

SECTION 2

ACCESSIBLE TO EVERYONE

HOW WE MEASURE OUR SUCCESS

- Improved customer satisfaction
- Improved customer experience
- Increased innovation maturity
- Integrating research and development
- Improved accessibility to the transport network
- Improved safety and security of the transport network

Creating a single integrated transport network which is accessible to everyone tasks TMR with great responsibility. When we visualise our customers, we indeed identify the wider Queensland community as using, relying on and benefiting from our network. As such, we dedicate our organisation and our people to our customer-centric purpose of bringing Queensland closer together.

We could not deliver on this task alone. We work in partnership with our customers and stakeholders to understand exactly what is expected of the network. We respond to, and are guided by, emerging trends, ensuring our focus is always on being inclusive and considerate of the diversity in our broad range of customers.

Understandably, safety and resilience plays a vital role in building and delivering a network that customers can rely on. This includes the safe and efficient movement of both people and goods, and supporting our industry in providing access to important centres of economic activity in our regions and cities.

Personalising passenger services, working with our partners to develop innovative solutions that deliver a safe, reliable system are examples how we of ensuring an accessible network for the future. These examples are included in the following section of this report.

HIGHLIGHTS

Customer charter

Developed and published a Customer Charter to meet customers' needs and expectations.

Inclusiveness and accessibility on the network

Engaged with key advocacy groups to improve accessibility on our passenger transport network for persons with a disability.

Electric vehicle strategy and super charging highway

Released *The Future is Electric: Queensland's Electric Vehicle Strategy* and a series of fast charging stations stretching from the Gold Coast to Cairns, and Brisbane to Toowoomba making the longest electric super charger highway in a single state in the world.

Reconstruction of road network

Completed \$64.18 million of reconstruction works following Ex-Tropical Cyclone Debbie with focus area of the Sarina Range, south of Mackay and the Gold Coast hinterland.

Preparing our learner drivers

Piloted a new online learning and assessment program—PrePL—to replace the outdated written road rules learner test and improve young driver safety.

OUR CUSTOMERS

With the rapid growth and availability of smart technology, customers' expectations around transport are changing. With these changing expectations, and in line with our customer focus, TMR has implemented new ways to share information with customers and deliver a more customised experience. In this section, we outline actions we've taken to deliver a more accessible transport network through technology, including real-time passenger travel and traffic apps, more online services and higher engagement with customers through multiple social media platforms.

Customer Charter

To ensure we continue to put the customer at the centre of everything we do, TMR developed a Customer Charter (see glossary page 253) with associated commitments and measures. We engaged our customers to research, design, develop, and publish a whole-of-TMR Customer Charter that clearly outlines what our customers can expect from us as well as what we will deliver.



The Department of Transport and Main Roads Customer Charter.

CASE STUDY

Collaborative co-design

The TMR Customer Charter was co-designed by our customers and our people. We asked what our commitments and promises should be and we tailored the charter to meet customers' needs and expectations. To develop and test the charter, we ran customer focus groups and internal focus groups in the TMR's Customer Experience Lab (CE Lab) (see glossary page 253).

As a result, a whole-of-TMR Customer Charter was developed and published in October 2017 with four key commitments:

- Make safety our priority
- Keep you informed
- Consult and collaborate
- Listen, action and improve.

Our overarching commitment to the people of Queensland is that all TMR employees will respect the privacy of your information and that we will attend to your enquiries in a timely, respectful and responsive manner, ensuring that at all times we adhere to the *Code of Conduct for the Queensland Public Service*.

For more information visit: tmr.qld.gov.au/customercharter

Customer-centric approach

Building on our Strategic Plan's (see page 6) commitment to be a customer-focused organisation, TMR has a roadmap for customer-centric design. This roadmap is based on the United Kingdom Design Council's 'Public Sector Design Ladder', which was developed in 2013 to help improve designing for public good. The ladder demonstrates the approach to incorporating design-thinking into the public sector. Each step on the ladder, in sequence, represents an increasing level of customer-centric design capability. There are three steps in the design ladder, as shown in Figure 4.

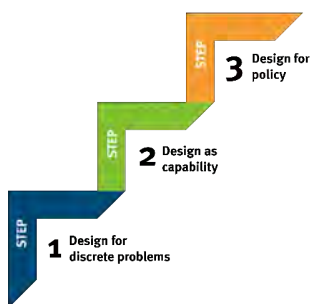


Figure 4: The Public Sector Design Ladder. Source: adapted from Design Council, 2013, Design for Public Good, page 8, www.designcouncil.org.uk

Using this tool, TMR is delivering a roadmap for building integrated, customer-centric capability that includes customer research, human-centred design, organisational change and customer-centric program delivery.

Operational since May 2016, TMR's CE Lab ([see glossary page 253](#)) supports us to gather customer insights and co-design solutions with customers.

233 customer-focused events held in CE Lab since opening.

In 2017–18, 75 per cent of these sessions were focused on building capability in customer centric research and design, 21 per cent on solving specific customer problems and 4 per cent on integrating the voice of the customer into strategy and policy design.

The positive results of these customer-centric projects are already being seen in the way we are providing our services, improving day-to-day outcomes for our customers and planning for the future. Examples of these projects include Learner Driver PrepL Program ([see page 99](#)), Equitable Access to Transport for Vulnerable Queenslanders and the case study presented below.



CE Lab provides a collaborative space to workshop TMR service improvements.

CASE STUDY

Buranda wayfinding pilot

Insights into improving our customers' experience in navigating through the Buranda bus and train stations was researched using CE Lab resources.

Buranda bus and train stations serve approximately 2500 transfers, 7650 busway and 3500 rail passengers a week, with customers accessing Princess Alexandra Hospital, Greenslopes Private Hospital, Probation and Parole Office and the Department of Housing and Public Works.

Based on recommendations from in-field customer research, TMR installed 13 new signs, added three additional maps, as well as landscaping to improve the visibility of existing signage.

Customer Liaison Officers

TransLink's Customer Liaison Officers provide a frontline service helping thousands of TransLink customers every day at Cultural Centre busway station and across the network, communicating major network or service changes and educating customers on TransLink's products and services. Throughout the year, the team also attend community events across South East Queensland including university open days, the Ekka ([see page 18](#)) and regional shows, as well as environmental, multicultural and seniors' expos.



Customer Liaison Officer helping a customer face-to-face with transport services.

Personalised transport services

During 2017–18, TMR progressed the implementation of the Queensland Government's personalised transport reform program *Queensland's Personalised Transport Horizon—Five Year Strategic Plan for Personalised Transport Services 2016–2021*. The reforms have delivered a modern, safe, affordable and accountable personalised transport industry for all Queenslanders.

We delivered a range of major reform milestones, including implementing key safety elements of the framework, from new booking entity authorisation (December 2017), booked hire service licence requirements (January 2018) and increased industry accountability through a new chain of responsibility.

The next stage of the reforms will focus on the ongoing monitoring, review and evaluation of the new framework.

For more information visit: personalisedtransport.tmr.qld.gov.au/

Inclusive and accessible transport network

The Integrated Accessible Transport Network (IATN), established in April 2018, is a three-year program dedicated to ensuring all of TMR's products and services are integrated, inclusive and accessible to all. The IATN program team, led by the newly-appointed Executive General Manager, Mr Kevin Cocks AM, will work across TMR and with other transport stakeholders to focus on creating benefits and outcomes for the community.

The first pillar of the program's focus is on the social benefits of an inclusive, accessible network, including building opportunities for greater participation and connecting people with their communities. The second is around economic benefits, such as greater equal opportunities for people to participate in work, business and social networks. The last pillar focuses on the cultural benefits, including building relationships and improving understanding of our cultural diversity.



Mooroobool Hub Learner Licence workshop.

CASE STUDY

North Queensland community benefits from road safety workshops

This year, in our commitment to supportive, inclusive access to transport services, we supported not-for-profit organisations and partnered with government agencies to deliver learner licence workshops and road safety awareness to at-risk groups within the northern region. These services assist drivers who experience barriers in acquiring the knowledge and skills to become a safe and compliant driver. The initiatives provide a supportive environment and achieve strong outcomes through programs designed to meet the learning needs of the customer, despite any literacy or cultural challenges.

An example of this is our partnership with Red Cross who provide learner licensing workshops from Mooroobool Hub, located in suburban Cairns. The workshops engage disadvantaged customers in an interactive experience, delivering information about road rules and safety in a manner that is both culturally appropriate and tailored to the learning needs and life experiences of participants. TMR's Indigenous Driver Licensing Unit (IDLU) also provides supporting educational resources and deliver the Learner Licence written test in a format that meets the learning styles of culturally diverse and low literacy community members.

In 2017–18 the IDLU delivered three Mooroobool Hub Learner Licence workshops, assisting 237 disadvantaged clients to obtain their licence and get on the road as a safe and compliant novice driver.

Accessibility for passengers

TMR is engaging with its Accessibility Reference Group (ARG) as part of its commitment to improving the accessibility of the passenger transport network for customers with disability.

The ARG meets quarterly and comprises representatives from the disability sector, industry, local government and TMR. The group were involved in key projects this year including the development of TMR's *Disability Action Plan for 2018–2022*, assisting in the transport arrangements for GC2018 and the development of personalised transport reform initiatives in the form of driver training requirements.

In addition to engagement with the ARG, TMR undertook targeted consultation with advocacy groups on various infrastructure related projects to ensure our network is

inclusive of all users. For 2017–18 these included a braille/tactile bus stop blade sign identification number trial and the design for the new Queen Street Bus Station lift.



An example of a braille/tactile bus stop blade sign identification number.

Demand Responsive Transport trials

In September 2017, TMR delivered on its commitment for an innovative transit service design by embarking on a 12-month trial with a new Demand Responsive Transport (DRT) public transport service in Logan responding to customer needs and increasing their accessibility to transport.

Provided by local taxi operator Yellow Cabs, the service brings together small groups of people who are looking to travel at the same time. It uses advanced technology to plan the most efficient route, picking up each passenger and taking them to major public transport stations and local facilities.

Patronage is growing steadily and feedback on customer satisfaction is high. Feedback is being collected to inform adjustments to the flexible service throughout the trial. A key outcome of the trial will be to demonstrate how DRT can become integral to public transport offerings in Queensland.

For more information visit: translink.com.au/travel-with-us

Improving public transport in South East Queensland

New contracts with bus service providers in South East Queensland are anticipated to deliver significant improvements in customer experience, service delivery, greater efficiency through sound multi-modal network design, greater transparency of network metrics and overall network performance.

Incentivising operators to provide more reliable and punctual bus services over the life of the new contracts will achieve immediate benefits for customers. The new contracts also introduce a centralised scheduling system, resulting in more responsive and reliable timetable information for customers. These new contracts have commenced the final stages of contract-signing and are scheduled to begin in July 2018.

Transport and Tourism Connections program

The transport system plays a vital role in supporting and connecting our tourism industry. A single, integrated transport system that is accessible to everyone is essential to making Queensland's wide variety of tourism experiences accessible to visitors. The aim of the Queensland Government's \$10 million Transport and Tourism Connections program is to improve transport and road access to established tourist attractions on the state-controlled and local government road networks. In round one of the program, priority was given to sites on Queensland's strategic drive tourism routes and high-trafficked regional tourist routes.

During 2017–18, TMR administered the delivery of round one of the Transport and Tourism Connections program consisting of 19 projects in western Queensland costing \$5.2 million.

The program included upgrades to the road network relating to unique sites in western Queensland, such as the Dinosaur Trail at Winton and scenic Hell Hole Gorge National Park at Quilpie.



Dinosaur Trail project at Winton.

Online services

The department continues to evolve current technologies and develop new innovative solutions to offer greater accessibility to our services for our customers.

Formless transactions

TMR has removed the requirement for customers to complete a paper form for various licensing and registration products and services. This move to formless transactions helps us to streamline our interaction with the customer, reduces customer effort, increases customer satisfaction, increases employee satisfaction and has the potential to generate efficiencies and costs savings by reducing postage, printing and storage.

Digital transactional services for Queenslanders

TMR delivers licensing and registration transactional services across its counter, phone and digital channels. Over 50 services are available via digital channels and through continuous improvement and customer insight, we improve

these channels so they continue to meet changing customer expectations. Customers are able to pay for their registration renewal, renew their driver licence, check their demerit points and apply for their traffic history online. Customers can also book a practical driving test or vehicle inspection, or use our smartphone apps to complete and submit their learner logbook and check the currency of their registration.

TMR offers live chat customer services on the transport and motoring website. This service is available on selected pages and enables customers to have their specific questions answered online. In addition, we can also assist in signing customers up to receive their registration and licensing notices by email.

As shown in figure 5, assisted versus non-assisted customer interactions demonstrates that along with the introduction of new services, the popularity of our self-service options continues to increase. This year is the first time since the program commenced that non-assisted surpassed assisted customer transactions.

20,998 webchat interactions and 7597 webchat customers responded to a survey, with 5414 customers rating their interaction as 'Excellent'.

For more information: qld.gov.au/transport

Figure 5: Customer service transactions—assisted vs non-assisted.



Data source: Data Analysis Reporting Centre (Service Delivery System and Program Office, Customer Services Branch)

Note: From the 2012-13 financial year onwards, the data has been refined to include transactions for which a customer interacts with Transport and Main Roads. Prior to this date, the data includes ancillary and system generated transactions which aren't a true representation of customer interactions.

New public transport ticketing system

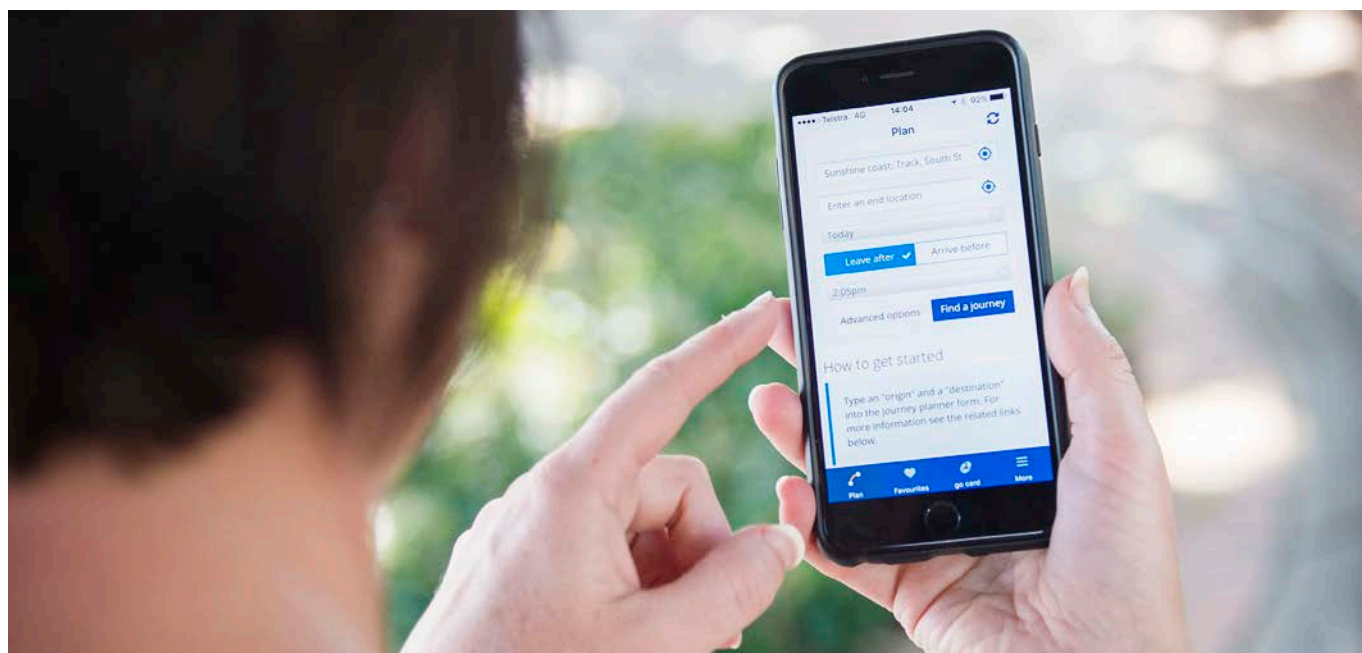
In June 2018, TMR concluded a highly competitive procurement process for an account-based ticketing system to replace existing systems on public transport services across Queensland. TMR will partner with Cubic Transportation Systems to design, build, implement and operate a new public transport ticketing system, which will materially change the way customers pay for and use public transport services.

The new system will allow customers to choose from contactless credit and debit cards, smart phones and wearable devices in addition to existing *go* cards (see glossary page 254) and paper tickets as travel payment options. The system will also support new modes of transport and enable future innovations, such as Mobility as a Service (see page 124), real-time seat availability, notifications for service delays and expansion to 18 regional areas.

Full system implementation is expected by 2022, with pilots rolled out progressively. The system is fully-funded by the Queensland Government with \$371.1 million allocated for the design, build and implementation over four years, beginning in 2018–19.

GC2018 Journey Planner

In February 2018, we developed a tailored GC2018 Journey Planner to access through the official app and event website to provide Games-specific travel information, to support network efficiency for those travelling to events. For more information on GC2018 and GC2018 Journey Planner (see page 22).



MyTransLink app in use.

MyTransLink app improvements

In November 2017, a major upgrade of the MyTransLink app was released to provide customers with quick and easy access to public transport information. Based on feedback, the upgrade included new customer-initiated features.

The upgraded version of the MyTransLink app has a modern user interface in line with state-of-the-art design. There are also a number of additional features including the ability to personalise 'Favourites' and the ability for customers to track their en-route vehicle with trip tracking. Additionally, the technology behind the MyTransLink app has been updated to meet scalability, integration and future-proofing requirements. The MyTransLink app has been downloaded more than one million times and has over 200,000 active users each month.

Download the MyTransLink app here: translink.com.au/mytranslink

QLDTraffic app

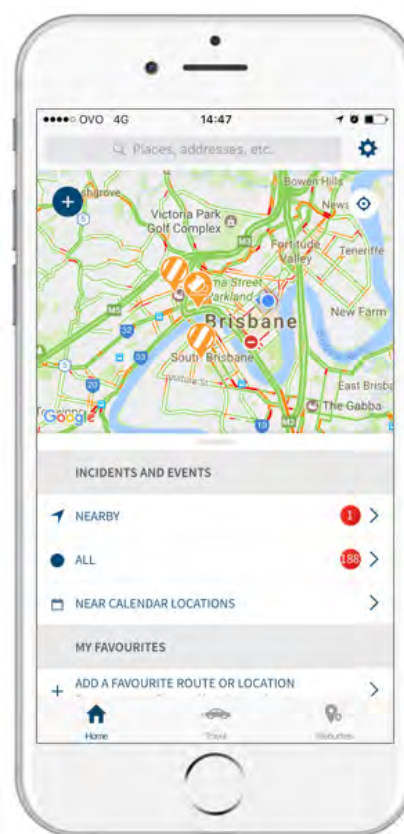
The QLDTraffic smartphone app and website provide road users with real-time information about road conditions, such as roadworks (see glossary page 256), crashes, flooding, hazards and congestion, as well as rest areas and dump points. Users can also view live traffic camera feeds to check routes before they commence travel.

As at the end of June 2018, the smartphone app had been downloaded 91,000 times since its release in February 2017, and the website had 4.5 million visits since it was launched in late 2016.

Spikes in use were seen during severe weather events for example, during Severe Ex-Tropical Cyclone Debbie, QLDTraffic use spiked at 1.25 million hits.

TMR continues to make enhancements and minor tweaks to improve components of the website and app including the alerts function on the mobile app, which allows for alerts to be broadcast to certain geographical locations based on a radius of one kilometre to 200 kilometres.

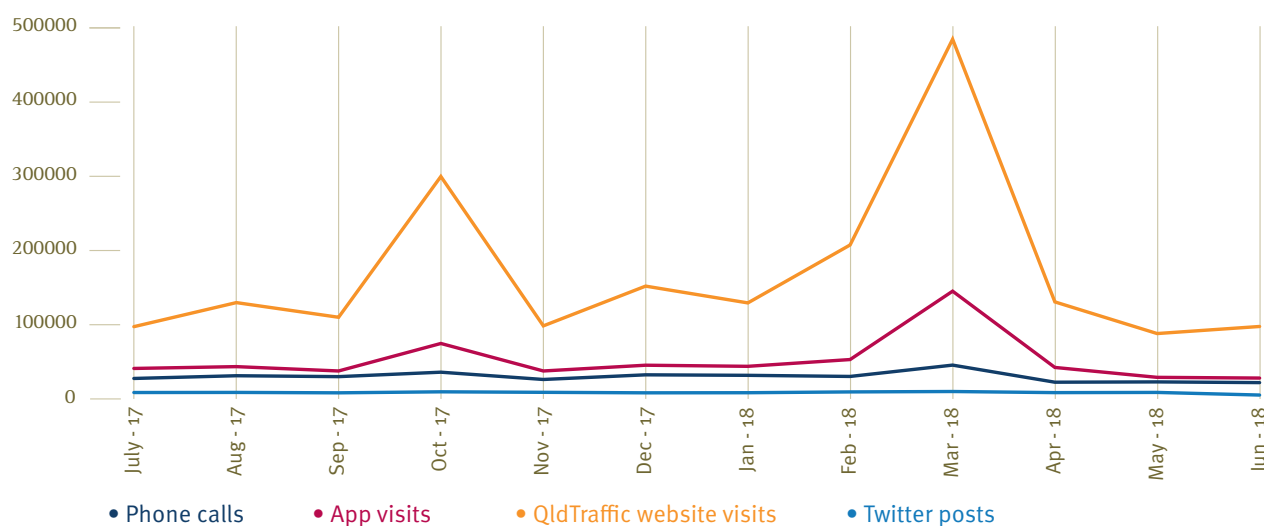
The QLDTraffic usage graph below displays the number of phone calls, website and mobile application visits and Twitter posts we experienced over 2017–18. It shows the increased usage by users seeking traffic and travel information during a large flooding event in October 2017 experienced around Bundaberg and in March 2018 as a result of Ex-Tropical Cyclone Nora. The periods either side of March 2018 are also higher than usual due to a consistent amount of rain that occurred in the north of the state during that time.



The QLDTraffic app is a handy tool that allows road users to better prepare for trips by checking what is happening along their planned routes.

Find out more and download the QLDTraffic app at: qldtraffic.qld.gov.au

Figure 6: demonstrates how calls, app usage and website traffic peaked during critical events.



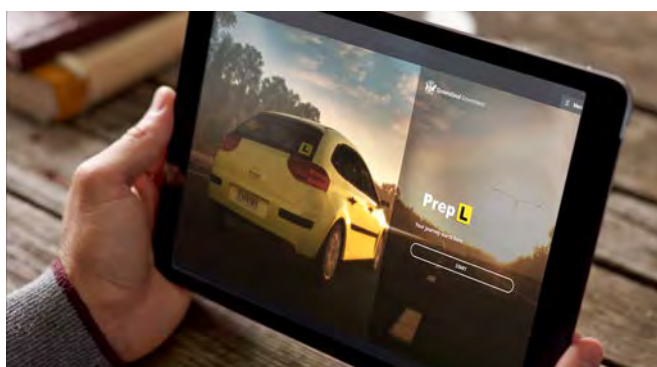
TMR PrepL learner drivers

TMR has successfully piloted an online learning and assessment program developed to revolutionise driver education in Queensland, making it more accessible to learners and replacing the outdated written road rules learner driver test. This new program aims to improve young driver safety, as motorists aged 16-24 years are one of Queensland's most at-risk road user groups.

PrepL will replace the current 30-question, written road rules test and ensure learners not only know the road rules, but also understand why they exist. They will also learn about the significant impacts of the 'Fatal Five'—speeding, drink and drug driving, failure to wear a seatbelt, driving while fatigued, and distraction. In this way, the new program achieves more than testing knowledge of road rules, it also focusses on learner driver behaviours, including safe driving attitudes and sharing the road with others.

The new learning and assessment approach represents a shift to a learning experience where discussion with family members about road safety concepts is encouraged. The ground-breaking program can be used across multiple devices (smartphones, tablets and computers), allowing customers to complete their learning and assessment anywhere and anytime, at their own pace.

The pilot of this world-first program commenced in September 2017, with over 180 high school students selected across Queensland to participate. Subject to the completion of user testing, TMR is aiming to make PrepL available to all Queenslanders in the near future. After a period of transition, PrepL will replace the written road rules test as a mandatory pre-requisite to obtain a C class learner licence.



PrepL can be used on different devices.

For more information visit: qld.gov.au/transport/licensing/driver-licensing/applying/learner/prepl

Social media

In 2017–18 TMR increased use of social media to connect with our customers. We provided information, engaged in meaningful conversations, answered questions and responded to concerns in a timely manner via a platform preferred by many of our customers. In the current digital environment customers are coming to expect a high level of direct engagement (see glossary page 254). By delivering excellent customer communication in this channel, we also meet our commitment to the Queensland Government's DIGITAL1ST (see glossary page 254) approach.

The success of this approach is reflected in results and analytics. Interaction with customers on TMR social media platforms markedly increased over 2017–18. For example Facebook is TMR's primary social media platform and during the year, TMR's Facebook page followers (or 'likes') increased by 37.64 per cent and achieved nearly 50 million impressions (see glossary page 254). Facebook engagement (see glossary page 254) rating also increased by 8.95 per cent. TMR customers are increasingly using social media to approach the department with information requests. During the year TMR provided 5337 responses to customer enquiries via Facebook direct message.

A social media performance highlight was a post of CCTV footage in June 2018 that captured a global audience, including 14.4 million impressions directly via TMR's Facebook page and also generated 6500 new followers.

TMR's contact centre monitors Facebook from 8am to 9pm AEST (excluding weekends and Brisbane public holidays) and achieved an average response rate of approximately 98 per cent in under four hours.

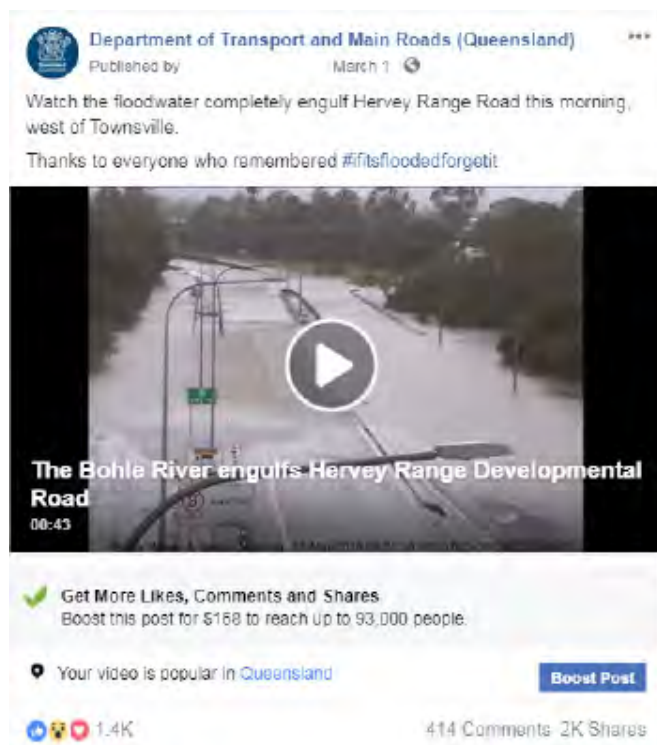
We have continued to use our LinkedIn page to enhance our corporate reputation, promoting TMR as an employer of choice for talented professionals, and publicising our achievements, campaigns and initiatives. We continue to receive positive feedback through likes, shares and comments.

TMR also started an Instagram presence in early June 2018 aiming to engage a younger demographic than our other social media channels. This social media platform showcases positive imagery of our road and boating network in use. Follower numbers are in the very early stages of growth on this new channel. However, early indications are that content has been positively received.

CASE STUDY

March 2018 floods safety message

Social media is an increasingly important communication channel during severe weather events and network-interrupting incidents, for which TMR has become established as a trusted information source. During the severe weather event in far north Queensland in early March 2018 we used the unique capabilities of social media. Rainfall in excess of 350mm caused flash-flooding around Townsville to highlight the life-threatening danger of water over roads, TMR posted a video of water completely engulfing the Hervey Range Road, west of Townsville, while a severe weather warning was in place. The detail and timeliness of this compelling footage helped strongly reinforce the Queensland Government's campaign message 'If it's flooded, forget it'. The post performed strongly on Facebook achieving 446,538 impressions and 16 per cent engagement.

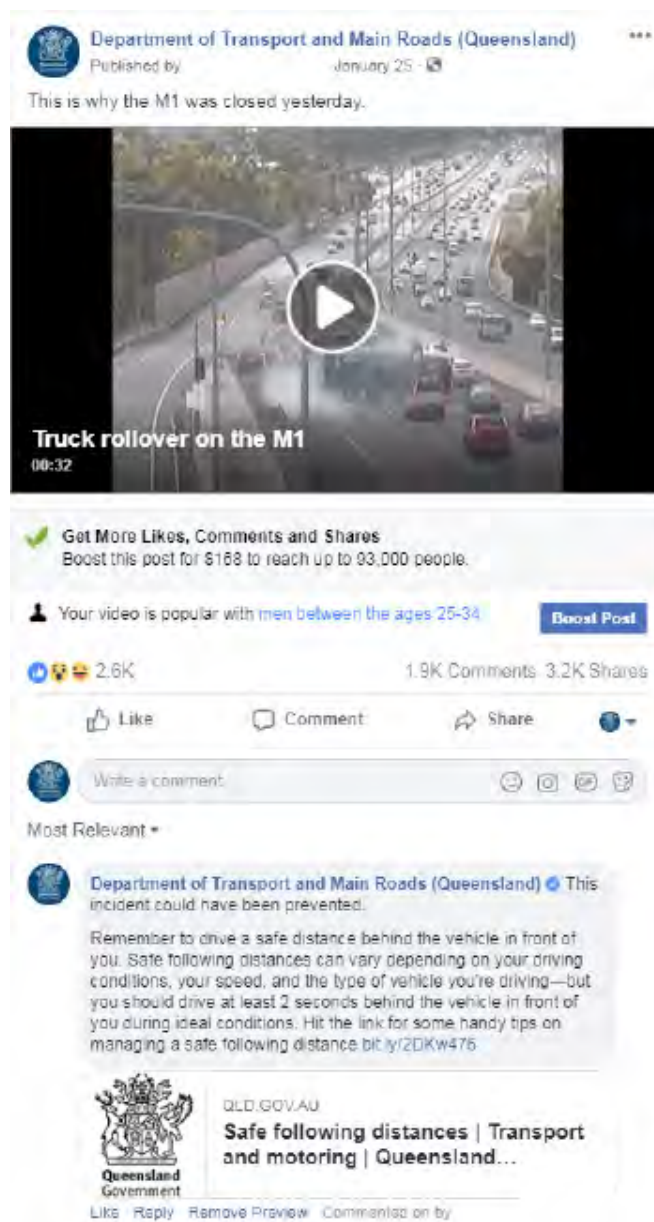


Bohle River Time-Lapse footage on TMR Facebook.

CASE STUDY

High performing network interruption information

An example of a network interruption incident was CCTV footage titled "This was why the M1 was closed yesterday" of a truck rollover on the M1. This achieved 2,239,472 impressions and an extraordinary engagement rate of 21 per cent. By posting this directly after the interruption, we gave our customers important and timely information, in a visual and engaging way, about why their commute may have been affected.



Truck rollover on the M1 footage on TMR Facebook.

Vintage motorbike registration fees

Following strong community representation, the State Government has significantly reduced the cost of registering vintage motorcycles. The cost reduction will save customers \$64.05 per year and reduce the registration fee to approximately one third of the previous fee.

Over 70 per cent discount on registration fees for historic motorcycles.

Previously, vintage motorcycle owners paid more registration than vintage passenger vehicle owners. Putting our customers first and to encourage vintage vehicle owners to access the network, the State Government sought an equitable outcome with expected savings to vintage motorcycle owners of approximately \$274,000 over the next three years. The reduced fee will apply to registrations with a due date on or after 1 July 2018.

For more information visit: qld.gov.au/transport/registration/fees/concession/special-interest

Department of Veterans' Affairs white card holders

In February 2018, a 50 per cent transport concession was made available to Department of Veterans' Affairs (DVA) white card holders when travelling on the public transport network. This is a significant extension to the concession framework, with all DVA card holders now receiving either 50 per cent transport concession or free travel.

This initiative is in recognition of the service and sacrifice of over 19,000 Queensland veterans, who hold a white card for the treatment of a condition or injury resulting from non-operational or operational service. This includes injuries and conditions as a result of World War II, the Korean, Malaysian, Vietnam and Gulf wars, as well as more recent conflicts in Afghanistan and Iraq.

The introduction of the concession for DVA white card holders is an outcome of a commitment made by the Queensland Government to further acknowledge the service of our veterans, to make it more accessible to use our network to access the surrounding community and services.

Charities meet safety standards

In January 2018, TMR released the Transport Enabling Charities (TEC) Policy. The policy is supported by the TEC Program Fund which provides \$1 million towards assisting charities.

The policy enables TMR to help eligible charitable organisations fulfil development approval conditions that require works to state transport infrastructure. TMR does this by funding 50 per cent of the total costs and undertaking the works for the charity. Two charities were assisted this year, Sunshine Butterflies, which supports individuals and their families living with disability and Farm Animal Rescue, which saves farm animals from cruelty.

Implementation of the policy is an example of working as One TMR, with teams across the business developing the policy, program and processes while other teams oversee the technical assessment and efficient delivery of the works.

For more information visit: tmr.qld.gov.au/Community-and-environment/Planning-and-development/Planning-and-development-assessment-under-the-Planning-Act/Transport-Enabling-Charities-Policy



Toowong CSC

Truckie Toolbox Talks

As part of our commitment to enable a safer road network, TMR delivers Truckie Toolbox Talks across the State to help educate truck drivers and operators on a range of heavy vehicle matters and operational topics.

In November 2017, TMR, in partnership with the National Heavy Vehicle Regulator (NHVR) and Energex, delivered a Toolbox Talk at the Port of Brisbane weigh station—one of the busiest roads in Queensland for heavy vehicle use.

While similar events had previously taken place in other areas across the State, it was the first Toolbox Talk to be held at this location and proved to be a great success. Over 100 drivers stopped in to chat with inspectors about a range of issues including permits, chain of responsibility and fatigue management.

In the past year, compliance teams across Queensland have held a number of education-only Truckie Toolbox Talks in their regions, including one at the Roma Saleyards ([see page 77](#)) specifically designed to assist stock transport operators, sales agents and attendees. Additional Toolbox Talks have taken place in Inglewood, Chevallum and Gatton, which have continued to offer the heavy vehicle industry a unique opportunity to discuss heavy vehicle matters and issues.



One of our transport inspectors speaking with a truck driver at the Chevallum Truckie Toolbox Talk.



Transport inspectors meeting with heavy vehicle industry at the Port of Brisbane Truckie Toolbox Talk in November 2017.

Tow truck reforms

In 2017, in response to public concern about the towing of vehicles from private property parking areas, the Queensland Government commissioned an independent investigation into the tow truck and vehicle removal industry. A report was released in August 2017, following the review, which made 22 recommendations and suggested matters for further consideration to reform the industry, all of which were accepted by the government.

As a result of the recommendations, amendments were made to the *Tow Truck Act 1973* and *Tow Truck Regulation 2009*. From 16 April 2018 all private property towing in regulated areas of Queensland must now be performed by accredited drivers and assistants using licensed tow trucks. Drivers and assistants must be employed by licensed tow truck operators.

TMR collaborated across several teams with a customer focus on ensuring the community, industry and government were adequately informed and prepared for the reforms.

For more information visit: tmr.qld.gov.au/business-industry/Accreditations/Tow-truck-licensing-scheme

DELIVERING WITH OUR PARTNERS

Throughout the year, TMR continued working with our stakeholders to ensure critical transport links are always available, and to reduce the impact of network disruption. This section covers how TMR works with our partners, industry and advisory bodies to develop innovative solutions, inspiring new ways of doing things.

Franchised roads

The state may enter into road franchise agreements under the provisions of the *Transport Infrastructure Act 1994* to assist and encourage private sector investment in the construction, maintenance and operation of road transport infrastructure.

The state has entered into road franchise agreements for the Gateway and Logan motorways, and AirportLink toll roads operated and maintained by Transurban Queensland, Port Drive operated and maintained by the Port of Brisbane, and Toowoomba Second Range Crossing currently under construction and to be operated and maintained by Nexus Infrastructure.

During 2017–18, the department worked with Transurban Queensland to implement a number of customer service initiatives that resulted in better customer service outcomes and a reduction of fees passed on to toll road users.

The Port of Brisbane is undertaking a \$110 million upgrade to Port Drive and the local road network, including duplication of Port Drive comprising a concrete separation barrier, the construction of a four-lane overpass, intersection upgrades and a shared pedestrian/cycle path from Pritchard Street to Port Gate. Port of Brisbane has been working with the department to achieve a seamless connection to the state network and in delivering innovative and record setting solutions for bridge design, pavement design (see page 107), and environmental management.

QTRIP industry briefings

Each year, TMR hosts two Queensland Roads Investment Program (QTRIP) industry briefings—the first held in Brisbane and the second held in a regional centre. They are an opportunity for industry partners to engage with TMR representatives and hear directly from TMR regional directors about the upcoming programs and projects within their region, methods of procurement, likely contract estimates and the timing of the work to be released to the market. These events offer a unique opportunity to present TMR's statewide program directly to stakeholders, as well as combining formal presentations with face-to-face interactions between TMR staff, industry bodies and local businesses. This engagement strengthens the ongoing partnerships that have been shaped during these previous events.

In 2017, the Director-General hosted the briefings in Brisbane and Townsville, which attracted over 600 contractors, sub-contractors, suppliers and industry representatives. Survey results from industry partners showed a positive response to the event, with 94 per cent of participants supporting the statement, 'I found the information at the event useful', and 84 per cent 'Agreeing' or 'Strongly Agreeing' they would be likely to attend future events.

Direct feedback about the 2017 QTRIP industry briefings included that TMR is leading the way on making forward work more visible to its industry partners.

Heavy Vehicle National Law stewardship

Throughout the year we have worked with the National Transport Commission and the National Heavy Vehicle Regulator to progress nationally agreed reforms through legislation amendments. As host of the Heavy Vehicle National Law, national legislation must first be passed by the Queensland Parliament before it can be applied by participating jurisdictions.

In June 2018, the Queensland Parliament passed the *Heavy Vehicle National Law Amendment Bill and Other Legislation Amendment Act 2018*. The Act contained the sixth Heavy Vehicle National Law amendment package including the second phase of the chain of responsibility reforms, which extend the positive due diligence requirements to include the non-chain of responsibility offences for which executive

officers are currently liable. Other key elements of this package included revisions to the heavy vehicle national registration provisions, twin-steer axle ([see glossary page 256](#)) mass limit increases and heavy vehicle standards amendments.

In May 2018, the seventh Heavy Vehicle National Law amendment package was introduced into the Queensland Parliament as the *Heavy Vehicle National Law Amendment Bill 2018*. The proposed amendments will legislate policy to strengthen investigative and enforcement powers for authorised officers (the third phase of chain of responsibility amendments), allow improved heavy vehicle access where mass of freight vehicles is not a constraint and transfer existing obligations for load restraint to the Heavy Vehicle National Law from the National Transport Commission's Load Restraint Guide.

These amendment packages will provide industry with significant productivity improvements and a reduction in regulatory burden, particularly with the implementation of the long-awaited chain of responsibility reforms anticipated to commence on 1 October 2018.

National notices

TMR has been working with the National Heavy Vehicle Regulator on the development of several significant National Notices with a view to nationally harmonise heavy vehicle regulation, increase safety and efficiency, and minimise the administrative burden on the heavy vehicle industry.

Key national notices have been developed and are pending approval processes include:

- National Class 2 B-double Notice
- National Class 2 Road Train Notice
- National Class 1 Agricultural Vehicle and Combination Notice
- Replacement of Form 14 Guideline for Excess Dimension Agricultural Vehicles and Agricultural Combinations
- Replacement of Form 10 Guideline for Higher Mass Limits for Vehicles with Road Friendly Suspension in Queensland.

Working with Queensland's agricultural industry

The department has been working closely with Queensland's agricultural sector to enhance the safe and efficient on-road movement of oversize agricultural machinery. As well as developing national and state based notices to assist with safe vehicle movement and remove the need for permits for road movement, a significant part of this work has been close

engagement with Queensland's agricultural sector to clearly understand the sector's needs and challenges. Additionally, officers from TMR have been actively engaged in industry information sessions throughout regional Queensland regarding transport-related matters pertinent to the agricultural sector.

These sessions have provided both an opportunity for officers from the department to inform industry of their responsibilities to ensure the safety of all road users while moving agricultural machinery on Queensland's road network and also directly take on-board industry's feedback.



B-double on the Gore Highway near Pittsworth.

Queensland Ministerial Freight Council

The Queensland Ministerial Freight Council (QMFC) is a stakeholder ([see glossary page 256](#)) forum held several times per year to facilitate strategic freight system communication and consultation between industry peak bodies and the Queensland Government.

Representatives from 19 freight peak industry bodies attend the forum, with TMR represented by our Director-General and senior executive officers.

Key achievements and focus areas of the QMFC in 2017–18 include ongoing collaborative work between TMR, industry and the National Heavy Vehicle Regulator on addressing industry customer experience and implementing road freight productivity initiatives.

Emergency vehicle priority

Emergency Vehicle Priority (EVP) is a technology that enables emergency vehicles, including ambulances and fire trucks, to automatically trigger traffic light sequences to change along the most direct route when responding to an emergency call.

This means a green traffic light signal is given to emergency vehicles, when safe to do so, in the direction of that emergency response call. This reduces the risk involved with navigating busy intersections, and allows emergency vehicles to respond quicker to emergencies, by clearing the path ahead.

Over the past few years, TMR has been working with the Public Safety Business Agency to install this technology throughout Queensland. While works had already been completed in Brisbane, Gold Coast, Bundaberg, Townsville, Sunshine Coast, Toowoomba, Mackay and Cairns, in 2018 the EVP technology was extended to Hervey Bay, Maryborough, Rockhampton and Gladstone. See pages 46 to 88 for locations of EVP enabled intersections across our regions.

This initiative demonstrates TMR's commitment to road safety, as well as our dedication to working with our stakeholders to save lives.



Ambulances and fire trucks are fitted with technology to trigger the traffic light sequences.

For more information visit: tmr.qld.gov.au/Safety/Road-safety/

DEVELOPING INNOVATIVE SOLUTIONS

TMR continues to be at the forefront of delivering innovative transport technologies and solutions to meet current and future transport network issues. This section outlines how TMR has adapted new technologies through our partnerships and research to improve the quality and longevity of the state's transport network.

Transport Academic Partnership

The Transport Academic Partnership (TAP) 2015–2020 is a \$3.3 million agreement between TMR, the Motor Accident Insurance Commission, Queensland University of Technology, Griffith University and the University of Queensland.

TAP provides TMR with a passport to world's best practice in transport research and development



Transport Academic Partnership connects government, academia and industry.

The agreement establishes the collaborative, cooperative relationship and arrangements between the partners to undertake strategic transport research and development. The agreement aims to build mutual transport capability within the university sector, agencies and industry to address future transport challenges and create a single integrated transport network accessible to everyone.

For more information visit: tmr.qld.gov.au/Community-and-environment/Research-and-education

CASE STUDY

Collaboration to predict cycling participation rates

This project will help plan and prioritise the delivery of user-appropriate cycling infrastructure in Queensland by estimating the latent demand for commute cycling. The project was delivered through the TAP, by the University of Queensland in collaboration with TMR.

The project considered a number of variable influences on cycling participation including socio-demographic factors such as age, gender and access to vehicles, as well as built-environment factors such as street connectivity and accessibility to employment, education, and retail destinations by different transport modes. Travel areas in Queensland were ranked in order of highest predicted cycling participation, specifically identifying the top 20 travel zones with highest potential for increased commute cycling.

This data will help guide decision-making around prioritisation and delivery of the Principal Cycle Network ([see page 30](#)), ensuring maximum benefit from infrastructure funding and ultimately encouraging more Queenslanders to cycle more often.

National Asset Centre of Excellence

Now in its fifth year, the National Asset Centre of Excellence (NACoE) was established by TMR and the Australian Road and Research Board to strengthen specialist capability and capacity, and achieve cost savings in road infrastructure ([see glossary page 255](#)) expenditure through targeted research.

As TMR's benchmark research and development program, NACoE has a strong focus on pavements, asset management and structures research. It targets international best practice, providing guidance to allow the use of innovative materials and translating new knowledge into best practice for the department.

TMR's \$4.8 million investment in the 2018 NACoE program has enabled a number of multi-year projects to proceed. As NACoE matures and early research objectives are completed, more emphasis is being placed on collaborative research with other external partners and universities, knowledge sharing and industry engagement to encourage broader implementation of research findings and greater savings.

Some of the highlights from NACoE research include:

- increased use of recycled tyre rubber in road surfacing through updates to technical specifications
- commencement of large pavement works that use an economical alternative to conventional asphalt (high modulus asphalt, or EME2), through the development of a new technical specification
- release of a draft specification for the use of precast geopolymer (see glossary page 254) elements as an alternative to cement concrete, with a goal of facilitating innovation in the construction industry to improve durability and reduce carbon footprints.

A higher-performing asphalt alternative

TMR's pavement design methodology (see glossary page 255) and pilot specification led the way for introducing EME2 (see glossary page 254) to Australia. Since being published as a new technical specification in October 2017, significant pavement works have commenced using EME2. Compared to conventional asphalt, EME2 allows the asphalt base thickness to be reduced by about 20 per cent on road environments that require thick asphalt, such as motorways and heavily-trafficked roads. In addition to delivering cost savings, EME2 also offers superior performance, sustainability and productivity in construction time.

TMR's *Pavement Design Supplement* was updated in July 2018 to include EME2 design guidance and enhance the progression of EME2 as a routine option for thick asphalt pavement.

CASE STUDY

Paving the way

The new pavement design has been used on the Port Drive Upgrade project for Port of Brisbane. The project included the placement of approximately 53,000 tonnes of EME2 in 2017–18. Additionally, about 6000 tonnes was placed on a pavement rehabilitation (inlay) project on Steve Irwin Way on the Sunshine Coast.

The experience gained on these projects has proved EME2 can be successfully delivered in Australia, with increased technical guidance facilitating broader use of EME2 and realisation of benefits in the future.

For more information visit: tmr.qld.gov.au/business-industry/Technical-standards-publications/Pavement-design-supplement

Quickcell Super I-girder technology

TMR has worked with industry to realise potential savings on an innovative new bridge girder that is significantly longer than those currently in use.

Following a successful trial on Brisbane's Port Drive upgrade project in 2017, the Quickcell Super I-girder has been included in two departmental technical documents—*Design Criteria for Bridges and Other Structures*, and *Product Index for Bridges and Other Structures*—opening the way for wider use on projects of the new product.

The Port Drive trial was the culmination of a three-year collaboration between product owners Quickcell Technology Products, ARUP and TMR to produce a girder longer than the current Super-T girders. This additional length makes the new girder an attractive option for bridges over rivers and rail corridors to minimise the number of piers used.

For more information visit: tmr.qld.gov.au/business-industry



A Quickcell Super I-girder being placed on Lucinda Drive Bridge, Port Drive Upgrade Project in September 2017.

CREATING A SAFE AND RESILIENT NETWORK

Monitoring transport safety data allows TMR to improve the quality of our transport infrastructure and services, working towards the elimination of fatalities and serious injuries on our network. The safety and resilience of our transport network is a key priority to ensure we are offering an accessible network for all. We strive for these outcomes through initiatives such as those in this section.

Transport safety data

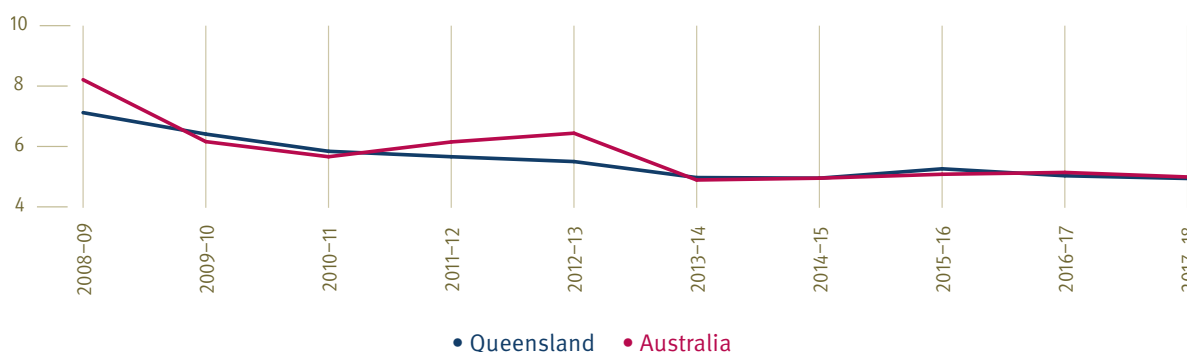
TMR is committed to eliminating fatalities and serious injuries through community safety initiatives. Figures 7 to 10 show trend safety data over the previous ten years.

Roads

In 2017–18, there were 247 fatalities as a result of crashes in Queensland, four (1.6 per cent) fewer than the previous year and four (1.7 per cent) fewer fatalities than the previous five-year average. The 2017–18 road fatality rate for Queensland was 4.97 per 100,000 population*, which is 3.2 per cent lower than the rate for the previous year (5.14). The road toll places Queensland fourth behind the Australian Capital Territory (1.68), Victoria (3.77) and New South Wales (4.95).

During 2017, there were 6481 hospitalised casualties as a result of road crashes in Queensland. This is 172 (2.7 per cent) greater than the previous year (6309) and 38 (0.6 per cent) fewer than the previous five-year average.

Figure 7: Road fatalities per 100,000 population



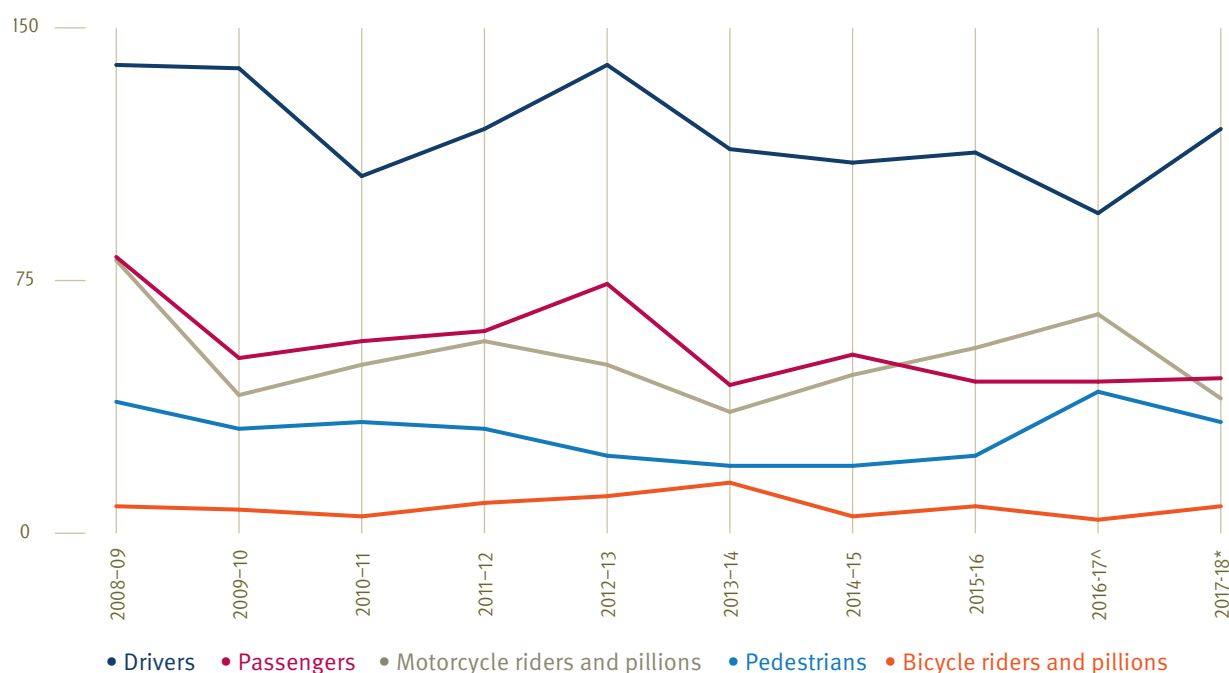
Data source: Transport and Main Roads' RoadCrash database and relevant interstate authorities. *Population figures are from the Australian Bureau of Statistics—Catalogue 3101.0.

Note:

Each month Transport and Main Roads requests updates on interstate road crash data from the relevant interstate authorities for the current year-to-date road toll and confirmation of the road toll for the previous year by month.

During July 2017, the Australian Bureau of Statistics released revised population estimates figures for 2011 to 2017 and therefore the figures may differ from previous publications. 2017–18 figures are preliminary at time of printing.

Figure 8: Road fatalities by road user type (in Queensland)



Data source: Transport and Main Roads' RoadCrash database

Note:

This graph excludes 'other' fatalities such as horse riders, train drivers and train passengers. In 2017-18, there was one fatality recorded in this category.

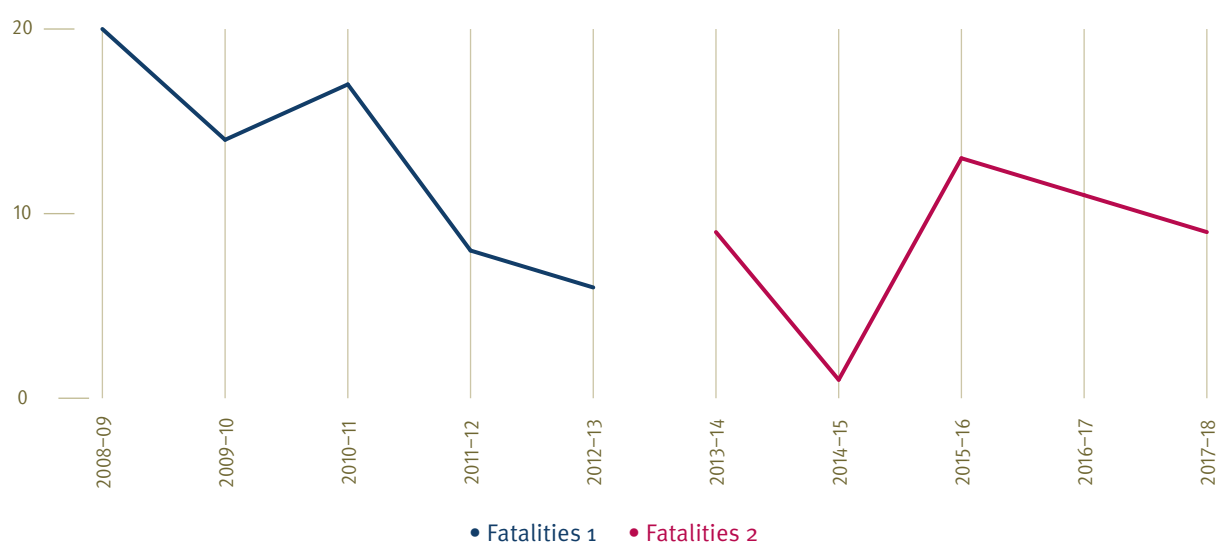
*2017-18 figures were preliminary at time of printing.

[^] The 2016-17 road toll has been reduced by two since the 2016-17 annual report was printed.

Marine

In 2017-18, reported marine incidents in Queensland included nine fatalities (see Figure 9). This equated to 3.45 fatalities per 100,000 registered recreational vessels and is not significantly higher than the ten-year average of 3.4 fatalities per 100,000 registered recreational vessels. There were also 29 injuries resulting in hospital admissions (see Figure 10). This equated to 11.12 hospital admissions per 10,000 registered recreational vessels and is not significantly higher than the 10-year average of 10.9 hospital admissions per 100,000 registered vessels.

Figure 9: Marine fatalities (in Queensland)



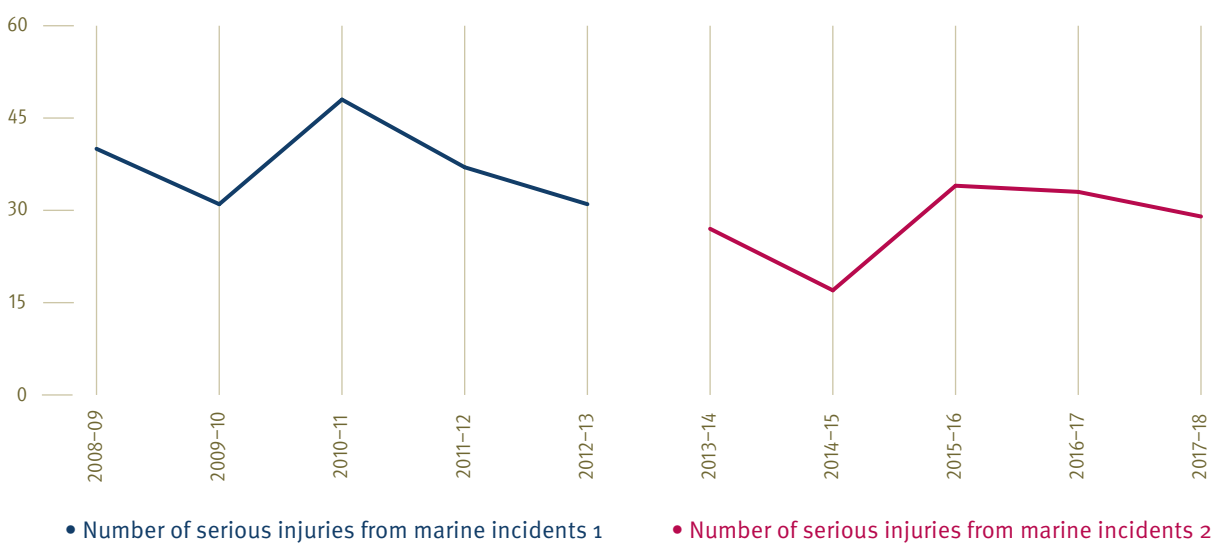
Note:

Marine incident data is subject to review and amendment as additional or more detailed information becomes available. This may result in variations to historical data that have previously been published.

In July 2013, the Australian Maritime Safety Authority (AMSA) began implementing a new national law which results in all the domestic commercial vessels operating within the Commonwealth of Australia coming under the superintendence of a single national jurisdiction. This results in a structural break in the time series at 30 June 2013. The time series from 1 July 2005 to 30 June 2013 includes all marine fatalities which occurred in Queensland waters. From 1 July 2013 to 30 June 2018 the series includes fatalities that occurred as a result of marine incidents that involved at least one Queensland regulated ship.

Fatalities 1—All incidents occurring in Queensland waters up to 30 June 2013.
Fatalities 2—Incidents involving at least one Queensland regulated ship 1 July 2013 to 30 June 2018.

Figure 10: Serious injuries from marine incidents (in Queensland)



Data source: Caseman Marine Incident Database

Note:

Marine incident data is subject to review and amendment as additional or more detailed information becomes available. This may result in variations to historical data that have previously been published.

In July 2013, the Australian Maritime Safety Authority (AMSA) began implementing a new national law which results in all the domestic commercial vessels operating within the Commonwealth of Australia coming under the superintendence of a single national jurisdiction. This results in a structural break in the time series at 30 June 2013. The time series from 1 July 2005 to 30 June 2013 includes all reported hospital admissions which occurred in Queensland waters. From 1 July 2013 to 30 June 2018 the series includes reported hospital admissions that occurred as a result of marine incidents that involved at least one Queensland regulated ship.

Number of serious injuries from marine incidents 1—All incidents occurring in Queensland waters up to 30 June 2013.

Number of serious injuries from marine incidents 2—Incidents involving at least one Queensland regulated ship in 1 July 2013 to 30 June 2018.

Our commitment to safer road users

The *Queensland Road Safety Strategy 2015–2021* describes a vision of zero fatalities and serious injuries in road crashes. The new *Queensland Road Safety Action Plan 2017–19* carries forward that vision, taking on the previous year's action plan with 29 initiatives to be implemented over a two-year period. Priorities are to:

- deliver safer roads for Queenslanders
- get people into safer vehicles
- encourage safer road use
- plan our future and strengthen our partnerships.

The Safer Roads, Safer Queensland Forum continues to be a key consultation initiative, with the fifth forum held in February 2018. This forum's topic was vulnerable road users (pedestrians, cyclists and motorcyclists) and driver distraction, which is an emerging concern as mobile technologies are more widely used. Forum outcomes will be incorporated into relevant action plan initiatives during 2018–19.

TMR has also developed PrePL ([see page 99](#)), which will educate young drivers on road rules, with embedded safety messages. This year we also held targeted road safety sessions with the local communities on infant car seats ([see page 53](#)) and sessions for learner licensing that accommodated specific learning needs ([see page 94](#)).

For more information visit: tmr.qld.gov.au/Safety/Road-safety

Community road safety education program

The 2017–18 campaigns to raise awareness and encourage behaviour change included:

- 'Plan B' drink driving campaign (Christmas–New Year 2017, Australia, ANZAC and Labour days 2018)
- 'Let's change the way we look at speed' campaign (September school holidays 2017, October long weekend 2017, Easter 2018)
- 'Chin up' driver distractions campaign (July to August 2017)
- 'Sixth Sense' motorcycle safety campaign (May to June 2018)
- 'Drink walking' pedestrian safety campaign (November to December 2017 and January 2018)
- Launched 'SafeCars' app ([see glossary page 253](#)).

The 2017–18 events and sponsorships included:

- partnership with Queensland Cricket including 'Plan B' promotion at Big Bash games
- sponsored Fatality Free Friday (25 May 2018)
- supported National Road Safety Week 'Yellow Ribbon' (30 April to 6 May 2018)
- held Queensland Road Safety Week (20–26 August 2017)
- held the third Co-Lab event with young Queenslanders (October 2017).

For more information visit: jointhedriveride.qld.gov.au



Brisbane Heat cricketers Mr Ben Cutting and Mr Joe Burns with General Manager (Land Transport Safety), Mr Dennis Walsh and Deputy Director-General (Customer Services, Safety and Regulation), Mr Mike Stapleton, renewing TMR's partnership with Queensland Cricket.

School crossing supervisors

The School Crossing Supervisor Scheme (SCSS) enhances the safety for primary school students, by placing supervisors in school traffic areas to assist students when crossing the road.

The scheme currently costs \$10.9 million each financial year. The Queensland Government is committed to school safety and approved a significant boost to the scheme in 2015, with 25 new school crossing supervisor positions commissioned each year from the 2015–16 financial year, for three financial years.

As at the end of June 2018, there were 684 schools in the SCSS.

TMR funded 1239 school crossings and 196 school crossing supervisors.

Our commitment to safer vehicles

Working to ensure safe vehicles on Queensland roads, transport inspectors play an important role undertaking roadside compliance checks on all vehicles. These checks will now be more efficient thanks to a new mobile Queensland Compliance Information System (QCIS).

TMR worked with Telstra and its development partner Gridstone to deliver the application, which uses the same platform as the QPS QLITE system.

Through the QCIS application, transport inspectors across Queensland now have real time access to registration and licensing information, and relevant compliance databases. Using QCIS, transport inspectors can record intercept details, capture photos and issue forms, such as infringement notices.

TMR is also a member of the Australasian New Car Assessment Program (ANCAP). Newer vehicles are better designed to protect occupants if involved in a crash, and can also have technologies that help to avoid or reduce the impact of a crash. However, the same technologies are not available in all vehicles.

Encouragingly, the most recent ANCAP annual report shows that members of the public are increasingly engaging with ANCAP prior to purchasing a vehicle, while industry is promoting safety ratings in marketing their own models.

The SafeCars app has been designed to help consumers, particularly those buying their first car, to find the safest vehicle they can afford (at any price point). This will encourage more consumers to consider safety as an important factor when making a purchase.

The app is the first of its kind in Australia to be based on price as the primary search criteria (sourced through contracted partner, Red Book, which provides the most authoritative market value available based on research), linking to existing ANCAP and Used Car Safety Rating data.

For more information visit: jointhrive.qld.gov.au/parents/safecars



Transport inspector using the new QCIS in the field.



The mobile QCIS.

Our commitment to safer speeds

The Queensland Speed Conversation sets out TMR's plan for engaging with the public and delivering projects to improve speed and road safety in Queensland, in line with the

Queensland Road Safety Strategy 2015–2021. It sets a vision and justification for pursuing public education about the major role that speed plays in every road crash.

TMR is engaging with government and peak body stakeholders, as well as listening to public feedback, to deliver education and messaging to help Queenslanders understand how their speed choices make a difference in keeping the community safe.

Key work to date includes:

- partnering with RACQ to deliver the Safe DriVR speed safety virtual reality app to young drivers through the Docudrama program
- collaborating with TMR's regional offices to develop speed and road safety communication resources tailored to local issues
- improved delivery of road safety information through existing customer communications by trialling the inclusion of speed and road safety messages on existing notices to customers that contain licensing information.

For more information visit: tmr.qld.gov.au/strategyactionplans

Reducing speed limits

TMR recognises the science and research that demonstrates vehicles travelling at higher speeds are linked to the likelihood and severity of all road crashes. Road users, such as pedestrians and cyclists, are particularly vulnerable in the event of a crash and as a result, accounted for over 17 per cent of the road toll in 2017.

To improve user safety, TMR commenced a project in March 2018 to support the reduction of speed limits in areas of high pedestrian and cyclist activity. Sites for speed limit reductions are prioritised based on crash history and where existing vehicle travelling speeds support a credible, lower speed limit. Partnering with local decision makers across the State, TMR will support community education to explain why reduced speed limits make local communities a safer, more inviting place to walk and ride.

Our commitment to safer roads

The *Targeted Road Safety Program* (TRSP) is dedicated to the delivery of high benefit safety interventions and route-based treatments, to support safer roads and roadsides to reduce fatalities and road trauma and increase the safety rating of Queensland's road network.

Funding is primarily sourced from the Queensland Government including the Camera Detected Offence Program revenue, for a number of sub-programs such as Safer Roads Sooner ([see glossary page 256](#)) and Flashing School Zone Signs and the Australian Government's Black Spot Program.

In 2017–18, TMR delivered approximately \$148 million on projects under the TRSP.

Safety at schools

TMR has continued to install flashing school zone signs at risk-assessed school zones. Flashing school zone signs are designed to attract the attention of motorists and prevent speeding around schools.

TMR has successfully installed flashing school zone signs in another 100 Queensland school zones this year. Since the program began in 2012, the department has installed flashing school zone signs at 844 Queensland school zones.

Due to its success, the Queensland Government extended the flashing school zone signs which will enable installation at a further 300 school zones from 2018–19 to 2020–21. Sites continue to be selected based on a number of criteria including a detailed risk analysis of school zones and nominations by schools and communities, based on local knowledge of particular problem areas, through their local members of parliament.

For more information visit: tmr.qld.gov.au/Safety/School-road-safety

Camera Detected Offence Program

The Camera Detected Offence Program (CDOP) ([see glossary page 253](#)) is a major component of improving road safety, by reducing vehicle travel speeds on Queensland roads. TMR and the QPS work cooperatively to manage the CDOP to ensure the best road safety outcomes for road users, vulnerable persons and the broader community.

The CDOP consists of mobile speed cameras, fixed speed cameras, red light cameras, combined red light and speed cameras, point-to-point speed camera systems, and trailer mounted speed cameras. During 2017–18, two new combined

red light and speed cameras, three new point-to-point speed camera systems, and 14 multipurpose sites were installed at the highest risk locations across the state.

The CDOP has proven to be highly successful in reducing crashes and crash related casualties. An evaluation of the program conducted by Monash University Accident Research Centre in 2017, estimated that the CDOP was associated with saving nearly 3900 police reported crashes each year between 2012 and 2015, along with savings to the community of approximately \$1.4 billion.

For more information (see appendix 3 page 246).

Sign spearing safety solution

TMR engineers collaborated with Transport for New South Wales to implement their low-cost end treatment to windscreen sign spearing in Queensland.

The sign spearing solution, which involves strengthened brackets and fasteners to prevent signs from sliding along poles, was designed to prevent death and injury resulting from road side signage, 'spearing' a windscreen in the event of a collision. The modifications can be applied to new sign designs as well as existing signs, minimising potential future deaths and injuries from windscreen spearing, as well as making the installation cost effective and easier to implement.

This research has been recognised with a number of road safety and innovation awards:

- Innovation Award at the Centre for Accident Research and Road Safety Queensland—Queensland University of Technology Queensland Road Safety Awards, 21–25 August 2017.
- Professional Excellence in Traffic Engineering/Management (2017 Australian Institute of Traffic Planning and Management Excellence Awards).
- Finalist in the 2017 3M-Australasian College of Road Safety 'Diamond Road Safety Awards'.

The project has been split into two phases, with this research phase costing approximately \$350,000. The second stage will involve implementation throughout 2018–19. These costs were covered by the CDOP.



Test undertaken without sign spearing technology.



Test undertaken with sign spearing technology.

Safe township entry

A Township Entry Treatment (TET) is a speed management treatment that involves installing signage and line markings at the entry point to a town, where the speed limit transitions from a high speed rural environment to a lower speed environment.

Through the Targeted Road Safety Program (see page 113), 18 townships across Queensland have already been approved to have a TET installed. TMR is now in the process of arranging installations, with most anticipated to be completed by December 2018. A further 13 townships have been identified as potentially eligible for a TET and are currently being investigated. Additional funding of \$2 million has been made available to extend the TET installation program, which will see many more Queensland townships benefit from a TET.



Township Entry Treatment installed at Marian on Eungella Road in Mackay.

A symbol for safety

TMR uses large yellow figures on construction projects to create a visual awareness of the people who are working on-site. This is because these workers cannot always be seen. These also remind on-site workers of potential risks or hazards, including telecommunication, gas or overhead services such as powerlines.

The figures are lightweight, reinforced plastic cut-outs of male and female characters, pointing either up or down to highlight potential risks or hazards. So that the figures are visible during night works, some are also equipped with a reflective skeleton.

The figures first appeared on the Gateway Upgrade North project (see page 82) in Nudgee, installed as markers to protect sensitive underground testing equipment. They were also placed on settlement plates used by workers, to monitor the amount of soil that can be loaded onto the ground.

Due to the success of the figures, they have been installed on several major projects around the state. They now provide site employees, as well as road users, with a constant safety warning to be mindful of the surroundings as work progresses.



A yellow figure in place on the Gateway Upgrade North project site.

Road crash incident data

Each year over 6000 people in Queensland¹ are hospitalised due to road trauma, and each hospitalised casualty costs the Queensland community \$500,000². Queensland Road Crash Data is under reported, as it relies on crash and casualties being reported to the QPS. Independent research found, when all hospital data collections are examined together, it is estimated two-thirds of the data did not link to any police-recorded incident in the Database³. This limitation is more likely to be for motorcyclists, cyclists, males, young people and for injuries occurring in remote and inner regional areas³.

In line with the previous *Queensland Road Safety Action Plan (2015–2017)* commitments to establish a better understanding of road crash characteristics, a serious injury expert panel was formed to guide a project to reduce serious injury road crashes in Queensland. The project recommendation resulting from the panel was to link data between TMR and Queensland Health, facilitating a richer, more accurate source of information about road crashes in Queensland.

Through inter-agency engagement, the current *Queensland Road Safety Action Plan 2017–19* calls for solutions to establish a better understanding of road crash characteristics across datasets, particularly in respect to improving the reporting of serious injury data for vulnerable road users.

The first stage of this project provided a better understanding of the gaps in the crash data, outlined data preparation requirements and made recommendations on data linkage opportunities. This stage was completed in 2017–18. The second stage, due for completion during 2018–19, seeks interagency agreement on the linkage recommendations and seeks to establish the most beneficial linkages proposed during stage one. The project findings will develop a clearer picture of the road safety problem for vulnerable road users with a focus on cyclists. This will enable a more holistic understanding of crash characteristics and casualty outcomes, which will facilitate tailored road safety initiatives and effective evaluations.

¹ Road crash data sourced from the Department of Transport and Main Roads' Road Crash database.

² 2015 National Guidelines for Transport System Management in Australia, Transport and Infrastructure Council. Inclusive WTP June 2013 \$ value. Released by ARRB May 2015 (see glossary page 253).

³ Watson, Angela, Watson, Barry C., & Vallmuur, Kirsten (2015) Estimating the under-reporting of road crash injuries to police using multiple linked data collections. *Accident Analysis and Prevention*, 83, pp. 18-25.

Event Traffic Marshal scheme

The Event Traffic Marshal (ETM) scheme was introduced in August 2017 as an alternative option for traffic control in low speed or low risk environments, such as sporting and community events.

TMR asked members of the community for feedback on the proposed scheme, via the Queensland Government's Get Involved website prior to rollout, to ensure it would meet their needs. As a result, the scheme was implemented, offering volunteers convenient access to training material and assessment online.

The ETM role empowers trained volunteers to safely perform basic traffic management activities at approved special events. Previously, these duties could only be performed by accredited traffic controllers, whose services come at a cost to the community and impact the viability of holding community events.

Since implementation, TMR has received positive feedback from local event organisers who believe the ETM role has given them the opportunity to run more events.

For more information visit: tmr.qld.gov.au/Community-and-environment/Planning-and-development/Other-matters-requiring-approval/Traffic-management-at-special-events/Event-Traffic-Marshals



The Event Traffic Marshal scheme hopes to encourage local event organisers to run more events.

Rail safety in Queensland

The national rail safety reforms were established to deliver a more consistent approach to policy and regulation across jurisdictions, and to remove inconsistencies in the rail regulatory regimes between states and territories. On 1 July 2017, Queensland became the last jurisdiction to join the national rail safety reforms, stipulated in the 2011 Intergovernmental Agreement on Rail Safety Regulation and Investigation Reform, signed by the Council of Australian Governments. On that date, Queensland handed over responsibility for rail safety regulation to the Office of the National Rail Safety Regulator and additionally, the no-blame investigation of railway incidents to the Australian Transport Safety Bureau. These rail safety incidents were previously investigated by TMR.

From July 2017, the *Rail Safety National Law (Queensland) Act 2017* has become the law of Queensland as enacted in state legislation. Following the transition, TMR maintains the *Rail Safety National Law (Queensland) Act 2017*, and provides rail safety-related policy advice to the Queensland Government and maintains regulatory oversight of Queensland legislation relating to the safe transport of dangerous goods by rail.

The *Rail Safety National Law (Queensland) Act 2017* makes ONRSR the rail safety regulator of Queensland. The ONRSR receives rail safety information and publishes on annual basis on its website, this information will no longer be reported by TMR.

For more information visit: onrsr.com.au

TMR continued to lead the inter-disciplinary Queensland Level Crossing Safety Group (QLCSG) that oversees the implementation and review of the *Queensland Level Crossing Safety Strategy 2012–2021*.

This year, the QLCSG held three formal meetings to further improve level crossing safety in Queensland, including participation in technology assessment and rail research. TMR also supported the Director-General in his roles as chair of the National Level Crossing Safety Committee and board member of the Australasian Centre for Rail Innovation.

For more information visit: tmr.qld.gov.au/Safety/Rail-safety

Improving maritime safety

TMR has a vision of safe, clean seas. One proven way of continuously improving the safety of our boating public and the environment is by developing education messages and using innovative ways of delivering them. In 2017–18 TMR created short videos, called Maritime Minutes, with messages to help the community understand legislation and empower them to be safe on the water. These videos were created to share on social media and are made available to our stakeholders.

For more information visit: msq.qld.gov.au/About-us/News-and-stories/Maritime-Minutes



Example image from Maritime Minutes navigational lights for powered vessels video

CASE STUDY

Do you know your Colregs?

One of the videos in the Maritime Minutes series titled *Do you know your Colregs?* explains the international rules for the prevention of collisions at sea. More than 260,000 people viewed this video on the TMR Facebook page, with many also sharing the post. The video was downloaded and used by recreational boat licence training organisations, marine rescue groups and many others interested in boating safety. This example displays how leveraging technology and our existing advocacy network can assist to share our key messages of safety with the Queensland community.

For more information visit: facebook.com/TMRQld/videos/1619838884725655/

Removing derelict vessels

In December 2017, TMR worked to remove three vessels left damaged and stranded from extreme weather conditions. The vessels from the Whitsunday Islands and Airlie Beach—*Whitsunday Magic* and *Tateyama Maru*—were removed and disposed of, as well as the removal of pollutants from another vessel, *MV Banks*.

The *Whitsunday Magic* was a 34-metre steel sailing ship that was driven ashore near Airlie Beach during Ex-Tropical Cyclone (Ex-TC) Oswald in January 2013. In spite of earlier attempts by the owner and local contractors to refloat the ship, it remained in place and deteriorated, becoming a danger to the public and the environment. The ship was removed by breaking it up and transporting its components by barge for recycling.

Contractors were also engaged to remove and dispose of the 39-metre motor ship, *Tateyama Maru*, that was driven aground on Gloucester Island, Whitsundays during Ex-TC Debbie in March 2017. TMR managed the removal of pollutants from the ship in May 2017 and, despite a serious fire in September 2017, the ship was successfully refloated and towed for recycling.

TMR also managed the removal of oil and other pollutants from the 31-metre motor ship, *MV Banks*, which was driven aground during Ex-TC Debbie and remains on rocks in Cid Harbour, Whitsunday Islands.

All vessels were removed without any significant safety or environmental incidents.



Tateyama Maru aground in Gloucester Island, Whitsundays.

Maritime Safety Intelligence Database

TMR is entering a new phase in marine safety and ship-sourced pollution regulation in Queensland coastal and inland waterways. On 1 July 2018, TMR's service delivery responsibilities under the *Marine Safety (Domestic Commercial Vessels) National Law Act 2012* for the Queensland domestic commercial vessel fleet, will be transitioning to the national regulator, the Australian Maritime Safety Authority.

To prepare for this transition, TMR has been refocusing compliance efforts on recreational ships and ship-sourced marine pollution, by developing the Maritime Safety Intelligence Database. The new web-based system is a central repository for all marine related intelligence information and provides case management functionality for officers undertaking marine investigations. The database allows marine officers to efficiently access marine safety and pollution information in the field or in the office, to assist users of Queensland's waterways and ensure they meet their safety and pollution obligations.



Marine officer installing new navigational light post to protect nesting sea birds.

Major upgrade to vessel tracking software

In October 2017, TMR awarded contracts to design and install the new Vessel Traffic Services–Decision Support Tool (VTS-DST) to Brisbane based Australian Maritime Systems Group and SAAB Technologies Limited of Canada (SAAB).

This major systems upgrade allows TMR to meet the modern demands of international shipping and environmental safeguards. At the core of the new VTS-DST will be the V3000 traffic management and information system built by SAAB and operated by 70 of the world's major ports.

The development of these state-of-the-art, real time ship tracking tools allows operators to identify, monitor and safely interact with ships transiting through the Great Barrier Reef and ports around the state.

For more information visit: [linkedin.com/feed/update/urn:li:activity:6363991202223788032](https://www.linkedin.com/feed/update/urn:li:activity:6363991202223788032)

Secure transport network

Queensland counter-terrorism strategy

TMR has a lead role in delivering the national priorities for transport security (counter-terrorism), established under the Council of Australian Governments' (COAG) *Intergovernmental Agreement on Surface Transport Security 2005*. These include working in partnership with the QPS and surface transport operators to help prepare for, prevent, respond to and recover from significant security incidents.

TMR operates under the guidance of the *National Surface Transport Security Strategy* and the *Queensland Counter-Terrorism Strategy 2013–18*.

TMR's dedicated transport security program includes: Administration of the *Transport Security (Counter-Terrorism) Act 2008*; regulation of Security-Identified Surface Transport Security Operations under this Act; services to support the ongoing development of counter-terrorism and security plans within high risk operations across the transport network; and leadership, assistance and partnership on counter-terrorism exercises. Additionally, the program incorporates security risk analysis, including support of TMR-owned transport infrastructure; national and state level counter-terrorism policy coordination and comprehensive support to planning and delivering operational security for the GC2018 (see page 20).

The transport security program also includes the provision of guidance and support to transport operators and critical infrastructure owners to enhance the resilience of Queensland's transport critical infrastructure.

Through leadership of the Queensland Transport Precinct Security program, Transport Security works to strengthen all-hazards emergency planning at the highest volume mixed-modal transport hubs and mass passenger surface transport operations. Transport Security also work in partnership with QPS to communicate key security messages to the travelling public.

In addition, TMR's transport security program includes dedicated staff to help manage the investigation and response to security incidents affecting TMR staff, customers, facilities and assets.

Preparedness program

The annual delivery of the Pre-season Preparedness Program was refocused for 2017 to align with the *Emergency Management Delivery Plan 2017–19* and to assist in building emergency management capacity within TMR networks.

The program delivered standardised TMR-focused sessions across 12 locations in September and November 2017, engaging a wide range of regionally-based staff including members of District Emergency Management Teams. The sessions focused on business continuity practices and the disaster management program, providing assurance of TMR's capability to plan and prepare for, respond to and recover from disruptive events.

An exercise scenario was also conducted, developed in response to outcomes identified in operational debriefs from Ex-Tropical Cyclone Debbie in March 2017. Some of the key learnings addressed, included the improvement of internal communication protocols and procedures, the methods of collecting information by District Emergency Management Team members, and the need to deliver further training to staff to increase and support liaison officer functions and manage fatigue.

Queensland disaster management arrangements

TMR delivers its *Queensland Disaster Management Act 2003* responsibilities through active participation in the Queensland Disaster Management Arrangements (QDMA), providing functional support in the area of transport systems and as the hazard-specific lead agency for any ship-sourced pollution events.

As a member of the Queensland Disaster Management Committee, the Leadership Board Sub-committee (Recovery) and chair of the Roads and Transport Functional Recovery Group, the Director-General leads TMR's support of recovery and reconstruction for disaster affected communities.

Membership of the State Disaster Coordination Group and the Inter-Departmental Committee for Disaster Management enables TMR to contribute to best practice policy and protocols to improve disaster management outcomes for Queensland.

As part of this involvement, TMR has engaged in consultation with key QDMA stakeholders and provided input into a number of key documents in 2017, including the *Queensland State Disaster Management Plan 2017* and the *Queensland State Recovery Plan 2017–2019*.

TMR continues to provide advice and support to Local Disaster Management Groups across Queensland to enable preparedness for disruptive events that impact the transport system, and maintaining active involvement with regionally-based staff through established internal networks.

Business continuity

As part of the Business Continuity Management Program, TMR developed and implemented a Business Continuity and Disruption Management Policy.

Implementation of the policy supports TMR's ability to identify and mitigate business disruption risks, and to respond to unexpected disruptive and disaster events when they occur. The policy positions TMR to ensure that essential business functions will be recovered in the shortest possible time after a disruptive event.

An internal Business Continuity Awareness Week (14–18 May 2018) campaign for TMR, showcased how we collaborate to improve organisational resilience. The campaign involved senior leaders engaging with the organisation through a series of interviews delivered via internal communication channels, including Yammer ([see glossary page 256](#)), enabling the message to reach broadly across the TMR network.

Over 2000 views of business continuity awareness videos shared on Yammer.

Ex-Tropical Cyclone Debbie

Significant progress has been made to repair parts of the state road network damaged across 29 local government areas when Ex-Tropical Cyclone Debbie (Ex-TC Debbie) crossed the Queensland coast in late March 2017.

The heavy rainfall following Ex-TC Debbie caused severe landslips as well as road damage, with more than 600 sites requiring geotechnical repairs. The main areas of focus are the Sarina Range, south of Mackay, and the Gold Coast hinterland, where severe landslips caused road closures. Works have been completed most of the 26 landslip sites on the Sarina Range, three critical sites at Lamington National Park Road and the main landslip site at Tomewin Mountain Road.

Repairs to the state road network are estimated to cost up to \$200 million, with \$64.18 million spent during 2017–18.

To 30 June 2018, construction has been completed on 20 projects. Works completed to 30 June 2018 include:

- 74 of 623 earthworks and batter locations
- 27 of 103 structure repair locations
- five kilometres of 46.4 kilometres requiring pavement reconstruction
- 69 of 579 silt and debris removal locations have been cleared.

Progress on key sites impacted by Ex-TC Debbie includes:

- Sarina Range (Marlborough–Sarina Road): works completed at the main landslip site include soil nailing and mesh installation to stabilise the upper slope, demolition of the existing shotcrete and excavation of the original roadway at the main slip site. Reconstruction works have been completed at 21 of the 26 landslip sites.
- Lamington National Park Road: repairs to three of the most critical sites were completed in February 2018. Reconstruction works are in progress at more than 80 remaining sites.
- Gold Coast–Springbrook Road: reconstruction works are in progress at 53 sites within the closed section of the road and 19 sites outside the closure.
- Nerang–Murwillumbah Road: reconstruction works in progress at the main landslip site.
- Tomewin Mountain Road: repairs to the main landslip site were completed in February 2018. Reconstruction works at the remaining landslip sites commenced in late April 2018.
- Beechmont Road: reconstruction works at multiple sites commenced in mid-April 2018.
- Gladstone–Monto Road: reconstruction at five landslip sites completed in May 2018.

Weather permitting, the majority of reconstruction works are expected to be completed by December 2018.

Eligible reconstruction works will be jointly funded by the Commonwealth and Queensland Government under the Natural Disaster Relief and Recovery Arrangements ([see glossary page 255](#)).



Sarina Range excavation and placement of soil nails at the main slip site.

Foamed bitumen stabilisation

Through rigorous field and laboratory research, TMR is producing more economical and resilient forms of foamed bitumen stabilisation. Foamed bitumen stabilisation ([see glossary page 254](#)) uses resources more efficiently by requiring less bitumen than asphalt concrete pavements (2.5–3 per cent by weight compared to 4.2–6 per cent). Recent research and mix design testing at TMR's Bulwer Island laboratory have enabled further reductions in the amounts of bitumen, lime and other additives that can be successfully used in the process.

This has led to significant cost savings where foamed bitumen stabilisation has been used. On the Bruce Highway Safety project in Rockhampton, the lime content of the triple blend layer was reduced from 3 per cent to 2.5 per cent, saving over \$200,000. The Warrego Highway overtaking lanes rehabilitation used plant mixed foamed bitumen with reduced additive rates for both bitumen (2.7 per cent reduced from 3 per cent) and lime (1 per cent reduced from 2 per cent), generating savings on a similar scale.

Foamed bitumen results in finer particles being coated in bitumen, delivering a pavement that is also more resilient to flooding. This form of bitumen has been found successful during rehabilitation works in the wake of Ex-TC Debbie. Roads that used foamed bitumen stabilisation were able to withstand the severe flooding and remain largely intact, avoiding rehabilitation costs and enabling faster re-opening of the roads.



The first layer of foamed bitumen applied to the Warrill View section of the Cunningham Highway prior to the site being inundated by rainfall during Ex-TC Debbie.

VALUING OUR ENVIRONMENT

When updating and improving the accessibility of our network, we consider the potential environmental footprint our work will leave. This section outlines the innovative technologies and sustainable solutions taken to preserve our environment and historical assets.

Waste management

TMR is refocusing the delivery of its transport operations to encourage reduction in resource consumption, minimise waste production, reduce waste volumes to landfill and adopt resource recovery. This change is supported by the continued focus on minimising environmental impact through adoption of transport infrastructure sustainability principles. This evolution is being planned, tested, implemented and measured through the:

- *Transport and Main Roads Waste Reduction and Recycling Plan (2016–2021)*, which identifies a number of actions and continuous improvement initiatives
- Infrastructure Sustainability Ratings for projects over \$100 million. During the rating process new products and technologies have been trialled to improve waste management that can be applied on other transport infrastructure.

Significant progress occurred during 2017–18 to develop and test processes and technologies to be applied across the transport infrastructure program. This was supported by new data collection systems ('TMR Waste Collection Portal') for office/depot sites and revised waste reporting specification for construction projects (greater than \$500,000 or three months in duration) to enable significant waste streams to be identified and managed.

Infrastructure sustainability

TMR has also received its first formal Infrastructure Sustainability Rating from the Infrastructure Sustainability Council of Australia for the Gateway Upgrade North (see page 82) and Logan Enhancement Projects. The rating level of 'excellent' was achieved in part due to the waste management initiatives that included use of EME2 pavements (see page 107), which will significantly reduce pavement waste over

the asset design life, and is one of TMR's largest waste streams in volume. In 2018–19 more projects will contribute to improvements in waste management, as the Infrastructure Sustainability Rating scheme is rolled out across the state.

Crumb Rubber Modified Binder

Following the success of the research and trials into the Crumb Rubber Modifier, TMR published the new *Polymer Modified Binder (including Crumb Rubber)* technical specification in July 2017. The specification states the procedure and allows up to 18 per cent crumb rubber to be added.

This enables projects across the state to utilise used tyres stored in stockpiles regionally to be processed and incorporated into the bitumen seal of road pavements, assisting in reducing waste volume from tyre stockpiles as well as reducing costs and increasing asphalt and pavement performance compared to the use of standard bitumen binders.

Road lighting replacement project

As at 30 June 2018, TMR has converted over ten per cent of TMR's 30,000 street lights from the old-style sodium-vapour lamps to bright, new, energy efficient light-emitting diode (LED) street lights.

There are a number of advantages and benefits to using LED, with the new LED street lamps giving off a brighter white light, making driving at night safer, and saving a significant amount of energy (between 30 and 70 per cent) depending on the installation.

As well as the reduction in electricity consumption, which represents a significant reduction in carbon emissions, the new LED street lights are longer lasting and do not require specialist disposal. The old sodium lights contain mercury which, at end-of-life, makes them a form of hazardous waste.

TMR has been able to make the disposal of the redundant equipment environmentally-friendly, by partnering with the Endeavour Foundation. Once the old equipment has been made safe, Endeavour recycles a large proportion of the left-over e-waste.

For more information on TMR's waste management visit: tmr.qld.gov.au/Community-and-environment/Environmental-management/Land/Waste-management



Before and after LED installation on the Sunshine Motorway showing the improved visibility for motorists.

Awards for Excellence

Premier's Awards for Excellence

RoadTek won the sustainability category at the 2017 Premier's Awards for Excellence for their submission '*Construction goes green—fostering a culture of sustainability and environmental awareness*'.

The award was proudly accepted by RoadTek's Manager (Environment) Mr. Darren Wilson, at the award ceremony in November 2017. This win is great recognition of the work being done statewide by RoadTek, to successfully improve how we use our resources, reduce waste and generate renewable energy in line with RoadTek's *Resource Efficiency Strategy and Action Plan*.

Some of the key sustainability achievements and outcomes recognised in the award include:

- growing the use of renewable resources such as ethanol
- rollout of rainwater tanks across the state for all permanently-staffed depots
- increased use of recycled water from 2015–16 to 2016–17 by 300 per cent
- increased recycling of waste with 83 per cent of waste generated, either reused or recycled
- more efficient use of electricity (hours worked/kWh used).

Award for Environmental Excellence

In September 2017 our commitment to environmental management was recognised by the International Erosion Control Association Australasia (IECA).

TMR, in conjunction with CPB Contractors, won the prestigious Annual Environmental Excellence Award, recognised for best practice in erosion and sediment control on the Bruce Highway Cooroy to Curra (Section C: Traveston to Woondum) project ([see page 43](#)).

DESIGNING FOR THE FUTURE

TMR is continuously planning and adapting for the future of transport through updates in modes of transport, emerging technologies and changes in the industry. This section outlines the future-focused projects and solutions TMR is currently undertaking, preparing for, or looking to begin works on, over the next year.

Mobility as a service

The transport sector is experiencing rapid change primarily driven by advances in technology and shifting customer expectations. For the transport challenge of ‘moving people’, this change is captured under the banner of Mobility as a Service (MaaS).

MaaS encompasses infrastructure, services, technology and information to suit the travel and lifestyle needs of the individual. It brings together transport operators and third parties for the seamless provision of services, information, booking and payment across all transport modes, providing customers with a greater degree of choice in how they travel.

To ensure TMR delivers a network that responds to, and meets customer needs, TMR has engaged with key stakeholders to understand the barriers and opportunities for MaaS. This engagement has been used to develop a roadmap of key actions for TMR to lead the advancement of MaaS for Queensland in coming years. In the first year of activity, these actions include:

- establishing a dedicated program management office to lead the work
- undertaking customer research to better understand customer needs and create the customer value proposition
- initiating market soundings to investigate options in urban, regional and remote areas.

Preparing for autonomous vehicles

TMR is undertaking a range of initiatives to help prepare the transport system, transport agencies and the community for the introduction of automated vehicles (AVs) and new transport technologies.

The introduction of AV technology is likely to transform mobility over coming decades. To ensure we are future-ready, TMR is carrying out three scenario-based modelling projects to better understand the impacts of AVs on Queensland’s future transport system):

- Project one: considers six scenarios to assess the interaction of AVs and public transport across South East Queensland.
- Project two: considers three future transport scenarios for both Cairns and Townsville to analyse the potential impacts of AV technology and emerging MaaS models on these regions.
- Project three: models the impacts that the introduction of AV technology would have on Queensland’s freight industry and the broader economy.

All three modelling projects are underway, with results expected to be released in early 2018–19.

A nationwide approach

These AV and other new transport technology initiatives will inform our combined contribution to the *National Policy Framework for Land Transport Technology* (NPF). The NPF aims to ensure Australia has an integrated policy and regulatory approach to emerging transport technologies, including AVs.

Under the NPF, TMR is involved in developing:

- an end-to-end regulatory framework for AVs by 2020
- a national operational guideline to support the on-road use of AVs
- a Safety Assurance System to ensure the safety of vehicles fitted with autonomous driving systems
- priority trials and research of intelligent transport systems (ITS), including hosting the largest on-road driverless and connected vehicle trial in Australia—the Cooperative and Automated Vehicle Initiative ([see page 125](#))
- a roadmap to identify the infrastructure and harmonised ITS technical standards needed to support connected vehicles
- a plan for the security management of AVs and connected vehicles.

The NPF is likely to be updated by November 2018 to include other transport technologies, such as low emission vehicles (for example, electric vehicles) and highly integrated transport business models, which are often referred to as MaaS, (see page 124) and drones.

Ipswich Connected Vehicle pilot

TMR is delivering the Ipswich Connected Vehicle Pilot, currently Australia's largest on-road testing trial of cooperative vehicles and infrastructure, to help prepare for the arrival of new vehicle technologies with safety, mobility and environmental benefits on Queensland roads.

The pilot project is the first of four components that are part of the larger Cooperative and Automated Vehicle Initiative (CAVI) being delivered by TMR. The pilot will involve up to 500 private and fleet vehicles retrofitted with Cooperative Intelligent Transport Systems (C-ITS) devices that enable them to 'talk' to vehicles, infrastructure, road operations systems and cloud-based, data-sharing systems.

Planning for this large-scale project is well underway with approximately nine months of on-road trials to take place in, and around Ipswich, commencing late 2019.

The CAVI project will also include the testing of a small number of cooperative and highly automated vehicles on South East Queensland roads. These tests will be conducted as part of the department's Cooperative and Highly Automated Driving (CHAD) Pilot and will cover five key areas—roads, roadsides, vehicles, road users and speeds. This testing is being conducted to prepare the department for when vehicles with these capabilities are widely available for Queensland road users.

For more information visit: qld.gov.au/cavi

Electric vehicle strategy

Released in October 2017, The Electric Vehicle Strategy will ensure Queensland is in the best position to capture the benefits and opportunities electric vehicles (EV) will bring for a cleaner, greener and cheaper transport future. The strategy outlines 16 cost-effective initiatives the Queensland Government will implement, to encourage consumer support and uptake of these vehicles.

An action of the EV strategy is the Queensland Electric Super Highway (QESH), a series of fast-charging stations stretching from the Gold Coast to Cairns, and Brisbane to Toowoomba. Phase 1 was completed in January 2018, making the QESH the longest electric super charger highway in a single state in the world.

The Queensland Government has committed a further \$2.5 million to install more charging stations along the Bruce Highway, reducing the distance between the existing charging locations. This will give motorists more options to choose when to recharge, reducing range anxiety and allowing them to stop, revive and survive.

For more information visit qld.gov.au/electricvehicles



Queensland's Electric Vehicle Strategy published in October 2017.