternate route for travel to Toowoomba. The current bridge was in poor condition. The bridge was demolished and replaced with a reinforced concrete bridge. Works also realigned the bridge and reduced susceptibility of flooding.

On completion of the Wellcamp Airport, Lyndhurst Lane will provide a linkage for local fruit and vegetable businesses to Asian markets.

### Southern Downs Timber Bridges Replacement Project (\$3.5 million)

The project replaced four regional timber bridges with reinforced concrete bridges at Sandy Creek Bridge, Lesley; Mullins Road Bridge, Womina; Tummaville Road Bridge, Leyburn; and Bellinghams Road Bridge, Elbow Valley with works being completed in June 2016.

The primary products of the region are cattle, poultry and grains. These bridges provide the shortest path to deliver these products to markets. They are also part of school bus routes. Due to the load limit on the old bridges, school buses had to travel a longer distance to their destination.

Without these works, some of these bridges would have been closed, hampering regional development.

### Eastmere Road Rehabilitation Project (\$4.6 million)

This project rehabilitated 28.5 kilometres of Eastmere Road (commencing 0.5 kilometre north of Aramac) which had been severely degraded by the high volume of heavy vehicles using the road as part of mining exploration activities.

Realigning and resealing this section of road has improved its condition, reliability and safety for all road users. These improvements benefit the local tourism and grazing industries, as well as the local community. They also enable Eastmere Road to serve as a major transport link for future coal seam gas and coal mining activities in the region. The works were completed in March 2016.

### Hulbert Bridge Replacement Project (\$3.4 million)

The project replaced the existing Hulbert Bridge (10 kilometres north of Flinders Highway, Maxwellton) in June, with a structurally sound and more flood resistant bridge. The old structure was in poor condition and unsafe for heavy vehicle loads which include 140 tonne cattle road trains.

This bridge is the only access to the 'Far North' and the western half of Richmond Shire when the Flinders River is in flow. Without this work, Richmond Shire Council needed to place a load limit on the bridge or close it completely, which had a negative effect on the region, both economically, and on living conditions for residents.

## Cycling and pedestrian infrastructure

### Moggill Road Cycle Bridge

The \$10 million Moggill Road Cycle Bridge was opened in November 2015.

The 218 metre-long structure provides for an important cross-town link, spanning Moggill Road to seamlessly link with the popular Centenary Cycleway.

Elevated 8.5 metres above Moggill Road, the bridge crossing safely separates cyclists from four busy traffic lanes, eliminating the need for cyclists to dismount.



Centenary cycleway – Moggill Road Cycle Bridge



Birds-eye view of the Centenary cycleway

## Samford to Ferny Grove Cycle Way

In March, stage one of the Samford to Ferny Grove Cycle Way officially opened. The \$3.5 million cycle link between Ferny Grove Rail Station and Petersen Road in Samford will provide cyclists' safe passage.

The new cycle route will:

- provide a high-quality commuter corridor that provides a safe, fast and direct path that cyclist can access between Samford and Ferny Grove improving cycling connectivity and accessibility for all user groups
- provide cycle infrastructure to encourage active transport such as cycling and walking which will help to ease congestion on roads and reduce carbon emissions.

Stage 2 of the project will connect Petersen Road with Samford Village. Planning for this stage is currently underway. Once both stages are complete, the cycle link will provide a new 8.3 kilometre cycle path between the Ferny Grove Rail Station and Samford Village.



Samford to Ferny Grove Cycle Way

## David Low Cycle Way

The department continued work on the David Low Cycle Way, which includes installing dedicated on-road cycle lanes to eventually provide approximately 15 kilometres of continuous cycle lanes between Maroochydore and Coolum at a cost of \$11.6 million. The section of cycleway between Maroochy River and Godfrey's Road was completed in early 2016. The department is currently extending the lanes between Petrie Avenue and Tamarindus Street, with the next section between Petrie Avenue and Keith Royal Drive to commence in late 2016.



*“Delivering for cycling is a real team effort across TMR and something I am personally very committed to. Every TMR District has a cycling champion who works with local staff, with me and with the Cycling Program team in Brisbane to deliver more and better cycling infrastructure across the state, whether it's through dedicated cycling projects, or as part of other works we're doing on the network.”*

### Miles Vass

Deputy Director-General, Infrastructure Management and Delivery and Executive Leadership Team  
Cycling Champion

## Gateway Upgrade North initiatives

The \$1.14 billion Gateway Upgrade North project will significantly improve active transport infrastructure for pedestrians and cyclists. This includes construction of a new, off-road shared pedestrian and cycle path along the length of the project from Nudgee to Bracken Ridge, with connections to existing local bicycle and pedestrian networks. The new pathway will be 3.5 metres wide and will connect the Jim Soorley Bikeway at Nudgee to the existing Gateway Motorway pedestrian/cyclist underpass at Bracken Ridge, making use of existing shared paths adjacent to the Gateway Motorway.

The new pathway will provide safe and sustainable travel for pedestrians and cyclists on the north side of Brisbane.

Grade separated crossings will be provided:

- over the Gateway Motorway at Nudgee Road
- over Sandgate Road and the Shorncliffe rail line at Deagon
- under Bicentennial Road at Boondall
- under Deagon Deviation.

Five covered rest areas will also be provided along the new shared pathway. These facilities will include lighting, seating and drinking water for people and pets (at two locations), providing an opportunity for pathway users to take a rest and enjoy the natural surroundings.

## Moreton Bay Rail Link shared pathway initiatives

The Moreton Bay Rail project is nearing completion with activities being finalised in preparation for the opening of the rail line. The shared user path is being delivered as part of the Moreton Bay Rail project and runs adjacent to the rail alignment. The project is working hard to complete the outstanding work and is investigating the opening of a section of the shared user path so the community can benefit as soon as possible.

Of utmost importance is the safety for users of the shared path so it is critical that all safety related works are fully complete before the opening. The remaining shared user path will open with the rail line, planned to open by late 2016.

Sections of the shared user path cross local roads, Dohles Rocks Road and Brays Road, which are still under construction. These sections cannot be opened until roadworks ([see glossary](#)) are completed.

## Community art

The project will showcase a collection of themed murals on bridge structures and noise walls between Lawnton and Kippa-Ring to aid in deterring graffiti. Local artist, David Houghton, was selected to design and install artwork at eight locations across the project, including at numerous points along the new shared user path. Some of the themes were determined with input from key stakeholder groups including the Pine Rivers Historical Society, Anzac Memorial Committee and the North Lakes YMCA.

One of the artworks is along the shared user path, opposite the conservation reserve at Chelsea St, Kippa-Ring. The wall displays local wildlife and plants relevant to the area which were identified from collaboration with the project's koala and environmental reference group. The group attended the site in late September to tour the project and visit the artwork.

## Koala tagging and monitoring

The Moreton Bay Rail Link project team and the wider community take koala conservation and protection seriously. The new rail line crosses through existing koala habitat, and is likely to have impacts on the koalas living in those areas.

It is important koalas living in, or near, the proposed rail corridor are protected from harm during construction works, and also when the rail line becomes operational. One of the ways we can protect koalas from harm is to know their location in relation to construction works.

Use of monitoring collars is one of the most effective ways of doing this. Koalas can be very difficult to spot when they are in their natural habitat. Sometimes, when hidden in dense foliage, they can be impossible to see. Radio-tracking allows koalas to be located relatively easily. This may be very important for a koala's safety, particularly when vegetation clearing is occurring in close proximity to the animal's home range.

The monitoring collar also allows information on each koala's home range to be analysed, so the potential impacts to koalas, as a result of vegetation removal and rail construction can be properly assessed and minimised. The information gained from monitoring koala movements will also inform the rail design to help determine the most appropriate location for fauna underpasses.

The Moreton Bay Rail Link project team has engaged expert koala scientists to capture and radio collar koalas living in and around the rail corridor. This represents the highest standard of koala protection

ever conducted on a major infrastructure project delivered by Transport and Main Roads.

A team from Endeavour Veterinary Ecology, led by leading wildlife vet Dr Jon Hanger has been working to fit every koala spotted within the Moreton Bay Rail footprint and adjacent land with GPS radio collars and given a health check.

While it's business as usual practise to have 'spotter catchers' on development sites during clearing, this initiative is going beyond standard practice by collecting accurate field data specific to the local population, that was not only used to develop the rail design, but becomes invaluable with clearing now starting.

The project team have employed ecologists and fauna spotters to work with clearing teams. In addition, the tracking devices allow teams to understand where koalas are located before starting clearing activities.

More information: <http://www.tmr.qld.gov.au/Projects/Featured-projects/Moreton-Bay-Rail>

## Bridges Renewal Program

This year, a further 38 local government projects were announced in January 2016 under Round 2 of the Bridges Renewal Program (see glossary). 25 Queensland local governments had projects approved at a total project cost of \$76.276 million.

Funded on a 50:50 basis by the federal and state governments, the program aims to facilitate higher productivity vehicle access to communities.

Round 2 was open to local governments only. Round 3 is proposed to be open later in 2016.

### Drone bridge inspections

In March, the department undertook a trial using drone technology to conduct a bridge inspection on the Riverside Expressway, Brisbane. Automating elements of bridge inspections has the potential to provide significant cost savings as well as reduce safety concerns. Through this trial the opportunities of using drones to provide detailed images of bridge components were identified. This information is now being used to develop guidelines for when drones can and should be used for bridge inspections.

The application of drone technology to bridge inspections has the potential to:

- reduce the need for lane closures
- reduce time undertaking inspections
- permit work during daylight and thereby improving quality of images taken, in addition to not requiring road closures.

This technology is suitable for high bridges or bridges with difficult access requiring road closures.

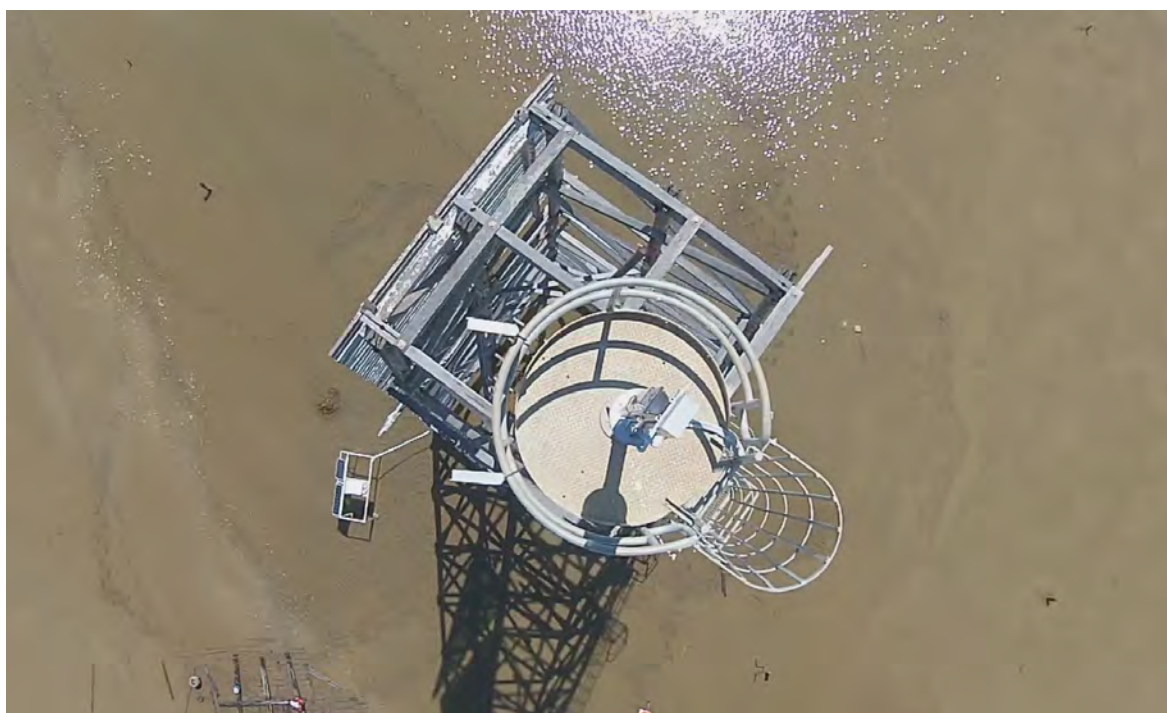


Image captured from drone footage

# Marine Infrastructure

## Marine Infrastructure Fund

We continue to deliver new and upgraded recreational boating infrastructure under the \$50 million four-year (2012–13 to 2015–16) Queensland Government Marine Infrastructure Capital and Maintenance Program.

Infrastructure delivered during the year is shown on the map of Queensland ([see this and next page](#)).

During the year, we also progressed planning for, and commenced construction of, boating infrastructure across the state including:

- Completed stage two of the jointly funded \$25 million Townsville Recreational Boating Park. Townsville City Council contributed \$15 million towards the new infrastructure. Construction of four new four lane boat ramps with floating walkways and two additional pontoons were completed.
- Commenced works on a \$1.35 million project to construct a new two lane boat ramp and floating walkway at Nojoor Road, Twin Waters. This was undertaken in conjunction with Sunshine Coast Regional Council with completion expected in July 2016.

## Dredging

### Bowen Boat Harbour

Capital dredging works were completed at Bowen Boat Harbour which doubled the width of the entrance channel to 30 metres and deepened and straightened the channel to the harbour to improve navigational access. Maintenance dredging was also carried out in the harbour basin. As part of this project a bund (containing wall) was constructed on land within the harbour for the placement of 45,000m<sup>3</sup> of dredged sediment. This has markedly improved access into this busy boat harbour for both commercial and recreational vessels.

### Rosslyn Bay Boat Harbour

Maintenance dredging works are currently underway to improve navigational access to Rosslyn Bay Boat Harbour. These works will restore all-tide navigable access to the entrance and internal channels of this busy regional harbour. This will remove

**\$1.4M**  
**Weipa new boat ramp and pontoon**

**\$310,000**  
**Karumba & Normanton  
Jetty fender pile replacement**



Weipa new boat ramp and pontoon

approximately 50,000 m<sup>3</sup> of material. Works are expected to be completed in October 2016, weather permitting.

### Cabbage Tree Creek Boat Harbour

Maintenance dredging works at Cabbage Tree Creek Boat Harbour were completed a month ahead of schedule and improved navigational access for boats. Just over 55,000m<sup>3</sup> of material was removed as part of this project.

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**A total of 150,000m<sup>3</sup> of material was dredged between the three projects which equated to approximately 60 Olympic sized swimming pools**

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Whisper Bay floating walkway

Objective Two – We deliver a sustainable, cost-effective transport network accessible to all

# We develop new technologies and systems in transport infrastructure construction, preservation and management

## New mapping technologies

### iMaps – interactive mapping

The department's Interactive Mapping capability or iMaps has undergone significant development and refinement over recent years and is now capable of providing extensive geospatial mapping capability and one-off solutions across the department. We have progressively developed a broad range of interactive maps, for internal use, since 2011.

An example of the 21 interactive maps and their uses currently include:

- Emergency Management map which supports the response to emergency and disaster events in Qld
- Boat Facilities map assists in the delivery of boat facility asset management
- Native Title map allows for the viewing and editing of the Native Title Evaluation data
- Hydraulic and flooding map displays hydraulic and flooding related info for planning and design purposes
- Regional Freight Generators map supports the planning and delivery of freight infrastructure.

During the past 12 months, the department has been developing the capability for a new mobile version of interactive mapping, suitable for use on devices such as smart phones and tablets. This technology has the potential to save time for staff operating in the field, allowing efficient capture of asset or location information.

## Improvements to our construction practices

### Fabrication of specialist project pre-cast structures

We applied an innovative concrete solution to the reconstruction of the Wallace Landing boat ramp and access roads at the BP in Home Hill. We worked closely with our Engineering and Technology branch to obtain approval to design, build and manufacture the pre-cast concrete products ourselves. Following approval, we successfully built the two different pre-cast concrete beams (RG4000 boat ramp planks and uniquely designed drainage unit) needed for the reconstruction projects. A great benefit of the project is that the department now owns the pre-cast formworks and designs which can be used on future projects, saving our customers time and money.



Precast structures manufactured for the reconstruction of Wallace Landing boat ramp and the BP Home Hill access reconstruction by the department saved money and time.



A new coring process for steel culvert inspections that will save time, equipment and resources. Left: core drilling, Right: inspection and testing.

## New coring process for steel culvert inspections

We developed a new coring process for steel culvert inspections that saves time, equipment and resources, delivering a 60 per cent cost saving on the original process. The new process involves core drilling holes, rather than jackhammering significant sections which allows the team to determine the thickness of a steel culvert and view the condition of the base of the culvert during routine inspections.

The new process allows a two person team to undertake the inspection with minimal equipment compared to the previous processes, and has application to all steel culvert inspections across the state and across the network.

## Fraser Coast structure works

During the year, we successfully rehabilitated four timber bridges in the Fraser Coast Regional Council (FCRC) area with the intention to reduce whole-of-life operational costs through preventative maintenance and minor repairs. In partnership with council since 2011, we have delivered both bridge inspections and rehabilitation work delivering value for money and helping to connect communities and is a component of the broader Timber Bridges Replacement Project across the state. Our local RoadTek crew consistently receive favourable customer feedback which enhances our reputation as a service provider for other regional councils.

## Preservation and management

### Salisbury Park 'n' Ride Carpark

We successfully constructed the 31 car space Park 'n' Ride ([see glossary](#)) carpark for Queensland Rail commuters at Salisbury.

Our team coordinated an investigation by the Cultural Heritage team after excavation uncovered what appeared to be a fire pit. The excavator operator carefully removed multiple layers of dirt to attempt to uncover items for further inspection. The investigation confirmed there was no cultural significance in the find, and aerial photos of the area stem back to the 1916's also showed no cultural significance in the local areas.

The project also involved significant community consultation following concerns about the protection, health and structure of a 23 metre Tallowwood tree on the construction site. The team successfully managed the process in collaboration with the Environmental and Cultural Heritage Officers and TransLink to remove the Tallowwood tree due to safety concerns.



Creating 31 parking spaces at the Salisbury Park 'n' Ride, whilst looking after the environment.



More information on the passenger transport infrastructure programs [see page 136](#).

With the help of a fauna spotter during the removal of the tree the crew were able to capture and relocate three Ringtail Possums to surrounding locations to ensure they stayed in their local natural habitat. The crew then planted a Tuckeroo tree with a more suitable root system to replace the Tallowood tree, and continue to support the local wildlife. Overall the process was a great learning experience for the crew.

## Cassowary Safety Improvement

In November 2015, the department started planning for a trial of Vehicle Activated Signs (VAS) on a section of Tully – Mission Beach Road to help prevent cassowary vehicle strikes.

VAS, as well as associated static signage and enhanced linemarking will be installed and speed limits will be monitored before and during the trial.

Details of the trial, which is expected to cost about \$125,000, were announced in May 2016.

The project is expected to start in September 2016 and run for six months.

The department worked closely with the local community to develop the VAS trial. In addition, we are investigating the use of tagless technology to detect cassowaries near the road network.



Cassowary signs installed on Mission Beach Road to prevent vehicle strikes

# We manage and operate the state-controlled road network to ensure travel reliability and efficiency

## Travel reliability

### Addressing traffic congestion

Over the last four years, south-east Queensland has seen a 12 per cent increase in registered vehicles (three per cent per annum). This increase has been consistent with the overall rate of change in traffic (there are more vehicles on the road travelling more kilometres), thereby leading to greater congestion. The most recent traffic growth (from calendar years 2014 to 2015) has been over four per cent, the highest in nine years.

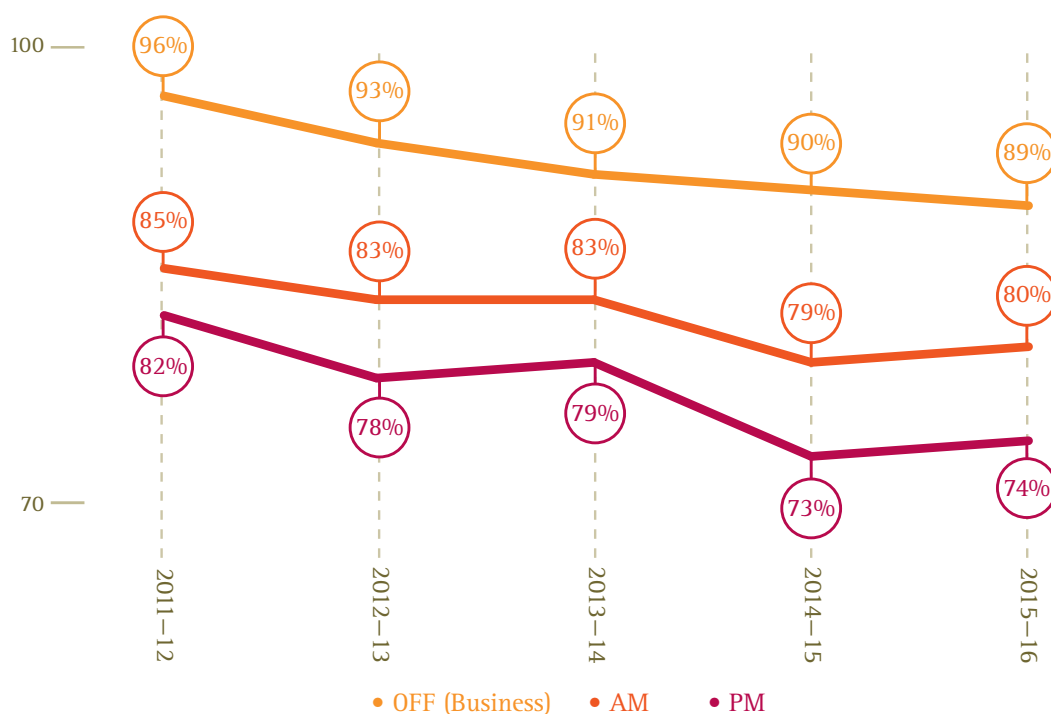
Some of this could be attributed to the significant 13 per cent reduction in the average south-east Queensland petrol price over the same period (source: QG Statistician's Office). Since traffic growth has been higher than the deterioration seen in the congestion measures, it equates to a performance improvement in relative terms. For example the average travel time during the off-peak has worsened from 9.8 to 10 minutes per 10 kilometre (2 per cent) between 2014–15 and 2015–6, which is lower in

relative terms compared to the traffic growth of over four per cent.

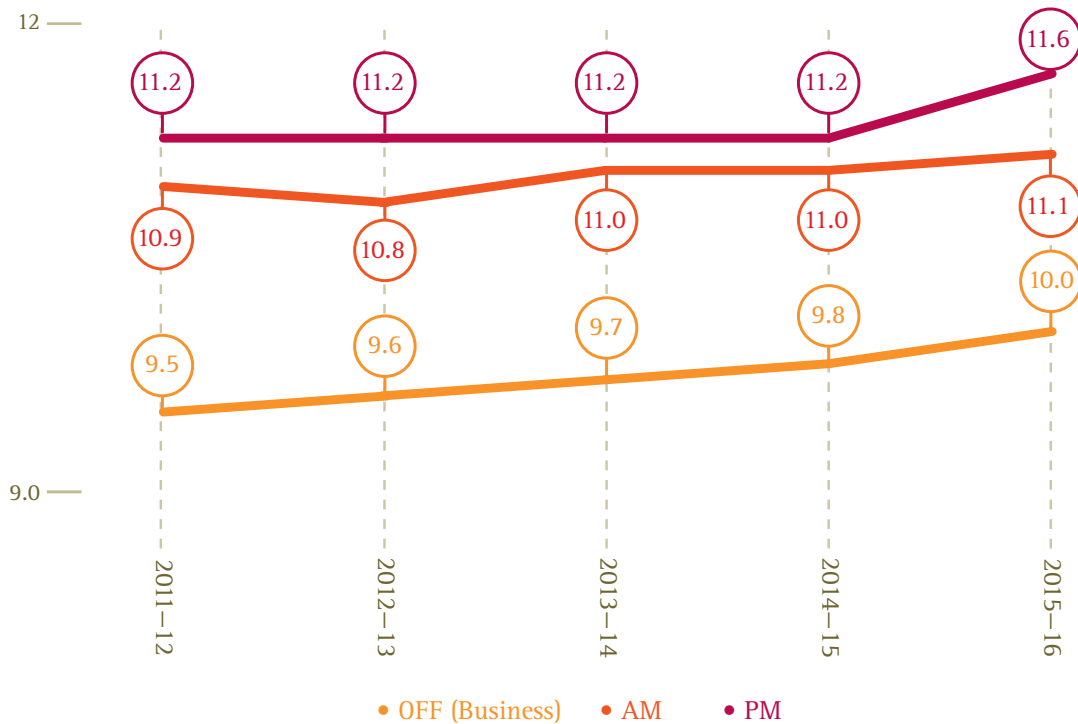
To help address these congestion concerns in 2015–16 the department has undertaken a number of key initiatives such as:

- improved incident management including traffic response units
- signal network optimisation
- improved management of motorways to ensure they flow consistently in periods of peak demand for example South East Freeway ramp signalling, Ipswich Motorway Lane Use Management, Port of Brisbane Variable Speed Limit operations and Bruce Highway ramp signals and variable speed limits
- development of tools to quantify excessive congestion (accepting that a certain level of congestion is inevitable), and using this to prioritise possible upgrade to the network (intersection and route ranking), and quantify the causes of congestion. This tool will assist transport planning and road operations

**Figure 4: % Network with good travel time reliability (high is good)**



**Figure 5: Average travel time per 10km (low is good)**



- statewide roll-out statewide of Emergency Vehicle Priority on state-controlled roads
- improved traffic management at roadworks
- using state government’s Project Assurance Framework in investment decision making to maximise the benefits returned to government from project investments
- development of a draft Smarter Solutions: Network Optimisation Framework to help identify low-cost and non-infrastructure solutions that effectively respond to capacity and reliability constraints across Queensland’s transport network and within our current fiscal environment
- travel options and travel information – creating a public transport and active transport network that has greater accessibility, frequency and reliability (ongoing funding of principal cycle network, 131940 traffic and traveller information, TransLink’s real time bus information, enhanced train timetable)
- increased capacity – although it is not always practical or feasible to construct new road infrastructure, there have been significant projects to address the growing traffic demands on the road network such as Gateway Upgrade North and South.

While the statistics are showing that congestion has increased, implementing these initiatives has lessened the potential impact.

More details on our congestion management measures are contained in Appendix 2 (see pages 250–251) Infrastructure Management and Delivery Service area.

### Intelligent Transport Systems

The department uses Managed Motorways to assist in operating the state-controlled road network. Managed Motorways is an initiative being rolled out across south-east Queensland, employing state-of-the-art technology to better manage traffic flows and reduce stop-start travel, improve safety and provide more predictable travel times.

TMR has implemented Managed Motorways technology along major transport corridors in south-east Queensland, including sections of the Bruce Highway, Ipswich Motorway, Western Freeway, Houghton Highway and the South East Freeway. As the end of June, TMR has approximately 76 kilometres of motorway managed through the application of coordinated on-ramp signalling, and variable speed limit and lane control sign technologies.

In 2015–16 the department has:

- delivered Bruce Highway Variable Speed Limits (VSL) and Ramp Signalling between Pine Rivers and Uhlmann Road
- operationalised Western Freeway VSL between Sumner Road and Sinnamon Road from the BMTMC under manual mode.

Projects underway include:

- upgrade of the Ipswich Motorway Ramps between Dinmore to Darra to the current standard.
- the South East Freeway outbound ramps signals on Messines Ridge Road and Logan Road required for the eight lane extended design domain have been installed and satisfactorily commissioned.
- the ramp control signal for Logan Road inbound at Bleasby Road has been installed, commissioned and is operational.
- Queue Detection/Queue Protection algorithm has been successfully trailed and suitable training provided to the Traffic Management Centres.
- Sunshine Motorway VSL under construction.

The department will develop a business case for the conduct of a major pilot of new Intelligent Transport System (ITS) technologies and applications that are under development internationally, such as Cooperative ITS and autonomous vehicles. There are important roles for government, industry and academia in the development and deployment of ITS.

Government involvement is critical to the development of future skills and expertise as a road manager, resolving policy and regulatory issues, facilitating community engagement, delivery of information from government owned infrastructure and adoption of standards and architecture. Government is also seen as an enabler and can play a role in stimulating industry to achieve both economic outcomes and public outcomes in respect to reduced road toll, transport accessibility and improved road network efficiency.

## Roadwork safety

### Traffic Management at Roadworks

Throughout the year, the Traffic Management at Roadwork project has collaborated with the construction and traffic management industries to trial several innovations including portable traffic signals (to remove traffic controllers from exposure in high risk locations), and emotive signage about the presence of workers, to influence driver behaviour.

The department has also developed guidelines for the deployment of temporary variable speed limit signage to remove the need to manually change speed limits when the site is active (this is a costly and hazardous task in its own right) in order to improve the credibility of speed limits when workers are present.

In addition to introducing innovations into traffic management, the project has also enhanced the traffic management design training package to ensure practitioners make good decisions regarding signage and speed guidance for road users. This allows greater opportunity for our customers to have a good experience through our worksites and increases the chance of achieving compliance. 980 people have attended the training (as at end of June 2016), with more than 250 Traffic Management Design qualifications already issued.

As a measure to improve roadwork safety, the department is also working closely with the Queensland Police Service to identify projects where driver speed through the worksite presents a high risk to workers. Provided that the traffic management signage at the site will need to be correct and credible, speed enforcement will be undertaken at these locations. The outcome the department is seeking is a change in driver compliance when workers are present.

### Annual Preparedness Program

The statewide Preparedness Program was delivered at twelve locations to 379 participants in September through to November 2015. Participants included representatives from Transport and Main Roads, Queensland Police Service, Queensland Fire and Emergency Services, Queensland Rail and Local Councils. The program focused on changes to processes and legislation, lessons learnt and identifying issues or gaps to providing effective responses to disruptive events.

The Program contributed to the department's assurance process as well as providing confidence to external stakeholders that we are well prepared to respond to a disruptive event.

## Infrastructure modelling

### Digital Engineering

The department is set to save tens of millions of dollars on Queensland's infrastructure budget using state-of-the-art information modelling. The proposed Smart Infrastructure Management framework will see Building Information Modelling (BIM) embedded in every stage of the infrastructure management lifecycle, enabling greater consistency, efficiency and savings.

BIM uses 3D technology to aid in the planning, design, construction, and asset management of infrastructure. Providing a 3D model as the single point of truth, BIM enables multiple disciplines to collaborate seamlessly on infrastructure projects, ensuring they are optimised in the 'virtual world' well before construction begins.

Digital engineering will deliver significant savings for Queensland by improving efficiency throughout the infrastructure management lifecycle. The systems and processes will help to:

- **Avoid errors** – BIM's clash detection technology will help eliminate costly design errors, allowing a problem to be fixed in the 'virtual' world before it costs money in construction.
- **Reduce waste** – BIM's superior capability in programming and estimating quantities will reduce material wastage in construction.
- **Optimise information** – BIM's reliable information management will make for more effective planning and delivery, as well as more dynamic asset operation and maintenance.

While digital engineering will be brought in through a 10 year transition strategy, Smart Infrastructure Management is being introduced to new tenders now, allowing the department to take advantage of early gains and to guide Queensland's transition to digital engineering in the future.

## Industry collaboration

### Heavy Vehicle Safety and Productivity Programme

In March 2016 the state government announced a \$10 million budget in the *State Infrastructure Plan* for intersection upgrades in North Rockhampton as Stage 1 in providing Type 1 road train access to Rockhampton abattoirs.

The announcement was part of a \$30 million upgrade to the identified Type 1 road train route from the Central Queensland Livestock Exchange (CQLX) to the two abattoirs in North Rockhampton.

The identified route traverses the Bruce Highway (Gladstone Road, George and Albert Streets, Neville Hewitt Bridge and Moores Creek Road), Rockhampton-Yeppoon Road, (Musgrave Street, Queen Elizabeth Drive) and Rockhampton-Emu Park Road (Bridge Street and Lakes Creek Road).

Stage 1 includes upgrades to intersections at Moores Creek Road / Yaamba Road and the Queen Elizabeth Drive / Bridge Street.

The business case for Stage 1 was approved in 26 July 2016. The Invitation to Tender for detailed design is scheduled for end of August 2016.

Design will be undertaken from August–November 2016, with construction expected to commence in late 2016.



## Research Partnerships

This year represented the third year the department and ARRB Group Research have been in partnership. The partnership formed to deliver superior technology and road transport solutions for the people of Queensland.

The program is charged with achieving this goal through:

- delivering cost effective and higher performing pavements, refined asset management practices, efficient management of structures, and optimising road safety and network operation outcomes
- working in partnership with industry, universities and government bodies to leverage research and resources, helping to deliver mutually beneficial outcomes
- developing capabilities of staff and disseminating learnings
- facilitating trials, establishing research tools and infrastructure to help implement new technologies and practices in Queensland.

This year the program advanced research into opportunities to reduce asphalt thicknesses (while maintaining quality), worked in collaboration with the Department of Environment and Heritage Protection (EHP) and Tyre Stewardship Australia (TSA) to research the use of crumb rubber in finder seals and open graded asphalt.

Some of the achievements for 2015–2016 include:

- trialling the use of crumb rubber (from waste tyres) in seals and open graded asphalt. During this financial year the department has used Crumb Rubber Modified Binder on two major research projects leading to project savings of approximately \$170,000 and recycled an estimated 40,000 tyres.
- Reducing asphalt thickness to a depth that will maintain asset life, while reducing upfront and whole of life costs. Research to date is already delivering 50–60 millimetre reductions in asphalt thickness which equates to approximately \$100,000 per lane kilometre.
- The department's specification for granular base was amended to allow the use of Modified C grading – which requires more fines in the pavement. This grading delivers improved constructability, and reduced permeability, and is expected to reduce the permeability of our pavements when inundated from flooding. The new grading is being progressively rolled out as industry tools up to meet the higher standard.

The program will continue to focus research efforts in the pavement, structures and asset management areas in the 2016–17 financial year.

