

OBJECTIVE 2

AN INTEGRATED TRANSPORT NETWORK THAT SUPPORTS ECONOMIC PROSPERITY AND IS SUSTAINABLE INTO THE FUTURE




 A vertical graphic with the word 'OUR' in a small box above the word 'highlights' in a large, white, sans-serif font. The background is a dark purple gradient with a grid of white dots.

// Strategies

- 2.1 Maximise the benefits from our investments through long-term (10 year) planning and prioritisation
- 2.2 Deliver best value investment in the transport system of the future, creating opportunities for innovation
- 2.3 Prepare for the freight tasks of tomorrow
- 2.4 Connect and partner with industry and community to design for the future

// Performance areas

- Transport network performance improves

In 2016–17, we developed strategies, policies and plans for an integrated transport system that safely and efficiently moves people and goods and delivers value to the community. Some of our achievements are listed below.

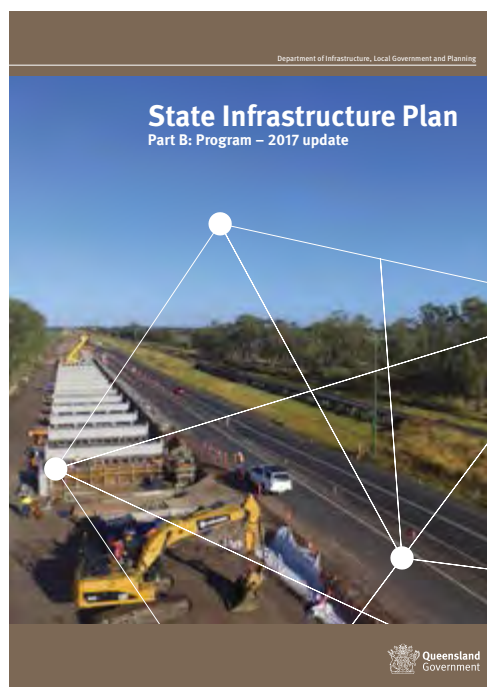
- QUEENSLAND CYCLE STRATEGY**
 Allocated \$162 million for high-priority cycle infrastructure over the next four years, including on the state-controlled network ([see page 54](#)).
- TRANSPORT INFRASTRUCTURE PORTFOLIO PLAN AND SCHEDULE**
 Updated and finalised the 10-year *Transport Infrastructure Portfolio Plan and Schedule 2016–26* (TIPPS) which serves to communicate strategic transport infrastructure investment choices and decisions ([see page 41](#)).
- QUEENSLAND TRANSPORT AND ROADS INVESTMENT PROGRAM (QTRIP)**
 Developed and published the \$21 billion *QTRIP 2017–18 to 2020–21* program that identifies key priority programs, packages and projects ([see page 42](#)).
- PRINCIPAL CYCLE NETWORK PLANS**
 Identified over 10,200 km of network covering 48 local governments and 98.9 per cent of the Queensland population ([see page 55](#)).
- TRANSIT ORIENTED DEVELOPMENTS**
 Commenced construction on Coorparoo Square at Coorparoo Junction including 350 units in three towers with cinemas and retail below ([see page 44](#)).
- AUTONOMOUS VEHICLE MODELLING**
 Undertook two rounds of scenario modelling to determine the impact of wide-scale uptake of autonomous vehicles ([see page 46](#)).
- MOVING FREIGHT**
 Conducted a review under the direction of the Queensland Ministerial Freight Council in consultation with key industry stakeholders and internal and external government agencies to ensure we continue to keep pace with the state's economic growth ([see page 47](#)).
- MAINTENANCE DREDGING STRATEGY**
 Released the *Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports* in November 2016 ([see page 40](#)).

We maximise the benefits from our investments through long-term (10 year) planning and prioritisation

TMR produces and updates a range of long and medium-term transport planning strategies and plans for integrated planning across the state, designing the transport needs of the future.

State Infrastructure Plan

In March 2016, the *State Infrastructure Plan*, comprising of two parts – Strategy and Program, was released by the state government. In 2017, Part B: Program was updated to outline the program of investment over the next four years (alignment with *QTRIP 2017–18 to 2020–21*) and future opportunities over the next five to 15 years (transport proposals categorised into short, medium and long-term projects).



Cover of the *State Infrastructure Plan Part B Program – 2017 update*.

We worked closely with the Department of Infrastructure, Local Government and Planning (DILGP) to update the transport sector component.

The 2016–17 State Budget confirmed funding for a range of transport projects through the State Infrastructure Fund (SIF) to implement the *State Infrastructure Plan*.

The Bill Fulton Bridge project on the Cairns Western Arterial Road was funded through the Significant Regional Infrastructure Projects Program.

Through the Priority Economic Works and Productivity Program, \$300 million was committed to help deliver targeted, productivity lifting transport infrastructure including:

- Ipswich Motorway Upgrade – Darra to Rocklea (Stage 1)
- Pacific Motorway-Gateway Motorway Merge Upgrade (southbound lanes)
- North Coast Line Capacity Improvement Project
- Dawson Highway – Gladstone to Biloela timber bridge replacement package
- Rockhampton Road Train Access, Stage 1
- Kawana and Nicklin Way – Sunshine Coast University Hospital intersection upgrades package
- Riverway Drive duplication, Townsville (Gollogly Lane – Allambie Lane).

For more information visit: www.dilgp.qld.gov.au/SIP

Queensland Transport Policy Long-term Transport Strategy

During the year, the department conducted extensive analysis to understand and develop responses to emerging trends that could potentially transform the transport system. These trends include the development of electric and driverless vehicle technology, a range of communication and digital technologies, and shared business models such as ride and car-sharing.

The department is now developing long-term strategic responses to the challenges and opportunities that the emerging trends pose for transport. These responses will form the core of the *Queensland Transport Policy (QTP)*, which will be the department's long term strategy for the Queensland transport system.

The QTP will provide direction for transport over a 30 year horizon and guide more detailed transport policies, plans and funding decisions over the short, medium and long term.

It will assist in responding to strategic challenges, such as:

- enabling new technologies to help provide solutions to increasing transport demand and the changing travel needs of a diverse population
- utilising big data to gain a deeper understanding of our customers' transport needs
- developing more sustainable funding options for the transportation network.

The department will continue to engage with a number of stakeholders, including the DILGP, to ensure the QTP aligns with the *State Infrastructure Plan* and shapes other key initiatives, such as the *Regional Transport Plans*.

For more information visit: www.qld.gov.au/transportpolicy

Transport Coordination Plan 2017–2027

TMR is updating the *Transport Coordination Plan 2017–2027* (TCP 2017) to set the strategic direction for the transport network in Queensland.

The TCP 2017 will help ensure our transport network:

- meets the needs of all Queenslanders, now and in the future
- connects communities to employment and vital services
- facilitates the efficient movement of people and freight to grow Queensland's economy
- is safe and secure for customers and goods
- contributes to a cleaner, healthier and more liveable environment and is resilient to Queensland's weather extremes.

The TCP 2017 will help drive value for money outcomes by providing clear criteria for spending on transport. It will improve transparency by setting out principles for decision making.

The plan places a greater emphasis on customer experience and technology and includes Key Performance Indicators (KPIs) for tracking and monitoring progress against the objectives. It is intended that performance against the KPIs will be reported every two years via the department's website.

The TCP 2017 will focus on broad objectives for the transport system over the short to medium term (10 years). This will be complemented with the Queensland Transport Policy, which will be a long-term (30 year) strategy that focuses on responding to the challenges and opportunities posed by emerging technologies and trends.

For more information visit: www.tmr.qld.gov.au/About-us/Corporate-information/Publications/Transport-Coordination-Plan-2017-2027

Regional Transport Plans

We are developing *Regional Transport Plans* (RTPs) for each of TMR's 12 districts. RTPs will play a critical role in defining the strategic direction of transport planning over the next 15 years. RTPs are being developed collaboratively with local governments, state government agencies, business, industry and targeted stakeholders.

RTPs consider regional demographic and industry changes, local government land use and transport planning and respond to relevant regional plans and the *State Infrastructure Plan*.

RTPs define the priorities for developing the transport system in each district based on identifying problems and opportunities for improvement, identifying short and long term opportunities for action to inform future planning and help guide network investment.

The draft *Mackay Isaac Whitsunday RTP* has been released for consultation.

For more information visit: www.tmr.qld.gov.au/regionaltransportplans

South East Queensland Regional Plan (ShapingSEQ)

The *South East Queensland Regional Plan (ShapingSEQ)* is the state government's new regional planning framework to sustainably manage change and growth in south east Queensland.

ShapingSEQ has been developed with a 50-year vision to manage this expected growth and capitalise on our economic strengths. It will provide a focus on integrated land use and transport outcomes. The plan seeks to maximise the use of existing transport infrastructure, place greater emphasis on public and active transport, encourage infill development around existing transport infrastructure and services and support the protection of freight corridors to serve the economy.

DILGP has led the preparation of *ShapingSEQ*, the updated regional land use plan for south east Queensland. The department has provided significant support to develop the plans, including advice on strategic public transport networks, road networks and freight elements and key regional infrastructure.

The department provided a senior officer to the DILGP team during the initial development of the plan to provide transport planning advice, analysis and modelling to ensure integrated land use and transport outcomes.

For more information visit: www.shapingseq.com.au

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Transport System Planning Program

The *Transport System Planning Program* (TSPP) (see [glossary page 233](#)) is a ‘one integrated system’ program of planning activities that collectively plan for the future transport network.

The TSPP is an annually reviewed, four-year rolling program of planning studies and investment projects coordinated across all modes, right across Queensland. Planning from the TSPP develops future projects to be designed and constructed through QTRIP (see [glossary page 231](#)).

The 2016–17 TSPP invested over \$72 million in planning studies to further develop the transport system. Key signature projects included:

- planning to support the delivery of the 2018 Commonwealth Games
- continued development of Regional Transport Plans
- continued planning for the Bruce Highway and Pacific Motorway.

Queensland Road System Performance Plan

The *Queensland Road System Performance Plan* (QRSP) guides road performance planning by determining priority projects and four year performance milestones with detailed funding allocations. This \$500 million roads package for Queensland covers 2017–18 and 2020–21.

Performance against previous plans is reported in the annual TMR State of the Asset Report.

Reef 2050 Long-Term Sustainability Plan Actions

The *Reef 2050 Plan* is a long term strategy to turn around the health of the Great Barrier Reef (GBR). The *Reef 2050 Plan* was endorsed by the state and federal governments in March 2015 in response to recommendations from the United Nations World Heritage Committee. TMR is responsible for leading the implementation of six actions from the plan.

In 2016–17 the focus has been on implementation of:

- **WQA16** – develop a statewide coordinated maintenance dredging strategy - this action has now been completed
- **WQA21** – Department of Environment, Heritage Protection (DEHP) are now leading this commitment as it was determined that the matter is best regulated under DEHP’s existing environmental regulatory activity framework. Maritime Safety Queensland has offered to provide maritime/shipping expertise and advice as required.

Actions to be progressed in 2017–18 are:

- **WQA15** – develop and implement a dredging management strategy (including capital dredging)
- **EBA7** – consider development of a new vessel class which ensures bulk goods carriers travelling in the World Heritage Area meet stringent safety standards
- **EBA8** – fully vet 100 per cent of bulk carriers traversing the GBR to an appropriate standard
- **EBA9** – encourage industry adoption of vessel assessment activities and approval processes.

Maintenance Dredging Strategy

The department released the *Maintenance Dredging Strategy for Great Barrier Reef World Heritage Area Ports*, an action (WQA17) from the *Reef 2050 Long-Term Sustainability Plan* in November 2016.

Following extensive consultation with key industry, environmental and regulatory stakeholders the plan focusses on 17 key guiding principles and associated actions on the way maintenance dredging at ports is planned, coordinated and regulated to ensure minimal impact on the GBR World Heritage Area.

This provides the ports industry and wider community with certainty that the economic and social contribution of ports is maintained and the environment protected.

For more information visit:

www.tmr.qld.gov.au/business-industry/Transport-sectors/Ports/Maintenance-dredging-strategy



Maintenance Dredging Strategy will ensure the ongoing protection of the reef's values and the continued operating efficiency of ports within the GBRWHA.

North East Shipping Management Plan

The *North East Shipping Management Plan* is focussed on mitigating the potential effects of large commercial trading ships and details the actions planned to enhance navigation, safety and environment protection in the north east region.

We have progressed a number of key action items in the plan, including:

- keeping pace with advances in vessel traffic systems (VTS), sensors and communications
- implementing systems to enable future Reef VTS operations to be delivered from two vessel traffic centres
- developed papers on jurisdictional responsibility for anchorages and anchorage management guidelines
- broadcast warning information to ships during the cetacean migration season
- reviewed the adequacy of the marine incident management and oil spill response arrangements in the Torres Strait including engagement with Indigenous communities on the pollution response arrangements
- completed the annual program of oil spill response equipment refurbishment
- completed the annual pollution response training program.



Facilities such as Reef VTS play a vital role with coastal navigation.

We deliver best value investment in the transport system of the future, creating opportunities for innovation

Maximising deliverables from available funding by chasing continual improvement while investing in our future. Significant strategic planning for transport needs was continued in 2016–17. Some examples of the plans developed or executed are found below.

Transport Infrastructure Portfolio Plan and Schedule (TIPPS) 2015–2025

The annual TIPPS provides a strategic framework for transport infrastructure investment. TIPPS strongly aligns to our Strategic Plan vision of creating a single, integrated transport network accessible to everyone.

In defining the 10 year direction of the transport infrastructure portfolio, TIPPS provides guidance for the *Queensland Transport and Roads Investment Program* (QTRIP) development (the published four year sub-set of the portfolio) and also input into external agency planning such as the *State Infrastructure Plan* developed by the DILGP.

TIPPS outlines the choices TMR has made on transport infrastructure investments, taking account of the need for operation, maintenance and upgrade of the transport infrastructure assets, within an affordable funding program. The TIPPS informs TMR and Queensland Treasury discussions on an agreed funding position for the transport infrastructure portfolio.

Queensland Transport and Roads Investment Program (QTRIP)

We developed and published *QTRIP 2017–18 to 2020–21*, in line with the TIPPS. QTRIP outlines approximately \$21 billion of investment in roads and transport infrastructure, funded by the federal and state governments and other funding sources, such as local government and developer contributions.



Front cover of Queensland Transport and Roads Investment Program.

Key priority programs, packages and projects include:

- \$8.5 billion program for Bruce Highway upgrades over 10 years (2013–14 to 2022–23), including:
 - \$929.3 million Bruce Highway – Caloundra Road to Sunshine Motorway upgrade
 - \$497.8 million Mackay Ring Road (Stage 1)
 - \$384.2 million Bruce Highway – Cooroy to Curra (Section C) project
- \$635 million Warrego Highway Upgrade Program over five years (2014–15 to 2018–19)
- \$260.5 million Cape York Region Package over five years (2014–15 to 2018–19)
- \$160.7 million towards Commonwealth Games package of transport infrastructure works (2015–16 to 2017–18)
- \$4.156 billion New Generation Rollingstock project
- \$1.606 billion Toowoomba Second Range Crossing project
- \$1.143 billion Gateway Upgrade North project
- \$400 million Ipswich Motorway – Rocklea to Darra (Stage 1) project
- \$420 million Gold Coast Light Rail (Stage 2) project.

In addition, the federal and state governments have committed to a half a billion dollar roads package for Queensland, which includes:

- the six-laning of the Pacific Motorway between Mudgeeraba and Varsity Lakes
- a major upgrade of the Pacific Motorway/Gateway Motorway merge (southbound lanes) at Eight Mile Plains
- construction of the Walkerston Bypass near Mackay
- upgrades of the Mount Lindesay Highway.

Further, an additional \$30 million was allocated in 2020–21 for the *Transport Infrastructure Development Scheme* that sees an increase to the ongoing base investment across the QTRIP four-year period maintained at \$70 million per annum.

For more information visit: www.publications.qld.gov.au/dataset/queensland-transport-and-roads-investment-program-qtrip-2017-18-to-2020-21



Bruce Highway – Cooroy to Curra (Section C)
Traveston Bridge Girder placement.

Infrastructure investment – National Partnership Agreement (NPA)

The NPA on Land Transport Infrastructure Projects sets out the federal and state government investment priorities. This agreement is a joint responsibility to ensure that infrastructure investments effectively address the objectives of the Infrastructure Investment Programme (the Programme), as set out in the NPA.

For more information visit:

www.investment.infrastructure.gov.au/funding/projects

The objective of the NPA is to aspire to a safe, sustainable national transport system that enhances the interconnectivity of corridors (networks) of significant economic opportunity across Australia.

The current NPA formalises federal funding commitments and agreed state government contributions until 30 June 2019.

In 2016–17, \$1.57 billion of committed federal funding under the NPA has been received by Queensland. Key projects progressed included:

- Gateway Upgrade North
- Toowoomba Second Range Crossing
- Bruce Highway – Caloundra Road to Sunshine Motorway upgrade
- Gold Coast Light Rail (Stage 2)
- Bruce Highway – Cooroy to Curra (Section C).

The Queensland Programme of Works, as a Schedule to the NPA, is amended each year by the federal government with agreed projects and funding reflected in the Federal Budget.

In the 2017–18 Federal Budget, the Queensland Programme of Works outlined \$18.1 billion in federal funding commitments over the life of the agreement to Queensland projects (including funding paid directly to local councils).



Gateway Upgrade North – Deagon Deviation widening.

Corridor Management Action Plan (CMAP)

The CMAP is an internal document detailing a program of work to facilitate and support management of third-party, non-transport use of the road corridor ([see glossary page 232](#)) for the next five years.

Implementation of the CMAP is ongoing and the plan itself is updated annually. Completed projects this year include:

- executing a Memoranda of Understanding with a number of major public utility providers
- completing the investigation of the costs of public utility relocations in road corridors
- completion of a new Guide to Powers in state-controlled roads.

Significant progress has been made on a range of projects including:

- engagement with public utility providers
- development of a revised cost sharing agreement with the Local Government Association of Queensland
- reviewed the Roadside Advertising Guide
- supported the development of the *Stock Route Management Bill 2016*
- leading the review of the stock route network on state-controlled roads
- supported the transition of SunWater irrigation schemes to local management including providing approvals for irrigation assets located in state-controlled roads
- development of a new roadside fuel facilities policy
- development of an online permitting system for activities in state-controlled road corridors.



Road Operations Portfolio Strategy (ROPS) and Action Plan (ROAP)

The ROPS is an internal document provides a strategic view of the road operations business, drivers and key initiatives, and how we deliver innovative solutions for proactive and effective operation of the road transport network.

The ROAP identifies key initiatives for enhancing road operations capabilities, supporting the Portfolio Strategy and the department's vision of creating a single integrated transport network accessible to everyone.

Both documents are updated regularly to address the dynamic nature of the industry. Initiatives completed or progressed this year include:

- redeveloping and launching the QLDTraffic suite of services, helping Queenslanders making informed travel decisions
- enhancing our intelligent transport systems, including further rollout of the Emergency Vehicle Priority capability
- progressing the Event Traffic Marshal policy and framework, supporting sporting and community events
- type approval of remote-controlled portable traffic signal devices at roadworks, supporting improved safety at roadworks
- further developing tools to quantify excessive congestion and the causes of congestion
- progressing investigation into a next generation traffic signal controller
- supporting departmental and government initiatives including the Gold Coast Commonwealth Games, and the Cooperative and Automated Vehicle Initiative.

Securing land for the future

The department acquires and disposes of properties for road and transport infrastructure projects. Properties retained by the department for existing and future infrastructure projects are leased, where possible, to derive an income for the state. This includes rail corridors and boat harbours. We are also responsible for developing strategic land opportunities, including Transit Oriented Developments (TODs) and realising commercial opportunities for the road corridor and passenger network.

Recognising the national significance of preserving transport corridors, Infrastructure Australia's Infrastructure Priority List update, released in February 2017, included a priority initiative to preserve the corridor for Salisbury to Beaudesert connection.

Transit Oriented Developments (TOD)

The department is responsible for TOD projects across south east Queensland. TODs are human-scale, urban communities focused around transit stations and include a mix of residential, retail, commercial and community uses while providing high accessibility to a transit station.

We are designing innovative solutions that deliver effective land use and transport integration while maximising the development potential of the sites. Significant progress on the construction of several TOD projects has been made in 2016–17.

Current TODs

- **Coorparoo Junction**
Coorparoo Square is currently under construction and is due for completion in 2018. We undertook an open market process to identify a developer to purchase the land and deliver a TOD along with public transport infrastructure on the site. The development comprises 350 units in three towers with cinemas and retail below.
- **Buranda TOD**
Stage 1 of the Buranda TOD is currently under construction, with Stage 2 and 3 to follow in the subsequent future. The Buranda TOD is a private sector development adjacent to the Buranda busway and train station and will integrate the development with the existing public transport infrastructure. The development is a mix of residential and student accommodation with retail and commercial offices. Stage 1 is expected to be completed in mid-2018.



Buranda transit oriented development, Stage 1 under construction in April 2017

- **Cleveland TOD**
A mixed use development located at the Cleveland train station. The proposed development will consist of residential and short term tourist accommodation, and a retail outlet servicing commuters and residents to deliver a development and additional car parking. We have entered into a development agreement with the proponent. The proponent is awaiting development approval for the project.

Upcoming TODs

- **Mango Hill TOD Project**
As a part of the Moreton Bay Rail Link (MBRL) project, we have acquired three vacant parcels of land in Mango Hill providing an opportunity to deliver a TOD to benefit the MBRL by providing increased density and facilities around the station and to promote patronage. We will soon be seeking interest from suitably qualified and experienced proponents for the design and construction for the project.
- **Varsity Lakes Station Precinct**
Negotiations with the preferred developer are currently ongoing to deliver a TOD adjacent to the Varsity Lakes train station. The project will include additional permanent

park 'n' ride facilities at the Varsity Lakes train station, in addition to temporary park 'n' ride facilities required for the 2018 Commonwealth Games.

- **Albion Train Station Precinct Redevelopment Opportunity**

We are seeking a proponent to improve access to the Albion train station, consolidate commuter park 'n' ride infrastructure and take on redevelopment opportunities presented by approximately three hectares of surplus and under-utilised departmental property. The development agreement is currently being finalised with the preferred proponent.

- **Ferny Grove Station Precinct TOD**

The department has progressed a proposal for private industry to construct a new, integrated TOD at the Ferny Grove train station. The department has entered into a Development Agreement with the preferred proponent to develop a significant end of line precinct at Ferny Grove train station, which will include approximately 250 additional car spaces for existing rail commuters, subject to detailed design.

We are also identifying and facilitating other development opportunities on underutilised or surplus land.

Commercial roadside facilities

A commercial roadside facility provides goods and services (such as fuel, food, beverages and rest facilities) to travellers in a convenient location. Due to the facilities being in convenient locations and providing consumables for drivers while on their journey, they also encourage drivers to stop and take a break, which improves fatigue management and delivers better road safety outcomes across the state's roads.

Traveston Road Interchange, Bruce Highway – Traveston Commercial Roadside Facility

The department is evaluating offers from parties with demonstrated experience in owning and operating Commercial Roadside Facilities (CRF) and Driver Rest Areas (DRAs) to design and construct a CRF and DRA on an approximately six hectare parcel of land near the Bruce Highway and Traveston Road interchange. TMR is investigating other commercial roadside facility opportunities.

For more information visit: www.tmr.qld.gov.au/Community-and-environment/Planning-and-development/Transit-oriented-developments/About-transit-oriented-developments

Building our Regions

During the year, we administered the delivery of four projects under the state government's *Building our Regions* program (see glossary page 230) on behalf of the Department of State Development (DSD):

- Steger Road Upgrade, Toowoomba Regional Council
- Donoghue Highway Upgrade, Boulia Shire Council
- Carnarvon Gorge Road Upgrade, Central Highlands Regional Council
- Collins Avenue Bridge Renewal, Cairns Regional Council.

The *Building our Regions* program has committed \$225 million for 2015–16 to 2017–18 to a targeted regional infrastructure program for local government projects. The primary purpose of the *Building our Regions* program is to provide funding for critical infrastructure in regional areas of the state, while also generating jobs, fostering economic development and improving the liveability of regional communities.

The department administers the delivery and reports progress on roads related council projects for DSD.

For more information visit: www.statedevelopment.qld.gov.au/regional-development/building-our-regions.html

Cross River Rail business case

In June 2016 it was announced the state government would invest \$50 million in 2016–17, part of which is to fund the establishment of the Cross River Rail Delivery Authority (CRRDA) to oversee the planning and delivery of the project. Project-specific legislation to establish the CRRDA is being progressed and until then the project will operate within the DILGP. In October 2016 the project and team transitioned to DILGP.

For more information visit: www.crossrivrail.qld.gov.au



3PCM – contract management

During the year, the 3PCM Project has replaced a number of legacy systems with a Commercial Off The Shelf (COTS) solution that can adapt to the changing needs of the department.

When fully implemented, the 3PCM solution will improve the planning, management and delivery of TMR's transport infrastructure by:

- defining and implementing standards, consistently applied processes for planning, managing and delivering the *Transport Infrastructure Portfolio* across the domains of *Portfolio, Program, Project and Contract Management (3PCM)*
- sourcing and implementing an integrated, strategic ICT solution that supports the business processes and rules and enables a transition away from existing legacy systems.

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Autonomous vehicle modelling

The department has undertaken two rounds of Autonomous Vehicle (AV) Scenario Modelling through a Brisbane firm. The first modelling work package investigated the possible AV uptake rates and impacts on the south east Queensland road network of these vehicles in 2026, 2036 and 2046. The south east Queensland road network was considered best suited for the initial run of this modelling work due to its relative complexity, and the availability of data to support model development.

This modelling showed that it is likely that the wide scale uptake of AVs would detrimentally impact the level of congestion on the road network in south east Queensland unless a higher level of car sharing is adopted.

In the second round, the department is considering six scenarios to assess the interaction of AVs and public transport across south east Queensland. This modelling is nearing completion and is expected to be released in early 2017–18.

This work provides the state government with analysis to better understand the potential impacts of AVs on the transport network and travel behaviour change. It will help TMR to establish policies, strategies and actions to actively manage the risks and maximise the benefits associated with the introduction of AVs.

We are also planning to undertake additional modelling on the impacts on freight networks of the introduction of AVs including outside south east Queensland’s extended urban area. This work will be finalised in early 2018.



Cooperative and Automotive Vehicle Initiative (CAVI)

We’re delivering the CAVI with the purpose of helping the department prepare for the emergence of advanced vehicle technologies with safety, mobility and environmental benefits on Queensland roads.

These might include cooperative vehicles (similar to connected) and vehicles with automated capabilities.

The Initiative incorporates four components:

- the Cooperative Intelligent Transport Systems (C-ITS) pilot, including the largest on-road testing trial in Australia of cooperative vehicles and infrastructure
- the Cooperative and Highly Automated Driving (CHAD) pilot, including testing of a small number of vehicles with cooperative and automated technologies

- a proof of concept pilot looking at how new technology applications can benefit vulnerable road user safety including pedestrians and bicycle riders
- a change management process for the department to consider the capabilities and resources required to support widespread deployment of these vehicles on our roads.

The Initiative will be delivered collaboratively by the department’s Land Transport Safety and Engineering and Technology Branches, with specialist support provided by external consultants and equipment suppliers.

Whilst the department is not involved in manufacturing vehicles, it is preparing for the deployment of cooperative and automated vehicles.

This includes work focussing on:

- developing policy to support positive outcomes
- supporting regulation, legislation, licensing and possible certification and testing
- managing infrastructure, data and system integration
- conducting pilot projects and feasibility studies.

The goal of CAVI is to pilot cooperative and automated vehicle technologies that make roads safer and contribute towards the Queensland Government’s vision of zero road deaths and serious injuries on the state’s roads. The project will run from 2017 to 2021.

The project has commenced engagement with market providers to undertake high level design and requirements definition with implementation schedule to occur from 2018–19 financial year.

**We will recruit around
500 Ipswich motorists who will
have their vehicles retrofitted
with C-ITS technology to
take part in the pilot.**

We're preparing for the freight tasks of tomorrow

Movement of freight is vital in supporting many aspects of the Queensland economy. TMR has a continued focus on maintaining freight channels and expanding these to ensure we are equipped for Queensland's freight needs now and in the future for land, port and rail. Our involvement in the many aspects of freight planning and channel development are outlined below. This includes aspects such as safety, moving services online and activities to gain efficiencies.

Moving Freight

Moving Freight has continued to receive strong support from industry and government stakeholders since its release in 2013. However, with advances in technology and an evolving strategic freight environment, a review was conducted to ensure we continue to keep pace with the state's economic growth.

The review was conducted under the direction of the Queensland Ministerial Freight Council in consultation with key industry stakeholders and internal and external government agencies. The strategy is in draft for public consultation. The outcome of the review, *Queensland Freight Strategy* (QFS) is a high level strategic document which links to existing government strategies. The strategy has a multi-modal focus providing strategic freight policy direction across all modes in road, rail, sea and air.

The QFS outlines five key themes and 19 policy statements which provide renewed direction over the next ten years for the management of the freight network. Throughout the development of QFS we are continuing to implement actions from *Moving Freight* with 28 freight system actions commenced covering the first four years (2014–18) and 10 ongoing actions which extend beyond the 2014–16 delivery timeframe.

Key actions implemented in the 2016–17 year include:

- Expand the use of rail freight**
 Completed Charlton-Wellcamp and other Centres Multi-Modal Strategy. Finalised the report providing a guide for the development of efficient multi-modal linkages as well as providing direction for future intermodal planning including the Melbourne - Brisbane Inland Rail (incorporating Gowrie Grandchester) and the Toowoomba Second Range Crossing.



Example use cases to be trialled in the C-ITS pilot.

- **Facilitate greater freight infrastructure investment**

Under the guidance of the Heavy Vehicle Steering Committee commenced the *Heavy Vehicle Network Plan* which will identify the future vision for the freight network to enable high productivity vehicle access and identify priority corridor investigations to address specific infrastructure needs.

- **Support future freight growth**

Established an Inland Rail Interdepartmental Committee, chaired by the Director-General, Department of Transport and Main Roads to negotiate an intergovernmental agreement with the federal government.

Key activities in progress:

- **Increase road freight network access**

Commenced refinement of mobile laser scanning data for use in automated crash detection analysis, with development of a workable version of an automated crash detection tool.

South East Queensland's Rail Horizon Strategy

The *South East Queensland's Rail Horizon Strategy* identifies future expansion of the network to Flagstone (40 kilometres south of the Brisbane CBD) and Caloundra, as well as extensions to the Ipswich and Springfield lines, the Gold Coast line and a possible future North West Transport Corridor, approximately nine kilometres north west of the Brisbane CBD. Two projects are currently being progressed to corridor planning.

Ipswich to Springfield Corridor Land Requirement Review (Stage 1)

We are working collaboratively with stakeholders to identify two potential master planning options for the road and rail configuration in Augustine Heights (west of Springfield Lakes). These options will be further refined in upcoming workshops with a preferred configuration to be presented to stakeholders prior to preservation of the confirmed land requirement.

The *South East Queensland Rail Horizon* identifies a number of initiatives to optimise the network including New Generation Rollingstock (NGR) (see glossary page 231), European Train Control System Level 2 (see glossary page 230), Cross River Rail, Coomera to Helensvale, Beerburrum to Nambour and Outer Network Stabling. The NGR project will deliver six-car trains and a purpose-built maintenance centre at Wulkuraka, including 30 years of maintenance. The trains will be progressively rolled out onto the south east Queensland passenger rail network for late 2017.

The European Train Control System Level 2 project involves a complete overhaul (replacement of existing trackside signalling equipment) of the inner-city rail signalling and communications system with new, state-of-the-art equipment (see glossary page 230).

Queensland Rail is currently duplicating the final section of single track on the Gold Coast between Coomera and Helensvale stations and is due for completion in late 2017. The project will deliver capacity and reliability improvements to the Gold Coast line, prior to the 2018 Commonwealth Games.

A business case for the Beerburrum to Nambour rail upgrade project was completed in December 2016. The detailed business case investigated the duplication of the North Coast line between Beerburrum and Landsborough, with upgrades to the existing infrastructure between Landsborough and Nambour.

The Outer Network Stabling project will provide additional stabling facilities to support the NGR, reduce dead running and improve network operations. Sites at Robina, Woombye, Banyo and Elimbah are currently being delivered by Queensland Rail.

For more information visit:

www.queenslandrail.com.au/Community/Projects/Pages/QueenslandRailStablingProgram.aspx

Inland Rail Project engagement

Inland Rail provides a strategic opportunity in the capacity, capability and interoperability of the national freight rail system. It will strategically build the backbone of the national freight rail network creating a direct standard gauge rail connection between Queensland, Victoria and rural New South Wales.

The Reference Design Phase of the proposed standard gauge rail line of approximately 1700 kilometres is currently underway.

The 2017–18 Federal Budget announced the federal government will provide an additional equity investment of \$8.4 billion over seven years from 2017–18 to the Australian Rail Track Corporation (ARTC) for the delivery of the Inland Rail project. Under the measure, the ARTC will leverage greater debt and enter into a public private partnership for the Gowrie to Kagaru section.

Other work includes the preparation of environmental impact statements ensuring Queensland's interests in the project, including stakeholder and community feedback, are assessed and properly managed.

For more information visit:

ARTC Inland Rail website: www.inlandrail.artc.com.au

Queensland Coordinator-General Coordinated Projects website: www.statedevelopment.qld.gov.au/assessments-and-approvals/current-eis-projects.html

North Coast Line Action Plan

The department is currently developing a preliminary *North Coast Line Action Plan* which will propose a 10 year program of infrastructure and service initiatives to address corridor deficiencies, improve the reliability and resiliency of the corridor, increase rail capacity, and improve the overall efficiency of rail operations.

The plan builds on the *Moving Freight Strategy* and other previous studies, investigating upgrades that will improve safety and efficiency on the vital north-south rail line. Projects in the *North Coast Line Action Plan* will improve the reliability for both passenger and freight services on the corridor, and is anticipated to facilitate growth in rail freight between the key distribution centres in the south east to major population centres in central and northern Queensland. The plan is due to be completed in late-2017.

Following completion of the action plan, the department will commence implementation planning and the development of more detailed designs and costings for proposed initiatives.

Heavy Vehicle Safety and Productivity Programme (HVSPP)

The HVSPP is a federal government initiative to improve productivity and safety outcomes of heavy vehicle operations across Australia, through funding infrastructure projects.

The HVSPP will provide \$40 million per year from 2021–22 onwards, building on the current \$328 million investment from 2013–14 to 2020–21. HVSPP projects are jointly funded by the federal government and proponent (either state government, or Local Government Association of Queensland).

Some projects delivered on the state-controlled network through the initiative in 2016–17 include:

- Gregory Highway between Emerald and Clermont – road enhancement works
- Carnarvon Highway – Injune to Rolleston – pavement widening
- Carnarvon Highway – St George to Surat – pavement widening.

Heavy vehicle rest area audits

In 2016, we undertook a heavy vehicle rest area audit across all state controlled roads within Queensland. The audit was completed in order to determine whether rest areas were meeting the fatigue management needs of the trucking industry and the travelling public. The audit assessed all established rest areas, and informal stopping places.

The provision of rest areas on the Queensland road network is integral to ensuring that drivers of heavy vehicles have appropriate locations and facilities to meet their fatigue management obligations, and to reduce the incidence of fatigue related road trauma.

Nearly 3000 sites on the state-controlled road network were audited as part of the first phase of a heavy vehicle rest area planning strategy. The data collected during the audit is now being used to progress the expansion and improvement of rest areas to ensure drivers can meet their fatigue management obligations under the *National Heavy Vehicle Law* (NHVL).

Dangerous goods route – greater Brisbane

An update of the preferred route system for transporting dangerous goods by road in metropolitan Brisbane was undertaken by TMR in 2016 and published in February 2017.

Using crash statistics of vehicles transporting dangerous goods by road in Queensland in the previous five years, TMR combined this analysis with on road audits and identification of any high risk environmental, infrastructure, community and other factors on the proposed routes for dangerous goods transport in metropolitan Brisbane.

To ensure sensitive infrastructure such as tunnels prohibiting the transport of dangerous goods, could be clearly identified by the dangerous goods transport industry, TMR produced the *Metropolitan Brisbane Area – Transport of Dangerous Goods by Road – Restrictions* brochure.



A Transport Inspector checking the dangerous goods load of a heavy vehicle.

Routes were determined in cooperation with stakeholders including Queensland Emergency Services, Brisbane City Council, the Operational Industry Sub Committee of the Queensland Ministerial Freight Council, and the Australian Institute of Petroleum and their industry members who transport petroleum throughout Queensland.

For more information visit: www.business.qld.gov.au/industries/manufacturing-retail-distribution/transport/dangerous-goods/road

Enhancing heavy vehicle access

We have been working with Queensland's road freight industry and the National Heavy Vehicle Regulator (NHVR) to continue to provide safe opportunities for enhancing heavy vehicle road access.

These activities included:

- providing for repeat trips on over-mass Single Trip permits when the type and weight of a load does not change
- increasing the duration of Single Trip permits from 14 days to 30 days
- increasing the duration of Period Permits for heavy mobile cranes from 12 months to three years, on the basis of mandatory enrolment in the Intelligent Access Program
- including Queensland in a National Notice to increase mass limits on two axle buses to 18 tonnes, from 16 tonnes
- working with the NHVR to develop a National Notice for Performance Based Standards for A-double vehicles
- working with the NHVR on harmonisation of National Notices to provide industry with similar road operating conditions across jurisdictions
- actively working with industry to identify and overcome road access bottlenecks, such as identification of alternative routes, due to the impact of natural disasters on the road network.

For more information on freight industry initiatives: [\(see Tolling project and priorities page 71\)](#).

Flood Recovery Road Access Group (FRRAG)

On 27 March 2017, the FRRAG was activated to manage Tropical Cyclone Debbie emergency and disaster recovery heavy vehicle access.

From 27 March to 13 April 2017, FRRAG responded to approximately 250 enquiries and assessed 55 applications, issuing 39 emergency permits.

Examples of permits issued:

- seven permits issued to Ergon which included 78 vehicles required for power restoration
- Education Queensland to build temporary school buildings
- various operators to transport food and water
- various operators to transport machinery and generators
- Aurizon to transport equipment to repair rail lines
- agricultural operator to effect emergency cotton crop harvest operations before flooding and total crop loss
- exemption from Federal Interstate Registration Scheme registration requirements.

National Heavy Vehicle Regulator (NHVR)

Throughout the year we have continued to work with the NHVR to further the development of national heavy vehicle policy reform projects, including the access management NHVR Portal, the *National Heavy Vehicle Registration Scheme*, the Heavy Vehicle Roadworthiness Program, the *NHVR Cost Recovery Project* and National Compliance Information System.

A key initiative completed this year was the National Roadworthiness Baseline Survey, which provides a comprehensive, point in time, snapshot of the mechanical condition of the Australian heavy vehicle fleet.

In conjunction with the National Transport Commission, we facilitated passage of the *Heavy Vehicle National Law and Other Legislation Amendment Act 2016*, which amends the national legislation that applies to all participating jurisdictions and governs the NHVR.

For more information visit: www.nhvr.gov.au

Heavy Vehicle Safety Working Group (HVSWG)

TMR administers an industry-led HVSWG. The HVSWG is responsible for monitoring the progress of the *Heavy Vehicle Safety Action Plan 2016–18*, with the chair representing the HVSWG at the Ministerial Freight Council.

The HVSWG has facilitated the investigation of a mobile platform solution to deliver rest area audit information to the heavy vehicle industry.

A mobile platform solution will make rest area information widely available and assist the industry's fatigue management obligations. This will also assist with improving the health and wellbeing of heavy vehicle drivers which will contribute to reducing the crash risk and crash frequency involving heavy vehicles.

Heavy Vehicle Safety Action Plan

The *Heavy Vehicle Safety Action Plan 2016–18* includes 31 actions across six key areas:

- safer roads
- safer vehicles
- fatigue management
- safer speeds
- seatbelts
- impaired driving and driver distraction.

The *Heavy Vehicle Telematics Strategy 2016* was developed in collaboration with industry and government stakeholders to set the vision for the use of telematics to assist the department to manage road infrastructure risk, facilitate access and better understand network use.

As part of the department's commitment to upgrading rest areas, two rest areas along the Capricorn Highway have been upgraded and an additional two rest areas located along the Leichhardt and Peak Downs Highways are due to be operational by the end of July 2017.

The department will continue to work closely with industry in implementing the *Heavy Vehicle Safety Action Plan 2016–18*.

Queensland Ministerial Freight Council

The Queensland Ministerial Freight Council is an advisory body, established under Ministerial direction, to facilitate communication and consultation between freight industry peak bodies representing stakeholders in Queensland's significant economic supply chains and TMR. The council is a single multi-modal and multi-sectorial group which focusses on the growing demands of the freight task and works towards gaining efficiencies through strategic and holistic approaches to managing the movement of freight which supports economic prosperity and jobs growth in a sustainable manner.

The council has met twice in the last 12 months. The council has received industry and government updates about the Ex-Tropical Cyclone Debbie recovery, federal government budget announcements for Queensland, Transport and Infrastructure Senior Officials' Committee, and Transport and Infrastructure Council. The key outcome for the Queensland Ministerial Freight Council was overseeing the development of the draft *Queensland Freight Strategy* in 2017.

Remote Area Consultative Group

The Remote Areas Consultative Group (RACG) consists of the four remote jurisdictions, Queensland, Northern Territory, South Australia and Western Australia and is sponsored by the Chief Executives of the respective jurisdictions. Membership includes representatives from state and territory governments, National Transport Commission, National Heavy Vehicle Regulator, peak bodies associations and industry representatives.

The purpose of the RACG is to act as an advisory body to provide a remote areas' perspective on proposed and existing road freight reforms. The forum provides an excellent platform for the exchange of highly valuable information across government, government agencies, and industry representatives.

Queensland had hosting and chairing responsibilities for the RACG for the 2014–16 period.

The following are examples that were undertaken during that period:

National Remote and Regional Transport Strategy Action Plan

- the RACG developed a cross border harmonisation project, which involved extensive consultation with industry
- examining issues associated with automation in heavy vehicles for regional and remote areas of Australia
- heavy vehicle truck steer axle mass limits and tri-drive prime mover operations, and the industry and road manager challenges for these
- input into the Northern Australia Beef Roads Programme.



Aerial view of Bruce Highway in far north Queensland.

Agricultural Vehicle Notice

We have been working with Queensland's agricultural sector on a number of key initiatives to improve safety and efficiency of road access for oversized agricultural equipment.

These activities included:

- sending a specialist taskforce to Mackay to assist the cane industry to manage the late harvest by providing access over the Christmas oversize load road restriction curfew period. This action facilitated the harvest and delivery of an additional 100,000 tonnes to sugar mills
- developing a National Notice to increase the width limit from 3.5 metres to 5 metres wide for agricultural vehicles on lower trafficked roads north of Rockhampton
- a National Notice allowing cotton harvesters and other agricultural equipment associated with cotton harvesting to travel during the restricted Easter period for the next five years

- the development of a simplified traffic management plan template for the agricultural industry to use when applying for permits, reducing the administrative burden
- working closely with the NHVR and the agricultural industry bodies to develop a national harmonised Agricultural Notice.

The department is aware of issues the agricultural sector faces with accessing the road network. We have consulted extensively with peak bodies and operators to not only improve the level of access, but also to simplify the process of applying for access. The challenge is to balance economic efficiency with the safety of other road users.



Cattle crate replacement project

The state government has demonstrated a commitment to regional Queensland by investing in improved livestock transportation by rail. The department conducted extensive research to develop a world leading innovative solution to efficiently load and transport livestock with animal welfare as the prime consideration.

The majority of existing dedicated livestock rail rollingstock fleet is in excess of 40 years old and drawing to the end of its economic life. As part of the revitalisation of the *Livestock Transport Services Contract* (LTSC) arrangement, we funded the construction of specialised containers designed for the transport of cattle.

The new cattle crates are designed so they can be transported on standard flat-bed rollingstock ([see glossary page 232](#)), thus alleviating the requirement for rail operators to purchase specialised livestock rollingstock.

The department has procured 321 cattle crates at a cost of \$9 million which have been introduced into service in regional Queensland. The benefit of the TMR owned cattle crates is the assets can be used by any rail operator using standard wagons who may be awarded any future LTSC equivalent.



New specialised cattle transportation containers designed for flat-bed rollingstock.

Type 1 road train access to abattoirs

In March 2016, the state Government committed \$10 million through the State Infrastructure Plan to facilitate access for Type 1 road train access from Central Queensland Livestock Exchange (CQLX) to North Rockhampton abattoirs in Central Queensland.

This funding commitment will deliver Stage 1 of the infrastructure upgrades required to facilitate access between CQLX and the abattoirs in North Rockhampton.

Stage 1 infrastructure works include:

- Moores Creek Road/Musgrave Street intersection upgrade (completed February 2017)
- Queen Elizabeth Drive/Lakes Creek Road intersection upgrade (completed February 2017)
- Rockhampton-Emu Park Road/St Christopher's Chapel Road intersection upgrade (completion June 2017).

Permit controlled access of Type 1 Road Train vehicles to the Rockhampton abattoirs commenced on 1 July 2017. Type 1 road train operators require a permit from the NHVR to travel directly between CQLX and Rockhampton abattoirs. The conditions of the permit, including operating hours and route restrictions, have been established by TMR.

Intelligent Access Program - crane compliance analysis automation

The Intelligent Access Program (IAP) uses satellite tracking and telematics to remotely monitor heavy mobile cranes to establish route compliance and identify whether vulnerable bridges and culverts are crossed. TMR conducts analysis and appropriate compliance activities relating to data that is provided in relation to this activity.

Prior to November 2016, manual analysis of data was carried out using mapping software by visually interpreting confirmed non-compliance events near to, or on, vulnerable structures of interest to establish whether they were indeed non-compliant.

A new initiative to automate the manual analysis was established in early 2017 with a new software capability utilising Alteryx and Tableau software. The new tools and methodology has introduced a more efficient, accurate and precise analysis method that decreases error rates attributed to human error and interpretation. This activity took around one month to undertake and can now be completed in two weeks, resulting in a 50 per cent staff productivity gain. Further efficiency enhancements are anticipated.

We connect and partner with industry and community to design for the future

We engage with industry, community and local councils to shape a range of transport strategies and plans. The department's approach to stakeholder engagement is covered in an earlier section (see page 16). Outlined below are the major alliances, partnerships and projects with significant customer engagement over the last 12 months.

Working with local government through the Roads and Transport Alliance

In a partnership spanning over 15 years, we continue to work closely with the LGAQ (see glossary page 231) on behalf of local government in the Roads and Transport Alliance (see glossary page 232). This long-standing partnership targets investment in local government transport infrastructure.

Under the alliance, local governments voluntarily collaborate with our district staff to make local transport infrastructure investment decisions based on regional priorities.

The 17 Regional Roads and Transport Groups (see glossary page 231) work to prioritise a two-year fixed and two-year indicative work program funded by the Transport Infrastructure Development Scheme (TIDS) (see glossary page 233).

This year, TIDS funding subsidised 256 transport infrastructure projects, such as:

- installed culverts at Age of Dinosaur Road, Winton
- installed a supervised crossing at Upper Mount Gravatt State School
- applied asphalt treatment overlay to Red Rover Road, Gladstone.

The alliance promotes increased collaboration between the department and local governments, with a focus on building capacity and capability in each region.

For more information visit:

www.tmr.qld.gov.au/business-industry/Business-with-us/Alliances/The-Roads-and-Transport-Alliance

Transport and Infrastructure Council

Members of the Transport and Infrastructure Council met in Perth in November 2016 and in Brisbane in May 2017. The council delivers national reforms to improve the efficiency and productivity of Australia's infrastructure and transport systems, and ensures these systems drive economic growth, increase employment opportunities, support social connectivity, and enhance quality of life for Australians.

Participating in national agenda setting enables Queensland to progress its interests in areas such as land transport market reform, heavy vehicle reform, road safety, freight efficiency, maritime and rail safety, and innovation and technology.

The council is supported by the Transport and Infrastructure and Senior Officials' Committee (TISOC) which also met twice during the year. TISOC provides advice and assistance to the council via TMR's Director-General. Our participation in the Council and TISOC help us to ensure TMR's vision, to create a single integrated transport network accessible to everyone, is on the national agenda.

How Queenslanders travel

Results from previous travel surveys conducted by the department indicate travel patterns are becoming increasingly complex, with mobility rapidly evolving in line with changing household structures. These shifts, along with advances in technology, are disrupting traditional approaches for collecting personal travel data.

As such, for the latest Queensland Travel Survey (QTS), a new approach to data collection has been developed and a web-first methodology introduced, the first of its kind in Australia.

The use of an online platform and innovative web-first approach will improve the respondent experience, collect better quality data, reduce the cost per household to conduct the survey, and deliver data sooner.

By mid-2018, using the new approach, we plan to survey 10,000 households across south east Queensland, providing valuable information to inform our transport investment decisions.

A general description of the QTS and the previous survey results can be obtained here: www.tmr.qld.gov.au/Community-and-environment/Research-and-education/Queensland-Travel-Survey

CASE STUDY

Using travel survey data

The QTS in different forms, has been conducted by the department since 1976. From 2009 more than 71,000 people have been surveyed across the breadth of Queensland, providing an invaluable snapshot of the travel decisions Queenslanders make every day. The data provides insights into what these decisions mean for transport planning in our towns and regions and helps to develop our economy, strengthen the validity of decisions and even lead to valuable research.

For example, TMR takes data from the ‘How Queensland Travels’ survey and combines it with other large surveys such as the Australian Bureau of Statistics’ *Census of Population and Housing* to help pinpoint in what ways Queensland centres are growing and changing. The combined sets of information are then used to develop strategic travel demand models. These models produce forecasts which can show how, when and why trips are made on the network and how this might change over time.

By understanding these demands, TMR can extrapolate what kind and how much additional transport infrastructure and services might be needed as Queensland’s population changes. TMR has developed travel demand models for all the major towns and cities across Queensland from Cairns in the north to the Gold Coast in the south. The current practice is that these models, among other things, will inform the development of policies, strategies and business cases to guide investment decisions.

Queensland Cycle Strategy

A great deal has been achieved this year as part of the *Queensland Cycle Strategy 2011–21* and its supporting programs as well as thorough consultation for the new cycling strategy.

The government remains strongly committed to cycling infrastructure ([see glossary page 230](#)) with over \$160.2 million allocated for high-priority cycle infrastructure over the next four years between 2016–17 and 2019–20, including more than \$84 million in cycle infrastructure on the state-controlled network.

In August 2016, a forum was held to help shape and develop a new cycling strategy and complementary two-year action plan for Queensland.

The forum allowed cycling stakeholders from across Queensland to have their say, and for us to hear first-hand what Queenslanders want for their cycling future.

The *Cycling Infrastructure Policy* is currently being updated and the revised version will be publicly available in mid-2017.

There have been wins from the current policy with the shared path along the Moreton Bay Rail Link now open. Fitzroy District is progressing a shared path and active transport bridge over Limestone Creek as part of the Rockhampton Northern Access upgrade. In Mackay shared paths and centre median pedestrian-refuges are being included in the Vines Creek Bridge replacement. Bicycle lanes were also incorporated as part of the Eungella Rd/Kennys Rd intersection upgrade.

Some of the priority cycling projects completed this financial year include:

- North Brisbane Bikeway – Stage 1 (TMR project)
- Captain Cook Highway, Cycleway, Kewarra Beach to Smithfield, Cairns (TMR project)
- Eudlo Creek Bridge and approaches, Sunshine Coast (TMR and council grant project)
- Angus Smith Drive Shared Path Stage 3 Design and Construction, Townsville (grant project).

For more information visit:

www.tmr.qld.gov.au/travel-and-transport/cycling

National Ride2work Day

Throughout the year TMR has worked closely with Bicycle Queensland to inform our activities and consultation. We supported the National Ride2Work Day - the largest celebration of commuter riding in Australia. It encourages people who have never ridden to work before to give it a go and it allows frequent riders to stay motivated and encourage their workmates to get involved.



Jenny McMillan and Gavin Massingham joining the cycling revolution.

Principal Cycle Network Plans

We have developed *Principal Cycle Network Plans* (PCNPs) identifying over 10,200 kilometres of network, covering 48 local governments, 11 TMR districts and 98.9 per cent of the Queensland population. PCNPs provide a vision for the principal cycle network to support, guide and inform the planning, design and construction of the transport network.

We have also worked with local governments to develop Priority Route Maps (PRMs) to support delivery of the principal cycle network. PCNPs and PRMs are published on the TMR website.

During the year, we added 31 kilometres of cycle routes to the network across the state. Over \$37.3 million in capital funding was spent during the year on cycling infrastructure, \$21.9 million expended on the state-controlled network and \$15.4 million in grants to local governments.

Significant cycling projects on the state controlled network are listed ([see page 96](#)).

For more information visit: www.tmr.qld.gov.au/Travel-and-transport/Cycling/Principal-Cycle-Network-Plans



Research Partnerships – Australian Road and Research Board (ARRB)

In December 2016 the department re-signed the Memorandum of Understanding with the ARRB ([see glossary page 230](#)). Through this agreement, the department has committed ongoing support for the delivery of the National Asset Centre of Excellence (NACoE), a research and development body led by the department and ARRB.

NACoE undertakes a rolling three year program of research and innovation development projects aiming to assist the department to stay at the forefront of international best practice while driving sustainable and cost effective outcomes.

The following achievements have been delivered through the 2016–17 program:

EME2

We are leading the drive to introduce high modulus asphalt to Australia for major cost savings. High modulus asphalt, or EME2, offers a reduction in asphalt base thicknesses of at least 20 per cent, representing a huge potential saving on asphalt spend and construction time. We are the first road agency in Australia to publish both a pavement design methodology and a technical specification for this asphalt. In 2016, we successfully conducted the first trial of EME2 in Australia, and in March this year more than 10,000 tonnes was successfully placed on the Deagon Deviation – the largest use in Australia.

Crumb rubber (from waste tyres)

The success of the research and subsequent trials is indicating the use of Crumb Rubber Modifier (CRM) will deliver:

- Reduced waste – increased use of CRM binder provides a potential long-term alternative to this wastage
- Cost savings – sprayed seals that contain CRM binder are no more expensive than sprayed seals that contain an equivalent polymer modified binder (for more information [see page 134](#))
- Better performing pavements – asphalt and sprayed seals that contain CRM binder may last longer and perform better than those using conventional bituminous binders, lengthening the life of pavements through improved binder durability and waterproofing.

Use of crumb rubber on TMR projects has increased significantly since the commencement of the research project. Across the last two years, approximately 200,000 tyres were incorporated into road surfacings constructed as part of our road resurfacing program.

Improved line marking

Improved line marking project involving a trial of different line marking treatment to assess performance through reflectivity and longevity. The learnings from the project will be implemented through the department's statewide line marking program with the aim to deliver improved value for money.

Transport Academic Partnership

The Transport Academic Partnership is an agreement between our department, the Motor Accident Insurance Commission, Griffith University, Queensland University of Technology and the University of Queensland.

The partnership enables university partners to undertake innovative research and development to advance strategic transport capability and knowledge transfer between government, industry and the academic sectors, to help address future transport challenges. Research and development partnership outcomes are expected to help inform departmental policy and investment decisions.

Some research project examples include:

- developing a real time incident prediction tool to improve network management and incident response on the transport system
- modelling the timing and spatial patterns of property value uplift from recent investments in rail, busways and ferries.

Collaborating with universities enables departmental staff to enhance their skills and knowledge about emerging trends and expose them to best practice and international research.

The partnership will help to create employment opportunities for university transport researchers and assist in developing 'job ready' students for the transport sector.