

**Queensland Department of Transport and Main Roads**  
**and**  
**Queensland Police Service**

**Joint Submission:**  
**Inquiry into the National Road Safety Strategy 2017**

**Introduction**

Queensland welcomes the opportunity to respond to the Department of Infrastructure and Regional Development and Cities (DIRDAC) *Inquiry into progress under the National Road Safety Strategy 2011-2020*. Major challenges and opportunities facing Queensland's road transport system and road safety into the future are discussed in response to each of the Terms of Reference. This includes comment regarding the implementation of road safety interventions identified in the recent Austroads report (2017) that have the potential to make a significant impact.

**Key messages**

The key messages in this submission include:

- Road policing and enforcement is fundamental to achieving road safety targets. As policing and enforcement activity competes for funding with other policing needs, dedicated funding is required, otherwise road safety will be compromised.
- Support measures to reduce travel speeds, particularly in areas of high pedestrian and cyclist activity, where there is a demonstrated risk and lower speeds will deliver a reduction in fatal and serious injuries. Acceptance of lower speeds is more likely for a targeted approach rather than network wide reductions such as 40km in pedestrian areas, 90km default rural speed limit and 50km default urban arterial roads.
- TMR is currently investigating options to reduce travel speeds of motorcyclists, a road-user group that continues to be over-represented in fatal and serious injury casualty statistics.
- In addition to current federal funding for improving blackspots, there is significant potential to improve road safety performance by focussing investment on road corridors with high crash risk (as per Queensland's High Risk Roads program) and eliminating features across the network that contribute to reduced safety. Queensland recognises that the current level of funding to local governments require a significant increase.
- Support a review of federal funding infrastructure package guidelines, with a view to facilitating the provision of enforcement based infrastructure, such as enforcement bays and point to point camera systems.
- Road safety strategies should continue to focus on vulnerable road users, as well as young novice drivers and older drivers.
- The Euro-6 vehicle standard should be implemented in Australia.

## **Queensland's road safety context**

Queensland's Road Safety Strategy and Action Plan supports the national road safety targets and promotes the safe system approach to road safety trauma mitigation.

In Queensland there were 247 lives lost during 2017 or 5.03 fatalities per 100,000 population. This is four less than 2016 and the third lowest road toll since accurate records began in 1952. The lowest was in 2014 where 223 people died.

Queensland's Department of Transport and Main Roads (TMR) is committed to achieving continuous improvement in road safety outcomes, principally by influencing a reduction in the annual Queensland road toll and reducing road trauma in general using a combination of engineering, enforcement and education initiatives. TMR and the Queensland Police Service (QPS) work closely with a range of partners to achieve road safety targets. This submission represents the joint perspectives of TMR and QPS regarding the current operational context of road safety in Queensland.

## **TMR's road safety funding and allocation**

TMR has an excellent working relationship with QPS to support their enforcement operations of the Queensland Road Rules and activities associated with the Queensland Camera Detected Offence Program (CDOP).

Funding for road improvements in Queensland specifically focused on road safety outcomes is sourced through Australian Government safety package funding and the Queensland Targeted Road Safety Program (TRSP - which has funds principally sourced through revenues collected from the CDOP). In Queensland, legislation requires that revenues collected from the CDOP must be expended on road safety related activities. The distribution of revenue from the CDOP is determined by the *Transport Operations (Road Use Management) Act 1995* which states:

"All money collected for penalties imposed for camera detected offences in excess of the administrative costs of collection must be used for the following purposes:

- (a) road safety education and awareness programs
- (b) road accident injury rehabilitation programs
- (c) road funding to improve the safety of the sections of State-controlled roads where accidents most frequently happen."

The TRSP has strong interdependencies with other TMR Investment Programs, particularly programs and projects on the road network that form part of the joint Queensland and Australian Government National Partnership Agreement which have specific funding allocations to target road safety issues on highways such as the Bruce, Warrego, D'Aguilar and New England. This funding supplements broader infrastructure investment being made through the National Partnership Agreement, to upgrade these roads under the Investment Programs of:

- Bruce Highway Upgrades
- National Land Transport Network Upgrades
- State Road Network Upgrades.

TRSP sub-programs are structured to focus on specific safety issues by developing tailored programs that deliver high-benefit cost-effective projects. While TMR has traditionally focussed on "spot" based treatments at specific locations, TMR is supplementing this with a route-based approach to treat lengths

of road which have a high incidence of fatal and hospitalisation crashes. This approach is known as the “High Risk Roads” initiative which will be detailed further below.

In terms of approaches to investment funding, TMR’s observations with respect to Safer Roads Sooner, Black Spot, High Risk Roads and the provision of infrastructure-based police enforcement solutions to better enable and influence driver behaviour are provided under the relevant Terms of Reference, below.

The funding to maintain and upgrade the local road network is provided directly to local governments through the Australian Government’s Roads to Recovery Programme (R2R), as per the Local Government Grants Commission. The 2015-16 Federal Budget allocated \$71.2 million per annum to Queensland local governments (LGs). Current funding to LGs under R2R is \$350 million nationally, rising to \$400 million from 2019-20.

In November 2017, the then Minister for Infrastructure and Transport, the Honourable Darren Chester’s opening address to the National Local Road Congress encouraged councils to consider road safety in their projects. The Roads to Recovery Statement of Expectations will require council input on the benefits their completed projects have provided as a condition of funding in future years.

Local governments can also apply for the Australian Government’s Black Spot which allocates some \$12 million across Queensland per annum. As detailed later in the submission, this level of funding does not meet the current needs of local governments in Queensland to address the level of road trauma occurring on local roads. In the most recent development round for Black Spot, there was a shortfall of \$8.8m in funding for 11 high-benefit projects received from local governments, which had a BCR of 2.1 or greater (based on crashes) that could not be allocated funding.

Additionally, the current Black Spot is focussed on discrete sites with a crash history and additional funding to address safety risks on a network basis, perhaps via the proposed Austroads ‘Network Safety Plan’, would greatly assist local governments in the safe management of their road network.

**TERMS OF REFERENCE**

**1. Identify the key factors involved in the road crash death and serious injury trends including recent increases in 2015 and 2016.**



**Figure 1. Queensland’s road crash statistics – a snap shot.**

The burden of road trauma is significant in Queensland, where the cost of a road fatality is estimated at approximately \$8 million<sup>1</sup>. The Queensland preliminary road toll for 2017 was 247 fatalities. Key trends in the road toll statistics (refer Figure 1) which are of concern, include:

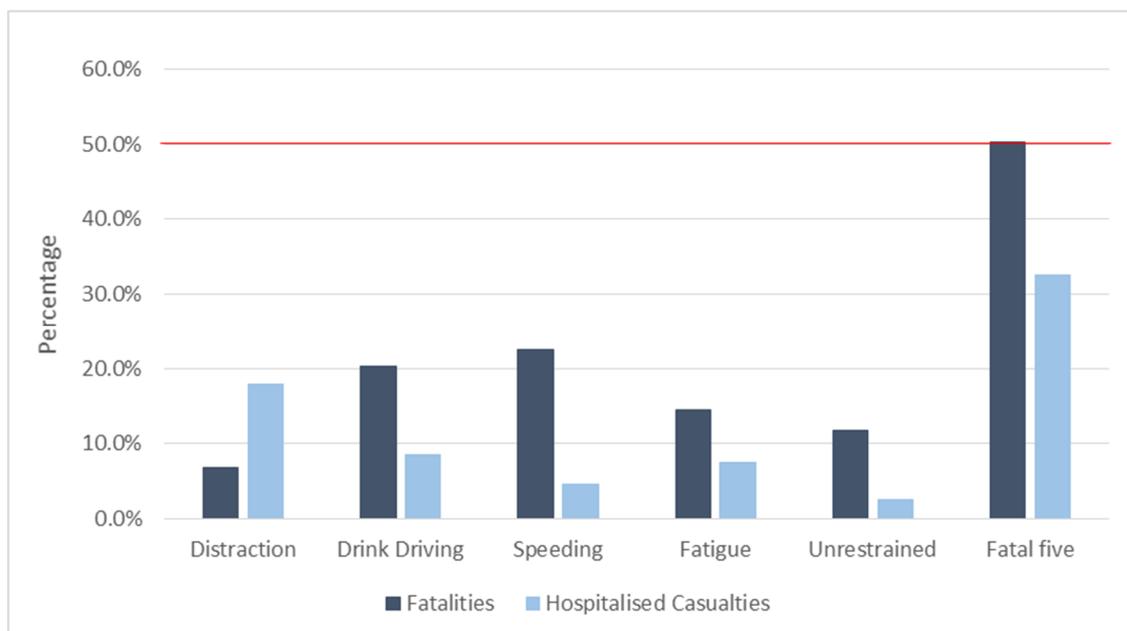
- Vulnerable road user fatalities represent 37% of all fatalities with a significant increase in pedestrian fatalities in the past 12 months and the continued over representation of motorcyclists.
- Motorcyclists comprise 5% of our registered vehicles and 20% of our fatalities and 41% of Queensland Health’s acute hospital care patients for all transport related acute care cases. Motorcyclists aged 21-59 years are roughly equally involved in serious casualties, with no single age group being a major contributor.

- There were 35 pedestrian fatalities (14.2% of the 2017 Queensland road toll) of which 26 were male and 9 were female, with almost 50% of these being alcohol related. There were 8 bicyclist fatalities (3.2%), comprising 6 males and 2 females.
- 44% of all fatalities involve drinking or drug driving which is an increase from 36% in 2016.
- 23% of all fatalities involve speed.
- Whilst crash data lacks accurate reporting of distraction and mobile device use, surveys of road users indicate 76% admit to using their phone illegally.
- For each fatality on the road, there are over 24 people taken to hospital.

There has been a steady decline over recent years in heavy freight vehicle fatalities and unrestrained vehicle occupants (although this number remains very high relative to the high seatbelt compliance rates).

Due to many vulnerable road users involved in crashes being transported direct to hospital prior to or without police attendance at the crash scene there is a difference between QPS and Queensland Health statistics for hospitalised casualties. For example, the 2015 police statistics may only represent 77% of the hospitalised casualties reported by hospitals. A significant data linkage project which links TMR road crash data, QPS data, Queensland Health hospital admissions data, and Queensland Ambulance Service data is being progressed. This project will complement the national approach to measuring non-fatal crash outcomes.

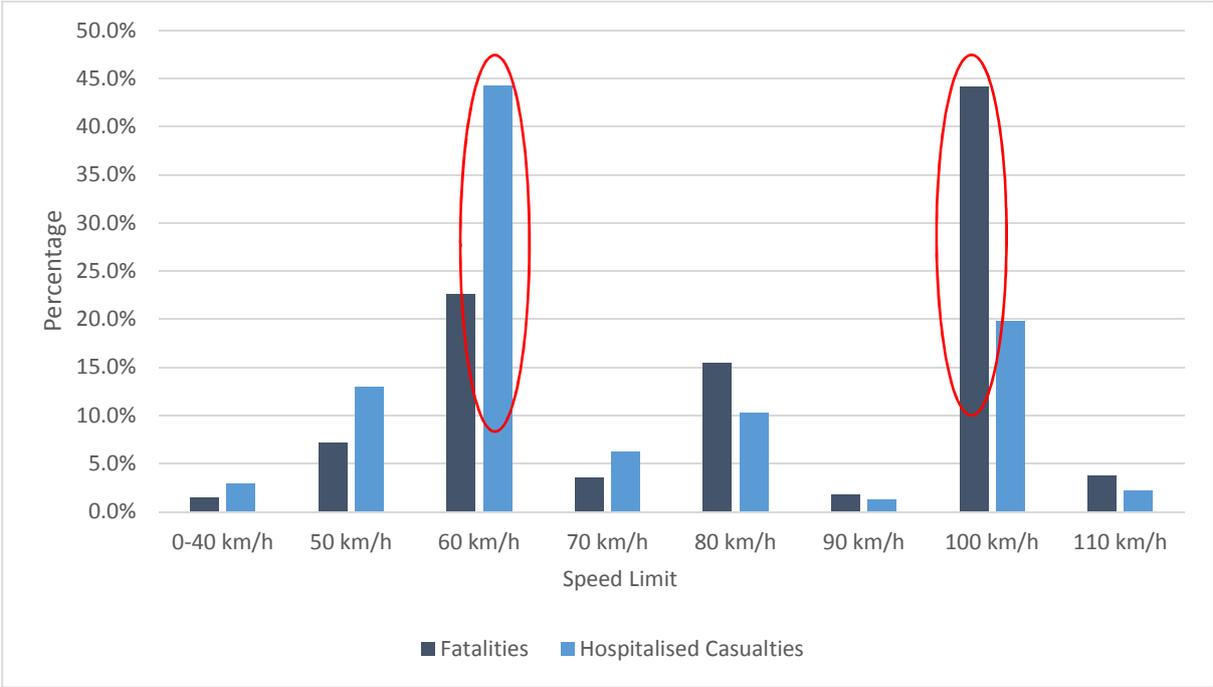
Notwithstanding the limitations of present data, it is evident that with the larger number of serious injury crashes and greater associated costs and network disruption, serious injury crashes warrant increased treatment focus and attention. Traditionally in Queensland, and Australia more broadly, road safety strategies have heavily focussed on fatal crashes. More recently, there has been increasing recognition of the need to give more attention to serious injuries from road crashes as detailed below.



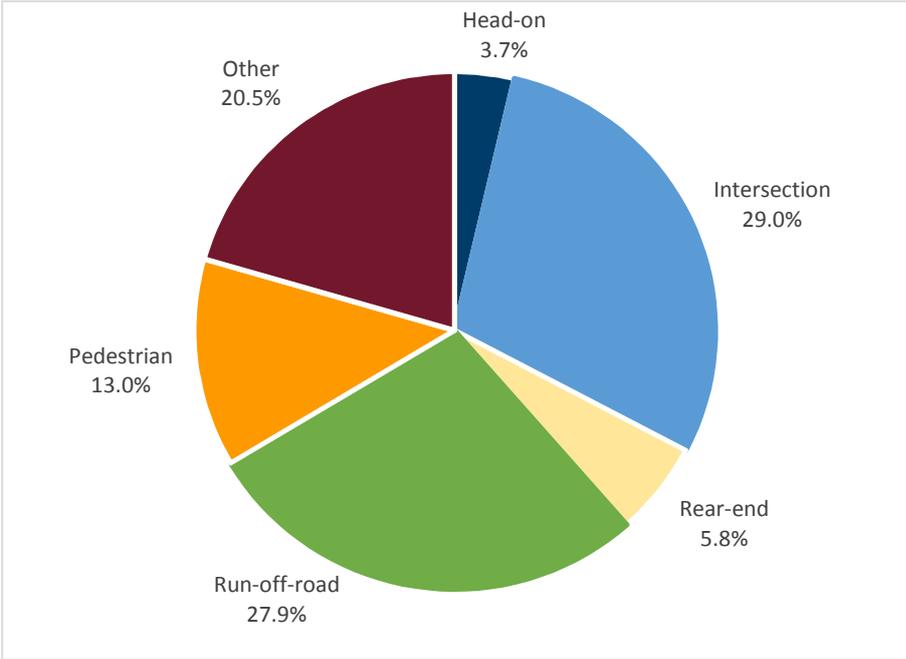
**Figure 2. The Fatal Five (are only associated with one third of serious injury road crashes).**

Figure 2 illustrates that 70% of serious injury crashes are not caused by extreme behaviours. Unlike fatality crashes which are typically characterised by multiple Fatal Five behaviours, only one in three serious injury crashes involve the Fatal Five. This is why the safe system philosophy is so important - it demands that we stop blaming people, and instead acknowledge that people make mistakes and seek to protect them with safer infrastructure, safer speeds and safer vehicles, so when they do make a mistake they survive and do not have lifelong injuries.

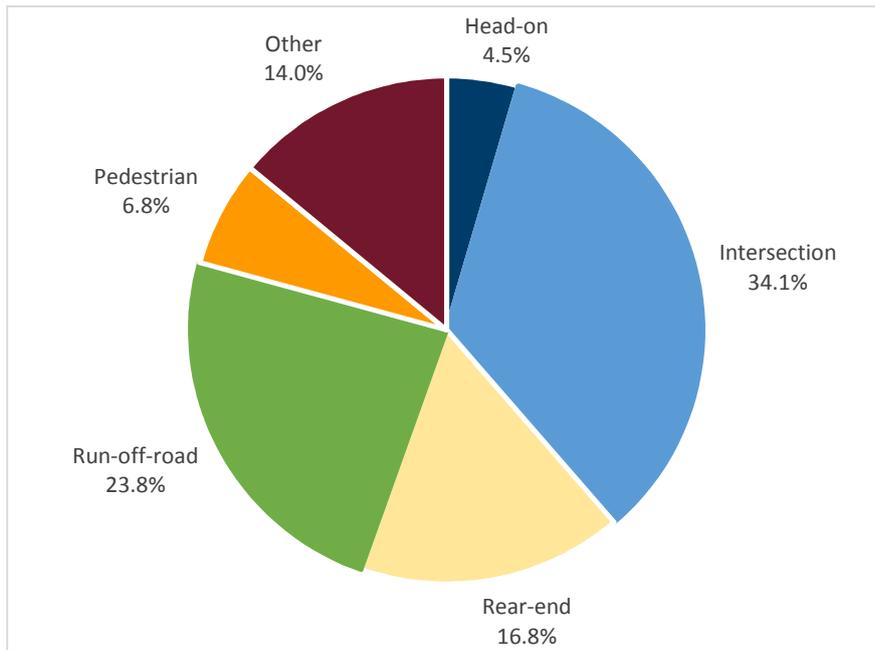
Figure 3 illustrates that the majority of fatal crashes occur on higher speed roads (100km/h) and hospitalised casualties on lower speed 60/km/h roads. This is not unexpected given the laws of physics.



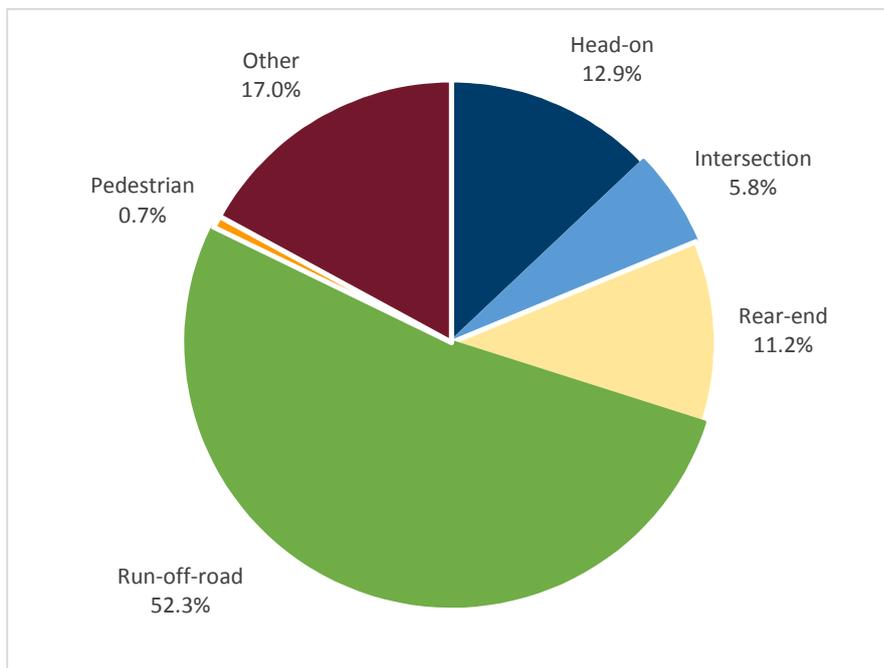
**Figure 3. Where serious injury crashes occur in Queensland.**



**Figure 4. Crash types, 50 km/h zones.**



**Figure 5. Crash types, 60 km/h zones.**



**Figure 6. Crash types, 100 km/h zones.**

Figures 4 and 5 demonstrate that four types of crashes, namely: intersection, rear-end, run-off the road and pedestrian crashes, account for over 75% of all crashes on these roads. With intersection crashes and run-off the road being the largest two crash types accounting for 58% of all crashes. Run off the road crashes in lower speed zones may involve a vehicle failing to negotiate a bend in wet weather, or losing control while swerving to avoid an another vehicle or obstacle.

Figure 6 shows that three types of crashes, namely: head-on, rear-end and run-off the road, account for over 75% of all crashes on roads with a 100km/h speed limit. Note that 'other' represents between 14% and 21% of crash types. This crash type includes, but is not limited to, side-swipe, hit animal, hit parked vehicle and manoeuvring.

It can be concluded that intersection, rear-end, run-off the road, pedestrian and head-on crashes account for over 80% of all crashes on all roads. This is important context to understand in targeting the road toll beyond just fatal crashes.

### **Road safety policing and enforcement**

Road policing and enforcement by QPS is fundamental to Queensland achieving road safety targets. Policing and enforcement has demonstrated effectiveness across a range of behaviours. Queensland's fatality and serious crash data reveals regional and urban differences in road crash characteristics and contributing factors across Queensland. Accordingly, in response to regional issues and needs, road policing and enforcement activity (e.g. roadside drug testing) also varies by region.

Policing and enforcement is a finite resource that competes with other areas of policing requirements (e.g. domestic violence). Currently, there is no allocated Commonwealth funding for police-specific enforcement regarding road safety. Further funding is needed to conduct high visibility road policing activities and achieve further road safety gains. It is noted that while enforcement can also be a proactive influence, supporting this requires governments to make a specific contribution toward funding proactive initiatives.

#### **Key points:**

- Serious injury crash countermeasures need to target different risk factors than traditionally targeted in initiatives focusing on fatal crashes.
- Road safety policing and enforcement activity varies according to regional needs and issues.
- Policing and enforcement activity competes for funding with other policing needs of the State, and without dedicated funding, road safety will be compromised.

## **2. Review the effectiveness of the National Road Safety Strategy (NRSS) 2011-2020 and supporting 2015-17 Action Plan, with particular reference to the increase in deaths and serious injuries from road crashes over the last two years.**

Australia, including Queensland, is currently not on track to reach the 2020 target to reduce fatalities and serious injuries by 30%. Further, TMR and QPS do not envision the actions in the National Road Safety Action Plan will achieve the target by 2020. It is recommended that stronger measures, such as those outlined in the Austroads report: *Key interventions to reduce road trauma and forecasting potential road safety gains*<sup>2</sup>, particularly in relation to speed management, infrastructure, and vehicle standards be prioritised.

The Austroads report included five categories of potential interventions, which vary in level of difficulty to implement and expected impact. Queensland's view of the six interventions under Category 2 are discussed, as these are interventions that require efforts beyond current 'business as usual' but are expected to have significant impact.

## **Austrroads Category 2 – Interventions difficult to achieve but with expected significant impact:**

### **1. Increase roadside drug testing to level of general deterrence**

QPS is increasing their roadside drug testing program and has received Government support to do this. QPS in 2018 is leading, on behalf of national policing agencies, work within Transport and Infrastructure Council (TIC) and Transport and Infrastructure Senior Officials' Committee (TISOC) to complete a national review of drug driving testing. Further work is needed to determine the level of drug driving testing needed to achieve general deterrence. The current costs associated with drug driving testing limits the extent that Queensland can increase testing levels without negatively impacting resources for other road safety action and enforcement.

Prescription medicines are a growing concern, and some international jurisdictions (e.g. Norway, UK) have enacted drug cut-off threshold legislation. For example in the UK, new legislation limits the amount of eight prescription drugs at levels that exceed normal prescribed doses, meaning that the majority of people can drive, providing they are taking their medicine in accordance with advice from a health professional and/or as printed in the accompanying leaflet, and their driving is not impaired. Further progress on this issue in Queensland is required to achieve similar policy implementation, and TMR continues to monitor relevant policy evaluation evidence as it emerges.

### **2. Reduce speed limits on urban arterial roads – default 50 km/h**

TMR supports measures to reduce travel speeds on urban arterial roads where there is demonstrated risk and it can deliver reductions in fatal and serious injury (FSI) casualties. These measures would include a reduction in speed limit combined with clear messaging on why a speed reduction is needed/justified and/or in some cases, physical measures to change the speed environment. This is expected to be effective in reducing travel speeds as community acceptance of the reduced speed limit is critical. Acceptance is more likely for a targeted approach rather than a network wide reduction that could be difficult to justify on lower risk arterial roads. TMR is currently reviewing the speed limit setting process applied in Queensland (*Manual of Uniform Traffic Control Devices, Part 4*) to be more supportive of lower speed limits on specific road sections where risk is higher. The new process will also highlight the factors that underpin the decision to assist with community engagement on the reduced speed limit.

### **3. Apply a speed hierarchy – default rural speed limit 90 km/h**

A reduced speed limit on lower volume, remote roads is likely to be difficult to enforce and to justify where crash rates are low. This is likely to lead to high rates of non-compliance and almost negligible road safety benefit on many roads in Queensland. TMR prefers a targeted approach where crash risk is high. Recent evaluation of speed limit reductions (to 90 km/h) including high crash risk signing and increased enforcement, applied to five roads in 2009 that had high crash rates, found significant reductions in travel speeds and an average reduction in the number of FSI crashes of 26%. TMR is currently investigating other sites for further implementation of this 'Blacklinks' approach.

### **4. Uniform use of 40 km/h in pedestrian areas**

TMR supports reduced speed limits in areas of high pedestrian and cyclist activity but does not support a blanket application. To achieve lower speed limits TMR believes a targeted approach will work better than blanket reductions. To assist this outcome, TMR is supporting greater use of lower speed limits and undertaking some demonstration projects to show both road authorities and the public the road safety benefits of lower speed limits. In the last two years there has been at least 119 locations in Queensland that have had speed limits reduced for pedestrian and cyclist safety. The Brisbane Central Business District had its speed limit reduced in 2008 to 40kmh which resulted in a drop of 26% in casualty crashes.

#### 5. Target motorcycle routes – audits, maintenance, and minor works – new funding

TMR is supportive of measures to improve safety of motorcyclists who as a road-user group continue to be over-represented in fatal and serious injury casualty statistics. In Queensland, in four of the last six years, in each year, 50 or more people have died in motorcycle related fatalities. Every possible effort should be made to address the behaviour and safe systems for this vulnerable road user group.

In recent years TMR has delivered engineering improvements on key motorcycle routes which predominantly consist of winding hinterland roads in South East Queensland and around Cairns. Whilst these delivered overall reductions in crashes there is still a high residual crash rate at most sites. TMR is currently exploring options to effectively reduce travel speeds of motorcyclists. Options being reviewed include raised platforms at the entrance of high risk zones, wide centreline with ATLM, narrow lanes with no centreline and raised medians with a similar intent to the wide centreline treatment but with physical separation. Any infrastructure measures to reduce speed will also be coupled with increased enforcement in high risk times.

Queensland is participating in a national program to develop a star rating system for protective clothing to better inform motorcyclist purchasing decisions. Other innovations could be pursued such as inflatable jackets. TMR is monitoring developments in motorcycle protective clothing, motorcycle technology (e.g. self-balancing motorcycles, introduction of anti-lock braking systems on all motorcycles), improving motorcycle identification to aid enforcement, and exploring new countermeasures for repeat offenders such as brief intervention programs.

#### 6. Rural roadside safety and delineation programs – large funding increase

TMR would welcome a large increase in funding for rural roadside safety and delineation. Queensland's Targeted Road Safety Program already funds many projects of this type as they focus on a key crash type that can readily be improved through infrastructure improvements. There is potential to significantly increase the level of funding and realise good value for money returns on the investment.

In terms of roadside safety, a large proportion of the rural high speed road network has narrow seals, meaning shoulder width is limited, and there are many locations where there are hazardous roadsides. TMR has assessed its entire state controlled road network using the AusRAP model and has detailed information on the distribution of roadside safety risk on all roads. TMR also has a network wide analysis of curve safety that includes identification of the highest risk curves. This information is being used to inform the development of mass actions that could be delivered with increased funding.

An opportunity for a step change improvement in delineation exists by adopting cold applied plastic (CAP) as the predominant line marking material rather than water based paint. Research into the conspicuousness of available products has shown the CAP performs far better than water based paint in both dark and wet conditions. This is particularly relevant in areas of Queensland that frequently experience significant rainfall. Funding for initial application of CAP across the network is needed.

Promotion of active collision avoidance technologies such as lane keep assist (LKA) and lane departure warning (LDW) through ANCAP ratings will increase knowledge and understanding of benefits among consumers, and increase penetration into Australia's new vehicle fleet. These technologies have potential benefits for reducing head-on and related crashes in rural and regional areas.

**Key points:**

- Achieving sustained reductions in the road toll requires focus on short-term outcomes as well as long-term planning and investment.
- Examining the federal funding model for roads to elevate the requirement to link Safe Systems design principles into infrastructure investment will enhance current efforts.
- To achieve further road safety gains, efforts to progress implementation of Austroads Category 2 interventions should be prioritised.

### **3. Identify issues and priorities for consideration in development of a post-2020 national road safety strategy and 2018-2020 action plan, focusing on how Australia can recognise and move towards a safe road transport system which minimises harm to all users.**

With the apparent shortfall in reaching NRSS 2011-2020 targets, it is timely to consider how, as a nation, Australia can move toward the safe road transport system that we envisaged. The Safe System underpins Australia's approach, and to support this framework, TMR and QPS consider the following issues to be of priority in developing a more effective post-2020 NRSS and Action Plan.

The NRSS 2011-2020 proposed adoption of the International Standard ISO 390001 Road Traffic Safety (RTS) management systems identifies elements of good road safety management practice. There is an opportunity to renew the focus on road safety management objectives and targets, and guide the planning of activities that will realise road safety goals by utilising the Safe System approach of ISO390001.

#### **Safe road users: changes and diversity among road users**

It is evident from fatal and serious injury crash data that traditionally vulnerable road user groups continue to have a higher risk of death and injury on Queensland roads. In addition, safety initiatives need to target young drivers (17 to 25 year olds), but also focus on more experienced and mature drivers (over 60 year of age). Changes to the Queensland population will likely have impacts on rates of crashes among older drivers. For example, with the aging of Queensland's population<sup>3</sup>, changes to the pension age and entitlements could result in people staying longer in the workforce and continuing the daily commute<sup>4</sup>. This will mean greater numbers of increasingly older adults on our roads, with consequent effects on safety for this group. Queensland has committed to encouraging safer vehicle choices for all drivers, especially younger less-experienced drivers, and older drivers who are likely to suffer more severe injuries. TMR is also investigating ways to encourage the use of safe transport choices, such as public transport, particularly for those who are not travelling in the safest vehicle.

TMR's Community Grants Scheme offers funding to community groups for projects and longer term programs that address road safety issues in support of the Queensland Road Safety Strategy objectives and associated action plan. Older drivers are currently a key priority for projects funded by the scheme, and TMR intends to investigate the viability of including Older Driver Road Safety Education within the program stream of the Grants scheme.

Alcohol and drug impaired driving remain significant road safety issues in Queensland. In the period September 2016 to August 2017, there were 60 drink driving-related fatalities (24.3% of the road toll), and around 73% of drink drivers involved in fatal crashes have a BAC between 0.10 and 0.24 (middle

and high range). Approximately 25% of first time drink driving offenders will become recidivist offenders. Current countermeasures include fines, licence disqualifications, vehicle impoundment and imprisonment, as well as public awareness campaigns. In 2017, a Discussion Paper sought feedback on a range of drink driving reforms. This feedback informed the development of the Drink Driving Reform package, which has received initial approval from Cabinet for implementation. Drug impaired driving is being targeted through increased roadside drug testing conducted by QPS.

According to Queensland data in 2014-2015, distraction-related fatalities were the fastest growing category of 'fatal five' fatalities, increasing by 125%. Through the Austroads Safety Taskforce research program, Queensland has nominated itself to lead the national work on distracted driving. Queensland's Driver Distraction Research Project is designed to identify new ways to address the risks people take when using mobile devices while driving. This project aims to develop a suite of solutions across the whole ecosystem to respond to this complex behaviour and its known impacts. As part of this project, TMR will collaborate with the Commonwealth Department of Infrastructure and Regional Development and engage with all relevant stakeholders, at senior levels, to discuss the issue and work towards a suite of solutions, with responsibility sitting across the ecosystem.

### **Safe vehicles: safeguarding Australia's vehicle regulatory standards**

The regulation of vehicle standards through the Australian Design Rules (ADRs) is a strong contributor to reductions in Australia's road toll<sup>5</sup>. The current minimum standard in Australia for new light vehicles and heavy vehicles is based on the Euro-5 standards, with equivalent US or Japanese standards accepted as alternatives.

Presently, Australia's vehicle standards are lagging behind international standards. TMR and QPS endorse the immediate implementation of Euro-6 or equivalent standard for new vehicles to achieve equivalence with international standards for vehicle design. Passenger vehicle production has now ceased in Australia, so the argument to maintain Euro-5 vehicle standards to ensure viability of the local market is now obsolete. This presents a timely opportunity for the Commonwealth to take immediate action to update the ADRs to Euro-6 standard as a minimum requirement for all new vehicles sold in Australia.

The Australian Productivity Commission recommends improving the level of harmonisation of Australia's regulations with international standards<sup>5</sup>. The Commission notes that due to unique factors in the Australian context, for example related to heavy vehicles, there is also a justification for a unique Australian standard<sup>5</sup>. While the Productivity Commission's comments are acknowledged, Queensland considers that a unique Australian vehicle standard may result in Australia becoming a niche market. The concern is that this will result in increased vehicle purchase prices, which may also result in an increase in the Australian fleet age, as more people will struggle to afford the newer, more expensive vehicles. Consequently, safety will decline.

In Queensland, light commercial vehicles are overrepresented in crashes, and ADRs for these vehicles need improving to achieve reductions in the number and severity of crashes involving these vehicles. In addition, there is an increasing number of non-standard vehicles (for example, electric bicycles) which operate on Queensland roads in the absence of strict safety guidelines. ADRs need to maintain standards for vehicle design and operation of all vehicle types, and it is recommended that Australia's ADRs be reviewed accordingly. This is especially critical in consideration of Australia's aging population, given the susceptibility of older adults to be seriously injured in vehicles with lower safety standards.

### **ANCAP & UCAP**

TMR supports the role of the Australasian New Car Assessment Program (ANCAP) as a consumer provider of advice and information on the levels of occupant and pedestrian protection and ability to avoid a crash for vehicle models in the Australian market. TMR as a founding member continues to contribute financially to both ANCAP and to Monash University for the Used Car Assessment Program

(UCAP) and suggests that the Federal Government should also normalise its funding commitment on a permanent basis. TMR is committed to continuing our work with these programs with Dennis Walsh, General Manager (Land Transport Safety) currently representing TMR on the ANCAP Board of Directors.

The use of date-stamps on ANCAP rating logos, signifying the rating year and the corresponding requirements against which that vehicle was tested, is supported.

### **Safe Roads & Roadsides**

There is significant potential to improve road safety performance by focusing increased investment on improving blackspots and road corridors with high crash risk, and eliminating across the network features that contribute to reduced safety. Small sites with clusters of crashes are improved by road safety projects funded through the federal Black Spot program or the Queensland Government's Safer Roads Sooner program. Queensland has a planning process to develop road safety solutions for road corridors that have consistently high rates of fatal and serious injury crashes. Projects to improve these 'High Risk Roads' are funded through Queensland's Targeted Road Safety Program. Mass action programs are developed to address network-wide deficiencies or to introduce new, safety focused practices. Typically these result from investigations into crash trends or trials of innovations. Examples currently being delivered in Queensland are gateway speed reduction treatments on rural roads following successful trials and evaluations in the UK and New Zealand, introducing 'pedestrian protection' at signalised urban intersections and replacing signs that pose a spearing hazard. Wide centre line is an example of highly successful network treatment.

In addition to increased funding targeting road safety outcomes, modification of the use of existing funding also has great potential to deliver significant safety improvements. TMR is currently reviewing processes for developing and approving all capital projects through planning, development and implementation stages. The intention is to ensure all opportunities to improve road safety are taken when delivering any type of improvement on the road network. To assist in this, Austroads is developing technical resources to support the development of 'Network Safety Plans' that will be used to set expectations (safety performance) of projects and to encourage greater consistency in road quality and driver experience on corridors. As well as contributing to the Austroads work, TMR is calibrating the Austroads outputs for Queensland conditions and developing intervention and improvement guidelines to facilitate the development of the 'Network Safety Plans.'

The predominant crash types which feature in 78% of all fatal and serious injury crashes in Queensland include intersection, run-off-road and head-on crashes. Head-on crashes are particularly severe on high speed rural roads and highways and the development of wide centerline treatment over the last five years has delivered good crash reductions on the Bruce Highway and other roads. Queensland is investigating options to improve and implement this treatment more widely.

Outcomes of run-off-road crashes tend to be severe where there are hazards close to the road in high speed environments. These hazards can be rigid objects (trees or poles), drainage culverts and steep embankments. A range of treatments are used to reduce run-off-road risk, depending on the nature of the site, including preventative treatments (audio tactile line marking and wider sealed shoulders) and reducing the severity (safety barriers, removing hazards and flattening embankments). In the near future TMR hopes to focus on curves where there is a concentration of this crash type by developing a mass action proposal to treat high risk curves across the network.

Intersection crashes are more predominant in urban areas where traffic volumes are higher. They also include higher rates of crashes involving pedestrians and cyclists due to their vulnerability and increasing rear-end crashes, possibly related to congestion and driver distraction. There is a wide range of treatments currently being used, depending on the nature of the site and safety issues. Most treatments are aimed at reducing/controlling conflict points between road users (for example, prohibiting filter right turns at signals) or reducing severity (for example, installing roundabouts to reduce speeds

and impact angles). On rural roads rear-end crashes into vehicles waiting to turn right are particularly severe. The risk can be reduced by installing right-turn lanes to separate right-turn vehicles from through traffic but this often requires significant investment in local widening.

Safer Roads Sooner and Black Spot programs

The Safer Roads Sooner (SRS) investment sub-program has become a well-established TMR program since its introduction in the mid-2000's, and has delivered hundreds of valuable safety improvement projects across the State. Essentially, CDOP funds are bid for by TMR districts through a candidate project nomination process reviewed by a Technical Committee comprising experienced road safety engineers that assesses proposals for both SRS and the Australian Government Black Spot program. Investment decisions for the Black Spot and SRS programs have been based on 'black spot' identification and analysis techniques using crash history and exposure to assess risk based on traffic volume, with funding decisions primarily determined on the basis of a Benefit-Cost Ratio (BCR). Employing a low-cost-high-benefit philosophy results in program compromising many projects of low cost that delivers significant safety benefits at specific sites, with SRS being on state-controlled roads, and Black Spot mostly (but not exclusively) for projects on local government roads. It is widely acknowledged such techniques have been successful in reducing road trauma.

TMR generally allocates all Australian Government Black Spot funding to Local Governments. TMR however notes the level of Australian Government Black Spot Program funding has remained relatively low and largely unchanged since 2009/2010. Table 1, below, outlines Australian Government Black Spot Program funding levels. This level of funding does not meet the needs of local governments in Queensland. Queensland notes many technically sound and beneficial Local Government road safety projects are unable to be funded given this low level of capital investment from the Australian Government. Queensland has written on previous occasions to the Australian Government seeking an increase in the allocation of Black Spot funding, however such requests have not been supported. TMR considers a substantial increase is needed in the annual Black Spot Program allocation.

**Table 1: Australian Government Queensland Black Spot program funding by year**

<b>Year</b>	<b>Funding amount</b>
2020-21	\$12,178,000
2019-20	\$12,178,000
2018-19	\$12,178,000
2017-18	\$12,178,000
2016-17	\$12,178,000
2016-17 Asset Recycling	\$20,296,000
2015-16	\$12,178,000
2015-16 Asset Recycling	\$20,296,000
2014-15	\$12,178,000
2013-14	\$12,078,000
2012-13	\$12,078,000
2011-12	\$12,078,000
2010-11	\$12,078,000
2009-10	\$12,078,000
2008-09	\$8,923,000
2007-08	\$8,923,000
2006-07	\$8,923,000

2005-06	\$8,923,000
2004-05	\$8,923,000
2003-04	\$8,923,000
2002-03	\$8,923,000

### Allocating investment funding towards Route Actions – “High Risk Roads”

While the Safer Roads Sooner program has been successful in reducing Fatal and Serious Injury (FSI) crashes at high risk sites, network-wide data analysis shows a significant proportion of FSI crashes are widely dispersed across the state and local highway networks. As such, focussing solely on ‘black spots’ would result in these dispersed crashes being overlooked for remediation.

The TRSP Route Actions (High Risk Roads) sub-program represents a new approach to investing in safer roads. The High Risk Roads (HRR) route based approach to identifying high risk road segments (up to 20 km lengths) has found 26 sections of road, which while representing 1.4% of network length, carries 10% of Queensland’s FSI crashes. Queensland’s 26 sections of High Risk Road are detailed in Table 2, below.

It is the view of TMR that the Australian Government consider a similar approach to funding the treatment of high risk crash routes, as part of a complementary funding package to the Black Spot Program to remediate road trauma along prioritised lengths of roads especially for Local Government roads.

**Table 2. Queensland’s High Risk Roads**

Road section name	Length	District	Region	Fatal Crashes	FSI Crashes	Cost/km	Cost/vkt
CLEVELAND - REDLAND BAY ROAD	15.4 <sup>a</sup>	Metropolitan	Metropolitan	High	Very High	High	
MOUNT COTTON ROAD	13.2 <sup>a</sup>	Metropolitan	Metropolitan	High	High	High	High
BUNDABERG - GIN GIN ROAD	20.0	Wide Bay/Burnett	North Coast & Wide Bay/Burnett	High			High
GLADSTONE - BENARABY ROAD	19.3 <sup>a</sup>	Fitzroy	Central Queensland	Very High	High	High	
ROCKHAMPTON - YEPPOON ROAD	20.0 <sup>a</sup>	Fitzroy	Central Queensland	High	Very High	High	
NERANG - MURWILLUMBAH ROAD	20.0 <sup>a</sup>	South Coast	South Coast	High	High	High	High
BEAUDESERT - NERANG ROAD	12.1	South Coast	South Coast	Very High	High	High	High
BEAUDESERT - BEENLEIGH ROAD	35.5	South Coast	South Coast	High	High	High	High
BURPENGARY - CABOOLTURE ROAD	7.8 <sup>a</sup>	North Coast	North Coast & Wide Bay/Burnett		Very High	Very High	High
MALENY - STANLEY RIVER ROAD	20.3	North Coast	North Coast & Wide Bay/Burnett	High	High		Very High
GLENELLA CONNECTION ROAD	3.9 <sup>a</sup>	Mackay/Whitsunday	Central Queensland			Very High	High
GILLIES RANGE ROAD	40.0	Far North	North Queensland	High	High	High	High
SOUTH TOWNSVILLE ROAD	5.5 <sup>a</sup>	Northern	North Queensland	High	High	High	
NORTH WARD ROAD	7.9 <sup>a</sup>	Northern	North Queensland		Very High	Very High	
DOUGLAS - GARBUTT ROAD	5.5 <sup>a</sup>	Northern	North Queensland	High	Very High	Very High	
MOUNT GLORIOUS ROAD	26.9	North Coast	North Coast & Wide Bay/Burnett		High	High	Very High
CABOOLTURE CONNECTION ROAD	8.2 <sup>a</sup>	North Coast	North Coast & Wide Bay/Burnett	High	Very High	Very High	High
BARKLY HIGHWAY (CLONCURRY - MT ISA)	20.6	North West	North Queensland	High			High
CAPRICORN HIGHWAY (ROCKHAMPTON - DUARINGA)	20.0 <sup>a</sup>	Fitzroy	Central Queensland	High	High		
CAPTAIN COOK HIGHWAY (CAIRNS - MOSSMAN)	74.9	Far North	North Queensland	Very High	Very High	High	High
NEW ENGLAND HIGHWAY (TOOWOOMBA-WARWICK)	20.0 <sup>a</sup>	Darling Downs	Downs South West	Very High	Very High	High	High
NEW ENGLAND HIGHWAY (WARWICK - WALLANGARRA)	20.0	Darling Downs	Downs South West	Very High			High
GORE HIGHWAY (TOOWOOMBA-MILLMERRAN)	20.0 <sup>a</sup>	Darling Downs	Downs South West	High	High		
KENNEDY HIGHWAY (CAIRNS - MAREEBA)	20.0 <sup>a</sup>	Far North	North Queensland	High	Very High	High	High
D’AGUILAR HIGHWAY (YARRAMAN - KINGAROY)	5.7	Wide Bay/Burnett	North Coast & Wide Bay/Burnett			High	High
MOUNT LINDESAY ARTERIAL ROAD	11.9 <sup>a</sup>	Metropolitan	Metropolitan	Very High	Very High	Very High	

<sup>a</sup> Part of road only.

## **Safe Speeds**

Speed crashes continue to be a problem in Queensland with 60 speed related fatalities in the 12 months to September 2017, representing 23% of the road toll. Impairment due to alcohol and drugs is also a major factor in speed crashes with 69% of drivers and riders in speed crashes involving alcohol or drugs. Queensland has a number of initiatives in place to assist in reducing this number.

The Queensland Government has developed the Queensland Speed Conversation document. Through the Queensland Speed Conversation the government has committed to a long-term vision to change attitudes and behaviours toward speed. The Conversation has a vision to change public perceptions about the role speed plays in road safety by sharing information and challenging the community to share the responsibility for safe speeds to make Queensland roads safe.

This approach complements the usual practices of regulation, enforcement and broad-scale education campaigns. It focuses on individuals and the real difference each motorist can and does make to reducing road trauma through the choices they make every time they get behind the wheel or throttle. That said, the Conversation recognises that while long-term behaviour change occurs, governments have the power, authority and responsibility to continue traditional approaches to road safety. The Conversation presents specific actions for government to drive road safety outcomes and continue improving the delivery of road and roadside design for speed, enforcement, and road safety resources and services.

There are twenty-one actions listed in the conversation document to address speed fatalities in Queensland. The actions include:

- Review the Manual of Traffic Control Devices Part 4 to deliver a greater emphasis on safety and opportunities for more appropriate speed limit setting.
- Reduce speed limits in areas of high pedestrian and cycling activity. Queensland has already reduced speed limits on 119 roads to assist pedestrian and cycling safety and will be conducting further demonstration projects to show the benefits of speed reductions.
- Improving school safety by installing flashing school zone signs.
- Increasing community education on dangers of speeding.
- Installing additional point-to-point and red light speed cameras.
- Investigating the speed penalty brackets in Queensland.
- Investigate opportunities for digitising speed limit information and using this to support the delivery of advisory in-vehicle speed information.

Speed enforcement continues to be a major initiative in Queensland to reduce speed crashes. Speed camera enforcement has been highly successful in reducing crashes and crash related casualties. Research by Monash University estimated it to be associated with saving an average of 3,900 police reported crashes each year between 2013 and 2015, at estimated savings to the community of nearly \$1.6 billion each year. The mobile speed camera program has been found to be responsible for the majority of these crash savings with its 'anywhere, anytime' philosophy.

Queensland has an approved plan to increase mobile speed camera hours, point-to-point camera systems and red light speed cameras for the next three years.

## **Supporting the Safe System**

### **Technology**

Advances in technology, such as connected automated vehicles and integrated operating systems, will continue to transform Queensland's road transport system. The peer-to-peer market and sharing economy is also anticipated to expand<sup>4</sup>. Embracing new technologies brings potential benefits, such as enhanced efficiency, safety, reliability and responsiveness to the transport system. Effective

enforcement and policing also relies upon technology that provides accurate and timely information of the road context and use. Queensland is eager to embrace new technological advances for safety benefits, however increased national support is required to do so. It is vital that future funding be allocated to developments in technology to support safety outcomes.

From 2017-21 TMR is delivering the Cooperative and Automated Vehicle Initiative (CAVI), to help prepare for the arrival of new vehicle technologies with safety, mobility and environmental benefits on Queensland roads. CAVI consists of four components:

- [Cooperative Intelligent Transport Systems \(C-ITS\) Pilot](#)—the largest on-road testing trial in Australia of cooperative vehicles and infrastructure.
- [Cooperative and Highly Automated Driving \(CHAD\) Pilot](#)—testing a small number of vehicles with cooperative and automated technologies.
- [Vulnerable road user pilot](#)—a project looking at how new technology applications can benefit vulnerable road user safety including pedestrians, motorcycle riders and bicycle riders.
- [Change management](#)—a process for the Department of Transport and Main Roads to consider the change of current business and practices.

International pilots have demonstrated positive safety benefits, however policy-makers continue to call for trials to validate the benefits in support of the investment logic. The challenge for most trials is to involve sufficient participation for the evaluation of benefits. Queensland's pilot – currently the largest planned – will provide a core data set to build a standardised analysis methodology and evaluate safety benefits of C-ITS. The evaluation findings will be used by transport agencies (local, state and federal) to support the investment of infrastructure both digital and physical that supports the emerging C-ITS need.

### Partnerships

Working in partnership with stakeholders is essential to the success, safety and sustainability of Queensland's transport system, and is a major feature of Queensland's Road Safety Action Plan 2017-19. Commonwealth-coordinated forums such as the Transport and Infrastructure Council provide a welcome opportunity for engagement across jurisdictions.

At a local level, Queensland strives to enhance relationships and engagement across all sectors, including industry, community, research, and advocacy groups. Review of the federal government's role in facilitating cross-jurisdictional engagement and achieving commitment to road safety across all sectors will help to ensure that safety is the principal priority among rapidly developing changes in technology and vehicle design and use.

### Australian Government funding inconsistencies with the 'Safe System' approach

The Safe System approach provides Australian jurisdictions and TMR with the direction to make further progress in reducing fatal and serious injuries. This approach was first set out in the *National Road Safety Action Plan (NRSAP) 2005-06*, and has been espoused in subsequent Australian Government Road Safety Strategies and Action Plans. The Safe System approach emphasises that road safety is a shared responsibility between all parties associated with the roads - the owners and operators of the road system, vehicle designers and road users.

Queensland recognises enforcement and infrastructure are complementary in nature in terms of providing the safest possible road network/road safety outcomes. TMR, in addressing this issue has sought to ensure police/road enforcement is factored into road design and construction, as evidenced through the following examples:

- Point-to-point camera systems: Queensland has a forward program to deploy point-to-point camera systems as part of road upgrades and new construction. Point-to-point camera systems are proven worldwide to significantly reduce road trauma and improve traffic flow along a length of road as motorists maintain a higher level of compliance with the speed limit. Austroads' (2012) report, *Point-to Point-Speed Enforcement*<sup>6</sup> noted fatal and hospitalisation crash reductions in excess of 85% along some point-to-point camera locations in Europe. The Queensland government is currently in the process of procuring and installing point-to-point camera systems on the Pacific Motorway, Gateway Motorway and Toowoomba Second Range Crossing.
- Enforcement bays/Interception sites: TMR recognises the need to provide opportunities for QPS to undertake safe enforcement of the network. An increased police presence on the network provides further opportunities to influence driver behaviour and detect high risk road users. For example, in recent years motorcyclists in Queensland have represented 20-25% of all road fatalities, of which many have occurred on narrow winding roads which have been difficult for police to conduct static enforcement on due to the lack of enforcement bays. Through use of road crash data, TMR identified 14 of the state's highest risk motorcycle routes and constructed 46 enforcement bays along these roads to enable a heightened police presence to influence road user behaviour.

As part of Australian Government funding guidelines, such as those for the Bruce Highway Safety Package, Queensland has been advised it is unable to construct enforcement bays for the provision of police operations, as the Australian Government does not fund revenue collection opportunities for the state. This rationale clearly does not take into consideration that many enforcement operations, such as Random Breath Testing and Drug Driving, do not afford jurisdictions with any revenue, yet allow police to detect motorists and influence behaviour before they cause harm to themselves or others on the road network.

TMR would be supportive of the Australian Government reviewing its infrastructure safety package funding guidelines, with a view to facilitating the provision of enforcement based infrastructure, such as enforcement bays and point-to-point camera systems to ensure a "Safe System" approach to reducing road trauma is supported.

#### Focus on serious injury crashes

Traditionally, road safety countermeasures have focussed on fatalities, however it is evident that the true road toll is broader than this. TMR and QPS support the increased focus on serious injuries, noting that the profile and contributing factors of fatal crashes is different to that of serious injury crashes. This means that current approaches need to be modified if we are to have a meaningful impact on serious injury crashes.

#### **Key points:**

- Utilise the Safe System approach of ISO39001 to renew the focus on road safety management objectives and targets, and guide the planning of activities that will realise road safety goals.
- Safety strategies should continue to focus on vulnerable road users, as well as young novice drivers and older drivers.
- Implement the Euro-6 vehicle standard in Australia.
- Maintain strict vehicle design and operating standards for all vehicle types.

#### **4. Advise on arrangements for the management of road safety and the NRSS, looking at best coordination and use of the capacity and contributions of all partners.**

The Australian Government's role in managing road safety and the NRSS is primarily one of coordination, facilitation and funding. Planning and implementation of road safety measures are largely driven by State, Territory and local governments.

Australia's transport sector faces a number of significant opportunities and challenges in the coming decades, and achieving the stated road safety targets requires long-term planning and coordination. Nationally coordinated cross-jurisdictional committees provide forums for engagement for senior road safety officials from Australian Government, State, Territory and New Zealand transport agencies, National Transport Commission, Australia New Zealand Policing Advisory Agency, and automotive industry and road user bodies. Through this engagement, stakeholders have the opportunity to regularly share information, monitor and report on road safety outcomes. TMR and QPS consider that ongoing participation in commonwealth and local forums, across all sectors, to be crucial to managing and coordinating an integrated national transport policy and operations agenda. It is recommended that the Commonwealth continue to provide a framework that encourages and facilitates communication and coordinated action.

The current model to engage jurisdictions and drive change via TIC, TISOC, Austroads and associated task forces relies on generating consensus within and across jurisdictions. However, at a national level, the increasing level of automation in vehicles has raised questions about whether Australia's current regulatory regime can support highly or fully automated vehicles on public roads. Ideally, AVs will be able to cross state and territory borders seamlessly with no change to operating conditions. This will require consideration of national entities and their roles and responsibilities.

##### **Key points:**

- Essential to success is the engagement of all sectors in cross-jurisdictional forums, particularly policing and enforcement agencies who work in partnership with transport departments to operationalise road safety targets.
- A dedicated committee may be necessary to oversee and guide the integration of autonomous vehicles into the transport sector.

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