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Western Australian Strategic Direction for Improving the Safety of Motorcyclists and Moped Riders

2016 - 2020

Motorcycle Safety Review Group - December 2015

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Western Australia's Road Safety Strategy 2008-2020, Towards Zero, envisions a future where people are not killed or seriously injured in road crashes. In response to a high number of motorcyclist deaths in 2014, the Minister for Road Safety, Hon. Liza Harvey MLA, established an inter-agency working group to examine issues and further options that can be pursued to improve motorcycle and moped safety in Western Australia.

The Motorcycle Safety Review Group (MSRG) was chaired by the Road Safety Commission (Office of Road Safety prior to 1 July 2015) and included representatives from the Department of Transport, WA Police, Main Roads WA and Insurance Commission of WA.

As part of its review, the Group conducted a detailed analysis of motorcycle and moped fatal and catastrophic injury crashes in 2013 and 2014 to highlight any common themes and, from this and other information gained from national and international best practice and consultation with local rider groups, identified potential areas for action over the next four years to improve motorcyclist safety.

The analysis of crashes, licensing, traffic and criminal offence histories confirmed that the majority of motorcyclist crashes occur in metropolitan Perth, with collisions at intersections being a significant issue. Regional motorcyclist crashes, however, were more likely to result in death and typically involved a single motorcycle losing control on curves or straight sections of road.

Alcohol and the presence of illicit drugs were a factor in around one-fifth of fatally injured riders and most riders had accumulated infringements in the past, most related to speeding. About one in five riders killed in 2013 and 2014 had illegal (Blood Alcohol Content (BAC) readings of alcohol and about one in five of these riders tested positive for illicit drugs.

While there was a spread of ages of crashed riders and pillion, the majority of those fatally and catastrophically injured had held their motorcycle licence long enough to hold the R class licence, allowing them to ride motorcycles that were unrestricted in power and weight.

With increasing population and demand for energy-efficient transport, the use of motorcycles and mopeds is expected to continue to grow. The challenge for Government, road users and industry alike is to ensure that both existing and new riders are protected from serious harm from road trauma.

The following actions have been identified by the MSRG as practical initiatives that have the best potential for achieving a reduction in the number and severity of motorcyclist crashes in the WA context. The actions relate to enhancements that will seek to:

- Encourage more responsibility by the riders for their personal safety and the safety of others. The rider or driver of a vehicle has ultimate responsibility for their actions.
- Improve rider interactions with other road users. Multi-vehicle crashes could be potentially avoided if drivers had a greater awareness of motorcyclists, their inherent vulnerability, made better judgements and took responsibility for sharing the road with other road users.
- Improve motorcycle rider competencies. At present, there are a number of areas in the Western Australian Graduated Rider Training and Licensing System where the requirements for motorcycle riders are not as rigorous as those for novice car drivers.
- Make the road and roadside environment more motorcycle friendly. Motorcycles are, by their nature, more sensitive than other road users to any road irregularities.
- Improve the uptake of motorcycles that have better crash avoidance features. Vehicle improvements have potential to affect rider behaviour and improve rider safety.

EXECUTIVE SUMMARY

The actions outlined in this Strategic Directions document will be progressed over the next four years, 2016 – 2020. The Road Safety Commission, as lead agency for road safety in Western Australia, will coordinate implementation of the plan, through its existing working relationships with agencies, and report on a regular basis to the Minister for Road Safety.

Consultation with rider groups and industry stakeholders will continue through the existing Motorcycle Safety Action Group.

All actions will be undertaken with reference to likely impact on motorcycle safety, cost and timeliness of implementation.

SUMMARY OF ACTIONS

The following actions will be progressed over the next four years, 2016 – 2020, with regular monitoring and reporting to the Minister for Road Safety through the existing Motorcycle Safety Action Group comprising of relevant government agencies, local government, rider groups and industry.

Theme	Action	Lead agency	Years
Rider responsibility	<p>Action 1 - Promote best practice recommendations for rider visibility with the aim being for the rider to show as much contrast with the environment as possible. As a general rule this would include the promotion of:</p> <ul style="list-style-type: none"> ● high visibility clothing and white or light helmets when riding through highly dense traffic; ● darker clothing when cruising in open spaces with high ambient light; and ● reflective clothing at night. 	RSC	Year 1
	Action 2 - Promote the Motorcycle Riders Association brochure Make Yourself Visible and other material to encourage correct road positions for safer riding.	RSC	Year 1
	Action 3 - Promote the existence of Consumer Rating and Assessment of Helmets (CRASH) to local riders, and if necessary, contribute as a funding partner to support the initiative.	RSC	Year 1
	Action 4 - Include the United Nations ECE 22.05 helmet standard on the list of approved helmets for use in Western Australia.	RSC	Year 1
	Action 5 - Contribute to the development and support for a national motorcycle protective clothing rating tool in the first instance, and then the eventual use of the tool to promote the wearing of protective clothing to riders.	RSC	Year 2
	Action 6 - Introduce a zero BAC limit for all learner motorcycle riders, regardless of other licences held.	RSC, DoT	Year 2
	Action 7 - Consider introducing a zero BAC limit for the first two years of the restricted licence phase.	RSC, DoT	Year 2
	Action 8 - To enhance the detection and identification of speeding motorcyclists in Western Australia, expand the use of rear facing cameras and introduce stricter owner onus legislation.	WA Police, RSC	Year 1

SUMMARY OF ACTIONS

Theme	Action	Lead agency	Years
Rider responsibility	<p>Action 9 - Given the inherent vulnerability of motorcyclists, continued attention should be paid in Western Australia to:</p> <ul style="list-style-type: none"> ● Enforcing high risk road traffic laws across the general driving population using best practice methods (WA Police category A offences); ● Using intelligence on times, days, routes, ages etc target specific enforcement of motorcycle and scooter riders; ● Enhancing penalties for low range speeding to ensure that repeat offenders can be ultimately managed through accrual of demerit points; and ● Raising awareness among the general population about their high risk driving and its impact on riders. 	WA Police (enforcement) and RSC (legislation and education)	Year 1
	Action 10 - Raise awareness among motorcyclists of the risks associated with riding and strategies for reducing risk.	RSC	Year 1
	Action 11 - Rider groups to consider the development of a Code of Conduct for Motorcycle and Scooter Riders for everyday riding, as well as group rides.	Motorcycle Riders' Association	Years 2-4

Theme	Action	Lead agency	Years
Rider interaction with other riders	Action 12 - Support the research and development of vehicle safety systems that can overcome the physical limitations of the human driver to see motorcycles in the traffic system.	RSC	Years 2-4
	Action 13 - Increase driver awareness of blind spots and the potential presence of motorcyclists and encourage the purchase of vehicles with blind spot monitoring and other features.	RSC	Years 2-4
	Action 14 - Given the widespread nature of lane filtering, undertake a trial of motorcycle lane filtering in Western Australia with a view to amending legislation to permit the practice if results show no safety dis-benefits.	RSC	Year 1

SUMMARY OF ACTIONS

Theme	Action	Lead agency	Years
Motorcycle rider competencies	<p>Action 15 - Given the additional risk posed by motorcycle riding compared to driving a passenger car, and the greater degree of technical competency required, it is suggested that the following potential enhancements to the Graduated Rider Training and Licensing be considered:</p> <ul style="list-style-type: none"> ● Investigate the feasibility and nature of mandatory or voluntary pre-training. Evidence is inconclusive but many jurisdictions have some form of off-road qualification scheme which could be replicated or modified for use in Western Australia; ● Introduce a minimum learner permit tenure period of six months prior to the undertaking of the R-E Class practical riding assessment. 	DoT	Years 1-4
	Action 16 - Investigate the benefits of introducing a competency based practical riding assessment	DoT	
	Action 17 - Investigate the benefits of introducing a pre-licence motorcycle hazard perception test.	DoT	
	Action 18 - Promote public awareness of the message that medical conditions affecting fitness to ride or drive should be reported.	DoT	
	Action 19 - Examine the potential impacts of removing the ability to ride a moped on a car licence from the current Western Australian licensing system, in line with other jurisdictions.	DoT	
	Action 20 - Consideration should be given to mandating additional rider training for identified early offenders to correct poor habits or reinforce appropriate skills.	DoT	
	Action 21 - The opportunity for additional training could also be offered for returning and other interested riders.	DoT	
	Action 22 - Encourage riders through social media and rider groups not to ride unfamiliar motorcycles without training or lend their bikes to others.	RSC	Year 1

SUMMARY OF ACTIONS

Theme	Action	Lead agency	Years
More motorcycle friendly transport system	Action 23 - Promote the <i>Make Motorcycle Friendly</i> DVD showcasing good practice road design for motorcyclists to local government and make it more available through online download.	MRWA	Year 1
	Action 24 - Support the running of Austroads workshops within Western Australia to share knowledge on safe system best practice road design that takes into account the vulnerability of motorcycles for local practitioners.	MRWA	Year 1
	Action 25 - Promote the Main Roads 138 138 reporting line to motorcyclists so minor road flaws on State and local roads can be brought to the attention of the relevant authority.	MRWA	Year 1
	Action 26 - Consider the development of a method for reporting faults as GPS coordinates and other spatial data to improve location information.	MRWA	Years 2-4
	Action 27 - Encourage road authorities to have a regular schedule of surface maintenance, particularly on known popular motorcycling routes.	MRWA and WALGA	Years 2-4
	Action 28 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe intersection designs that take into account the needs and characteristics of motorcycles.	MRWA	Years 1-4
	Action 29 - Continue to fund the upgrade of poor performing intersections in Perth and regional Western Australia through the Road Trauma Trust Account.	MRWA	Years 1-4
	Action 30 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe curve and mid-block road design that takes into account the needs and characteristics of motorcycles.	MRWA	Years 1-4
	Action 31 - Continue to fund the upgrade of poor performing lengths of rural and urban road that show a higher than average risk of run-off road crashes through the Road Trauma Trust Account.	MRWA	Years 1-4

SUMMARY OF ACTIONS

Theme	Action	Lead agency	Years
More motorcycle friendly transport system	Action 32 - Barriers to be installed with attention to motorcycle safety.	MRWA, Local Governments	Years 1-4
	Action 33 - Continue to participate in the enhancement of Austroads and other technical guidelines to ensure that traffic calming measures to moderate travel speeds take the needs and characteristics of motorcyclists into account.	MRWA	Years 1-4
	Action 34 - Assess a small number of popular routes using a skilled and experienced rider communicating to a following vehicle, to identify the potential for a mass action treatment of issues.	RTTA	Years 2-4

Theme	Action	Lead agency	Years
Safer motorcycles and mopeds	Action 35 - Until a decision is made on mandatory inclusion on new models, promote the benefits of Anti-Lock Braking Systems (ABS) to current and potential purchasers of new motorcycles.	RSC	Year 1
	Action 36 - Promote the use of Daytime Running Lights for motorcycles.	RSC	Year 1
	Action 37 - Examine the regulatory framework for managing the use of non-conforming Power Assisted Pedal Cycles.	RSC	Year 1
	Action 38 - Enhance Transport's technological functionality to record more comprehensive information regarding motorcycles.	DoT	Years 2-4

Theme	Action	Lead agency	Years
Delivering on the strategic directions	Action 39 - Agencies will develop an implementation plan which prioritises actions on the basis of cost, likely effectiveness, and timeliness of implementation.	All agencies	Year 1

1. INTRODUCTION

In January 2015 the Motorcycle Safety Review Group (MSRG) was formed by the Hon Liza Harvey MLA, Minister for Road Safety, to improve motorcycle and moped safety in Western Australia. The formation of this group followed on from the high number of motorcyclists in those killed on Western Australian roads in 2014 – nearly 25% of the fatalities were motorcyclists, despite motorcycles being a much less common mode of transport than other types of passenger vehicles.

The research undertaken in 2015 by the MSRG builds on the work of the Motorcycle and Scooter Safety Action Group (MSSAG), which was convened by the former Office of Road Safety (now the Road Safety Commission) and WA Royal Automobile Club (RAC) in 2009.

Following a series of workshops with agencies, riders and industry, MSSAG identified 50 actions to improve motorcyclist safety in WA. The MSSAG actions were broad in scope, covering issues such as: national standards, star ratings for motorcycles and protective clothing; emerging motorcycle safety features; road infrastructure technology, design and maintenance; motorcycle rider training; road user awareness; motorcycle licensing; education; enforcement; penalties; travel speeds and limits; representation of motorcycle rider groups; funding and the collection and sharing of motorcycle related data.

Many of the original 50 actions from the MSSAG forums have been completed or significantly progressed. Major initiatives that have been implemented include:

- Development of a graduated rider training and licensing system for motorcycle and scooter riders, a key element of which was implemented in January 2013 (Learner Approved Motorcycle Scheme);
- Preparation of roadside barrier courses, the addition of motorcycle and scooter components to the road safety audit course and the inclusion of motorcycle experts in fatal crash investigation teams;
- The use of dual lens cameras and laser cameras to target speeding motorcyclists and other road users and the formation of a dedicated motorcycle enforcement team;
- Continued review of speed limit setting policy; and
- Motorcyclist safety awareness community education campaigns.

The formation of the MSRG in 2015 reflects the Government's concern about the over-representation of motorcyclists in road trauma generally and the increase in motorcyclist deaths that occurred in 2014.

The MSRG was formed to conduct a detailed analysis of motorcycle and moped fatal and serious injury crashes and to propose effective counter-measures which can be introduced over the next four years to improve motorcycle safety. The membership of the MSRG included representatives from:

- Department of Transport
- Insurance Commission of Western Australia
- Main Roads Western Australia
- Office of the Minister for Road Safety
- Road Safety Commission
- Western Australia Police

INTRODUCTION

These agencies have collaborated on an extensive data-sharing process, which has allowed a more detailed understanding of motorcycle safety than has previously been attempted. The Department of Transport (DoT) led the data sharing working group which linked data from DoT, Main Roads Western Australia (MRWA), Western Australia Police (WA Police) and Insurance Commission of Western Australian (ICWA) sources.

The following research undertakings were undertaken:

- A review of motorcycle research and motorcycle safety strategies in international and Australian jurisdictions;
- A snapshot of motorcyclist killed and serious injury for the most recent five year period (2010-2014).
- A statistical analysis of all motorcycle crashes in Western Australia between 2009 and 2013, examining in more detail the road user movements involved in the fatal and serious motorcycle crashes.
- Data was shared on a small cohort of fatal and catastrophic motorcycle crashes that took place in Western Australia in 2013 and 2014. Information from Police, the Department of Transport, and the Insurance Commission was pooled to develop a profile of the rider's history. The Main Roads investigations of the crash sites were considered and a profile of the motorcycles ridden in the fatal crashes was compiled. The data set is small but detailed.

This MSRSG report sets out the strategic directions and initiatives to improve motorcyclist safety¹ that the Government will seek to implement over the next four years, 2016-2020. Some actions, such as education campaigns, can be undertaken relatively easily and will commence in 2016. Other actions, such as enhancing the Graduated Rider Training and Licensing process, will be developed over a longer period. All the actions outlined in the strategic directions are intended to work holistically to improve motorcycle safety.

¹ This paper considers all powered two wheelers as motorcycles, including: Standard, Sports, Cruiser, Touring, Super Sport, Scooters, Off Road, On/Off Road and Mopeds with an engine size of less than 50cc.

2. MOTORCYCLIST SAFETY TRENDS

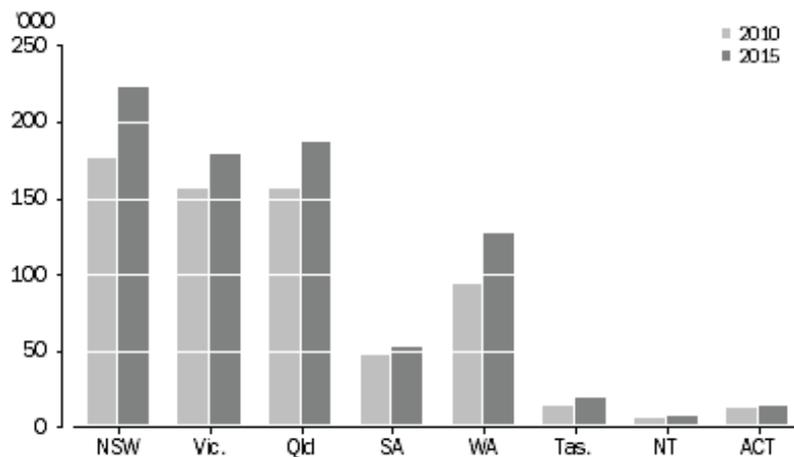
Western Australia's Road Safety Strategy 2008-2020, *Towards Zero*, envisions a future where people are not killed or seriously injured in road crashes. There is a moral imperative to align the transport system more closely to the frailty of the human users and to do everything that can be done to prevent people from being killed or seriously injured.

While measures must be taken to prevent crashes, *Towards Zero* acknowledges that people make mistakes and that crashes cannot be avoided completely. The crashes that do occur must be within the bounds of human tolerance to impact forces and not cost lives or result in serious trauma.

With increasing population and demand for energy-efficient transport, the role of the motorcycle and moped in the future of transport is assured. However, motorcyclists are vulnerable road users because of their relative lack of protection against impacts with other vehicles, the ground and roadside objects.

Between 2010 and 2015 Western Australia had the greatest growth in motorcycle registrations of any State or Territory within Australia (*Figure 1*). The State also has (41%) the highest proportion of motorcycles per head of population, at 49 per 1,000 people, while the Northern Territory has the lowest at 29 per 1,000 people.

Figure 1: Motorcycle registrations by Australian state and territory, census years 2010 and 2015²



² ABS Catalogue 9309.0 - Motor Vehicle Census, Australia, 31 Jan 2015.

MOTORCYCLE SAFETY TRENDS

Between 2005 and 2014 all Australian jurisdictions reported fluctuations in the annual motorcyclist fatality rates (Figure 2), but as an Australian average there has been a 17% decrease in the number of motorcyclists and their pillions killed.³ Western Australia, however, has seen a doubling of rider fatalities (from 21 to 43) over the same period.

Figure 2: Motorcycle fatalities in Australia and WA, 2005 - 2014

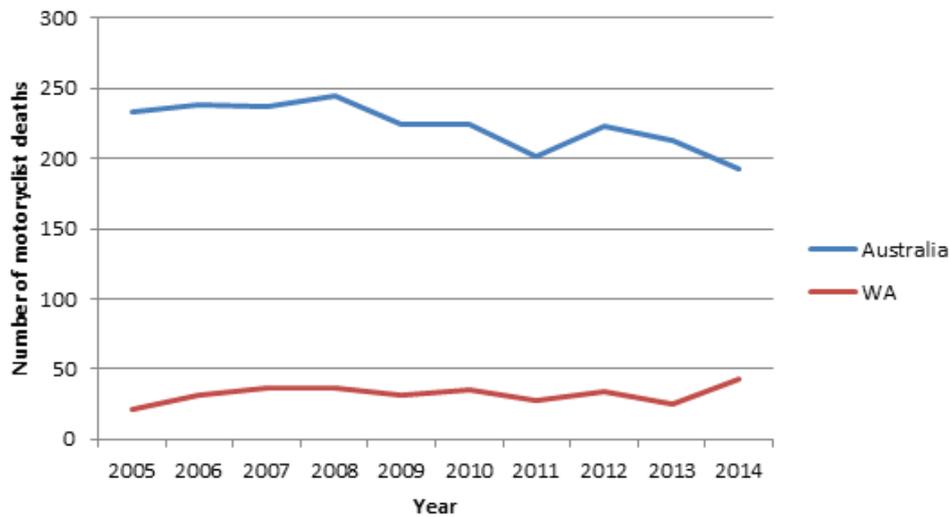
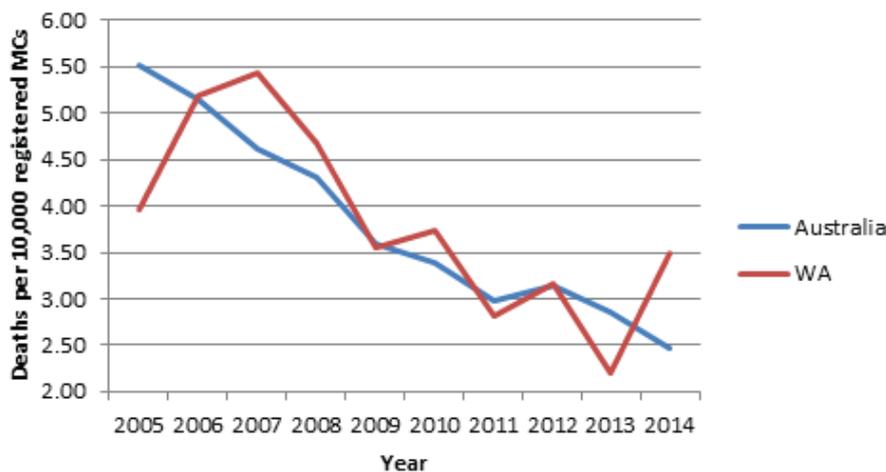


Figure 3 shows, on an exposure basis, the fatality rate for motorcyclists per 10,000 registered motorcycles between 2005 and 2014 has declined by 55% for Australia as a whole. This compares with a reduction of 12% for Western Australia.

Figure 3: Deaths per 10,000 registered motorcycles, Australia and WA 2005-2014



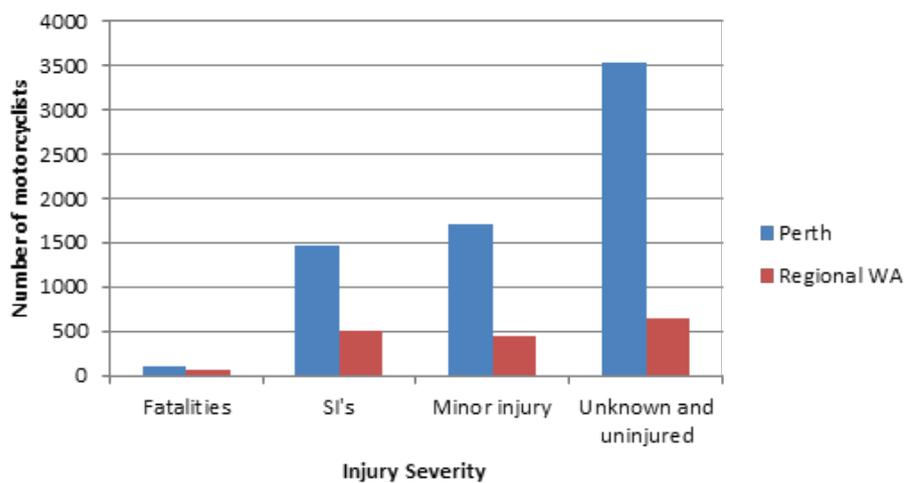
² Bureau of Infrastructure, Transport and Regional Economics (BITRE), 2015.

MOTORCYCLE SAFETY TRENDS

In 2014, the fatality rate for motorcycle riders in Western Australia was 3.5 per 10,000 registered motorcycles, the highest of any jurisdiction except the Northern Territory. This rate compares to the fatality for vehicle occupants of 0.56 per 10,000 registered motor vehicles.

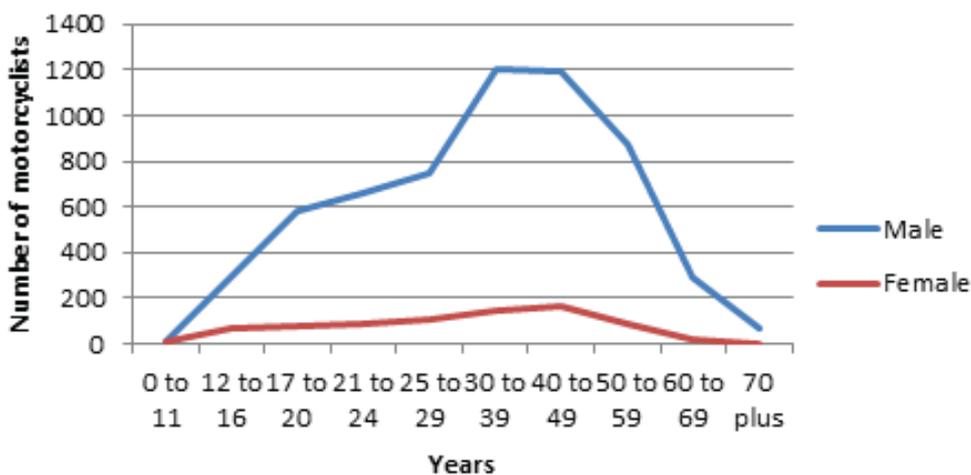
From 2010 to 2014, there were 8,448 motorcycle riders and their pillion involved in crashes across Western Australia, of which around 2% were fatalities and 23% hospitalisations. The majority were involved in crashes in the Perth metropolitan area (81%) (Figure 4). Proportionally, however, more motorcyclists were killed in regional WA (39%), compared to those uninjured (15%).

Figure 4: Motorcyclists and pillion involved in crashes, by region WA 2010-2014



Most riders and pillion involved in crashes between 2010 and 2014 where gender could be determined were male (88%). There was a spread of ages involved, with the majority in the 25 to 60 years band (see Figure 5).

Figure 5: Ages of motorcyclists involved in crashes, WA 2010-2014, excluding riders with unknown ages and genders



MOTORCYCLE SAFETY TRENDS

A more detailed analysis of motorcycle crashes of all severities by Road User Movement (RUM) code between the years 2009 and 2013 showed that:

Metropolitan Perth

- Three quarters of crashes involving motorcycles in the Perth metro area were multi-vehicle and of these around 75% were at intersections where there was a turning vehicle.
- The multi-vehicle crashes mostly occurred in dry and clear conditions, on straight, level roads that were primarily managed by local government and speed zoned at 60 km/h.
- The intersections were a mix of four way intersections (most commonly with lights) and three way intersections (usually with signage). In the case of crashes where both vehicles were travelling straight ahead, around one third were at roundabouts.
- Failure to give way was factor in the majority of the Perth multi-vehicle crashes and they were more likely to be on weekdays and in commuting times.
- The single vehicle crashes in Perth typically involved the rider losing control either on the straight or at curves mid-block or while turning at intersections.
- More than 10% of the riders in single vehicle intersection crashes in Perth were unlicensed or out of class.
- The majority of the mid-block single vehicle crashes occurred on dry clear, sealed, local roads with a speed limit of 50-60km/h, while the intersection loss of control crashes involved slightly more right hand turns than left hand turns. The intersections were a mix of 3 way intersections without controls, four way intersections with signals and roundabouts with signs.

Regional WA

- Serious crashes resulting in death or serious injury in regional WA were less likely to be multi-vehicle crashes. Only one-third of the 526 KSI regional crashes involved more than one vehicle.
- The majority of regional crashes occurred on sealed roads.
- Crashes occurred on a mix of local roads and highways, with a higher portion of crashes in 110 km/h speed zones.
- A larger proportion of regional crashes occurred on weekdays, mostly in the afternoon between 12 pm and 6 pm, however there were more weekend crashes in regional areas than in Perth, mostly in the daylight hours between 9 am and 6 pm.

3. IN-DEPTH PROFILE OF RIDERS INVOLVED IN FATAL AND CATASTROPHIC MOTORCYCLE AND MOPED CRASHES IN 2013-2014

3.1 Overview

The MSRG commissioned an examination of a small cohort of riders in greater detail to assist in determining if there were any common factors contributing to their crash. Information was shared between government agencies about riders who were killed or catastrophically injured in 2013 and 2014.⁴

Data for the fatal and catastrophic crashes in 2013 and 2014 and other information on the licensing, traffic and criminal offences of the involved rider were sourced from and provided by stakeholder members of the MSRG: Western Australia Police, DoT Driver and Vehicles Services, MRWA, and ICWA.

All information was de-identified to maintain anonymity but assigned a unique rider identification key to permit linkage of the supplied data.

The broad aim of the investigation was to provide a summary 'profile' of involved riders in relation to the nature of their crash and their prior licensing, traffic and criminal (non-traffic) offence histories.

3.2 Methodology

The relevant crashes from the Police database of 1-18 Fatal and Critical Injury Crashes were linked to the relevant licensing history for the crash involved riders. These records included information on:

- Licence types and entitlements⁵
- Driver licence test results
- Vehicle registration
- Vehicle sanctions
- Demerit point penalties
- Driver licence sanctions
- Fitness to Hold reports
- Client and licence conditions

Traffic and criminal offence records for the period July 2007 to December 2014 were also retrieved and supplied by Police for crash involved riders. The unique driver identifier key generated by the DoT and attached to each of the crash, licensing and rider offence datasets was used by C-MARC to link the respective 'de-identified' datasets for analysis.

Data supplied by the ChemCentre WA was also provided on the presence of alcohol and illicit drugs in the cases of 63 fatally injured riders.

⁴ Catastrophic crashes are defined by the Insurance Commission of Western Australia (ICWA) as having Initial Injury Codes as one of the following: 7 – Paraplegic; 8 – Quadriplegic; 13 - Acquired Brain Injury; 16 - Other Catastrophic Loss Injury; 20 - Upper Limb Amputation; 21 - Liable Driver - Limb Amputation; 22 - Lower Limb Amputation. Alternatively the crash would be defined as catastrophic if it was allocated to the Catastrophic Claim Team or had a claim estimate exceeding \$1,000,000.

⁵ The licence issue date for some riders will be inaccurate due to the change-over in administrative systems. These riders were assigned a default issue date of 4/5/2001.

3. IN-DEPTH PROFILE OF RIDERS INVOLVED IN FATAL AND CATASTROPHIC MOTORCYCLE AND MOPED CRASHES IN 2013-2014

Using Police data on the number plates of motorcycles in fatal crashes, ICWA data on the number plates of motorcycles in catastrophic crashes and DoT data on Vehicle Identification Numbers (VINs), 76 VINs were matched to motorcycles which had been in fatal and catastrophic crashes in 2013 and 2014.

There were eleven additional motorcycles for which full VIN information was not recorded. This included five off-road motorcycles being ridden on roads, one moped and five entirely unknown motorcycles. These motorcycles were excluded from further analysis.

Unless specified, the term “rider” referred to in the presentation of the results refers to the controller of the motorcycle or moped, and not the status of the injured road user, who may be either the controller or a pillion passenger.

3.3 Summary of findings

This investigation of fatal and catastrophic injury motorcycle crashes was restricted to a cross-sectional descriptive analysis of 86 fatal and catastrophic injury crashes and their riders occurring in a two year period, 2013-2014.

The restricted time period, the small number of crashes, and the absence of comparison group of riders not involved in a crash means that considerable caution must be exercised in regards to the interpretation of the findings, in particular, the pattern or trend in crashes over the two year period, and, the crash risk associated with the riders’ licensing, traffic and criminal offence histories that were analysed.

Bearing these caveats in mind, the main findings of the investigation are summarised below.

Crash related factors

- The number of fatal injury crashes increased by 72% from 2013 to 2014, while the number of catastrophic injury crashes decreased by 36% from 2013 to 2014.
- Males (96.5%) and riders aged 20-39 years (46.6%) and 40-59 years (31.4%) were most frequently involved in crashes with a small increase (6.1%) over the period in the number of involved 40-59 years olds.
- The proportion of crashes was slightly higher in the January-March (31.4%) and October-December (27.9%) quarters relative to April-June (18.6%) and July-September (22.1%).
- Around three in ten crashes occurred on the weekend (Saturday-Sunday) during 2013-2014, with the number of crashes occurring on the weekend in 2014 being 2.7 times that recorded for the same time in 2013.
- In each year and overall, a greater proportion of crashes occurred during the three-hour period 15:00-17:59 compared with other time periods, with a noted three-fold increase in crashes during this period from 2013 to 2014.
- Over one-third of all crashes occurred during the time period 15:00-20:59 Monday-Friday.

3. IN-DEPTH PROFILE OF RIDERS INVOLVED IN FATAL AND CATASTROPHIC MOTORCYCLE AND MOPED CRASHES IN 2013-2014

- The majority of fatal and catastrophic injury motorcycle crashes occurred in Metropolitan Perth, with an increase in regional area crashes (particularly the Wheatbelt) accounting for the increase in the total number of crashes from 2013 to 2014.
- The majority of crashes occurred in clear weather, in daylight, on dry roads that were sealed, level, straight, and zoned 50-60km/hour.
- Six in ten crashes involved the collision of the motorcycle with another vehicle.
- Four in ten crashes were classified as right-angle/right-through collisions with another four in ten being hit object or roller over (non-collision) crashes.
- Six in ten crashes occurred midblock compared with four in ten occurring at intersections. Most crashes at intersections had no traffic control signs or lights.
- Attending Police reported that speed, alcohol/drugs, and inattention - either in combination or singularly - were 'causal' factors in 36% of crashes.
- A review of Main Roads Western Australia fatal crash investigation reports found that some sites contained environmental factors that potentially could have contributed to the cause or severity of the crash. Of the fatalities:

Possible causes of crashes -	mostly road curvature, delineation, signage, traffic control or sight distance issues;
Possible severity of crashes (extent of injuries) -	mostly because of a collision with a roadside object within the clear zone.

Rider related factors

- A positive level of alcohol (i.e., >0.000gm%) was detected in 28.6% of fatally injured riders, with 17.5% equalling or exceeding the default prescribed Blood Alcohol Concentration limit of 0.050gm% level to a maximum of 0.220gm%.
- One or more illicit drugs (e.g., methylamphetamine, cannabis, cocaine) were detected in 20.6% (n=13) of fatally injured drivers, with most testing positive for cannabis (alone and in combination with methylamphetamine).
- Four (30.7%) of the n=13 illicit drug drivers also returned a positive level of alcohol, three of whom were 0.050-0.149gm%.
- Around seven in ten crash involved riders were 'authorised' to ride at the time of the crash; most 'without authority' had never held a licence to ride a motorcycle. Authorised riders were on average significantly older than non-authorised riders: 41 years versus 25.5 years.
- The median number of days from holding a first R or RE class motorcycle licence to crash was 2,144.5 days (ie., 5.87 years).
- Approximately 54% of crash involved riders had a record of prior motor vehicle driver licence sanctions such as licence suspension, cancellation, disqualification, or revocation on medical grounds.

3. IN-DEPTH PROFILE OF RIDERS INVOLVED IN FATAL AND CATASTROPHIC MOTORCYCLE AND MOPED CRASHES IN 2013-2014

- Seven in ten (70.5%) sanctions were the result of the Fines Enforcement program.
- Around one in five riders who held or previously held a motorcycle licence had submitted one or more Fitness to Hold applications prior to their recorded crash, mostly for the renewal of an 'Ordinary Licence'.
- Analysis of WA Police Traffic Infringement Notice (TIN) data for the period July 2007 to December 2014 showed that:
 - seven in ten riders incurred one or more TINs, with 63% being repeat offenders;
 - nearly four in ten offending riders did not incur a TIN in the 12 months prior to their crash;
 - around one in five riders who incurred a TIN incurred 50% or more of their TINs in the 12 months prior to their crash;
 - eight in ten TINs were for speeding, 40% of which were for offences up to 9km/hour above the posted speed limit (which does not attract a demerit point penalty).
- Analysis of WA Police Traffic Charge data for the period July 2007 to December 2014 showed that only 11 riders incurred a traffic charge with one rider accumulating eight charges for the period. Just under half of all riders were charged with an offence in the 12 months prior to their crash.
- Nearly half of all charges were for breaches of driver licensing conditions such as driving without a valid licence.
- Analysis of DoT demerit point penalty data for the period 1999 onwards showed that: approximately eight in ten riders committed a total of 518 traffic offences of which 28.6% did not incur a demerit point penalty and most (62%) attracted between 1 and 3 demerit points; thirty percent of offending riders accrued between 6 and 10 demerit points in total with one in five and two-thirds of drivers not incurring a demerit point penalty within 60 months and 12 months respectively of their crash; around four in ten offences committed by riders within 60 months and 12 months of their crash were nil demerit point offences.
- Analysis of WA Police Criminal Charge data for the period July 2007 to December 2014 showed that: five riders accounted for a total of 52 non-traffic criminal charges with just two riders accounting for a total 46 charges; drug and sexual assault offences accounted for nearly eight in ten charges on record.
- Five riders accrued a total of eight vehicle impoundments, though only one of the impoundments involved a motorcycle.
- Nearly 76% of riders had registered one or more motorcycles prior to their crash with most (48%) registering just one.
- Riders with a single registration were significantly more likely to crash sooner following registration compared with riders with multiple registrations (based on first registration): 50th percentile - 422 days for single registration riders versus 3,392 days for multiple registration riders.
- No significant differences were observed between the two registration groups in regards to the median age of riders at the time of crash or the median number of days from first R/RE motorcycle licence to crash.

3. IN-DEPTH PROFILE OF RIDERS INVOLVED IN FATAL AND CATASTROPHIC MOTORCYCLE AND MOPED CRASHES IN 2013-2014

Motorcycle related factors

- Of the 87 powered two wheelers involved in fatal or catastrophically injured crashes in 2013 and 2014, 84 were motorcycles (95.5%) and four were mopeds (4.5%).
- The 2013-2014 vehicle registration data showed that mopeds and scooters represent around 12.5% of the overall powered two wheel fleet in Western Australia.⁶
- Riders were generally on a validly registered motorcycle or moped at the time of their fatal or catastrophic crash. There were, however, ten motorcycles where the registration had expired prior to 2013 (13.1%).
- Only two of the 76 motorcycles had been reported as stolen (2.6%).
- 54 of the 76 motorcycles were being ridden by a person who was or had been the registered owner (71.0%), with almost one-third of fatally or catastrophically injured riders borrowing the motorcycle on which they had their final fatal or catastrophic crash.
- 41 of the 76 motorcycles were reported on the National Exchange of Vehicle and Driver Information System (NEVDIS) as written off (53.9%). A vehicle is declared written-off by the insurer or auto-dismantler when the vehicle is deemed unsuitable for repair.
- Of the 41 write offs, 25 were statutory write offs, where the motorcycles suffered extensive damage, could only be used for parts or scrap, and could not be re-registered anywhere in Australia.
- A further 15 motorcycles were registered as repairable write offs, suffering major damage but could be legally reregistered in all jurisdictions bar New South Wales subject to inspection.
- Six of the 15 motorcycles in question had been subject to repairable write offs before the rider's fatal or catastrophic injury crash in 2013 or 2014.
- Most of the motorcycles involved in fatal and catastrophic injury crashes in 2013 and 2014 were manufactured by the dominant sales brands Honda (26%), Suzuki (17%), Harley Davidson (15%) and Kawasaki (14%).
- 15 of the 76 (19.7%) motorcycles were more than ten years old at the time of the fatal or catastrophic injury crash, which is in line with the average age of a registered vehicle as measured by the Australian Bureau of Statistics.
- The majority of riders (72%) held an R class motorcycle licence and were authorised to ride a motorcycle that was not part of the Learner Approved Motorcycle Scheme (LAMS).

⁶ 104,569 motorcycles, including 14,806 scooters and mopeds were registered in 2013/14 in Western Australia. Data provided by the Department of Transport.

4. PRIORITY AREAS FOR ACTION

Most road injuries result from a combination of failures in the chain of events from pre to post crash. Traditional road safety approaches have primarily focussed on addressing the factors that might act directly on the ability of the rider to control the motorcycle, including speed, alcohol or other impairment and basic competencies.

However, while acting more indirectly, other factors and elements such as the road infrastructure and vehicle design also need to be considered.

This general understanding, together with the summary of crash types over the past five years and the insights gathered through in-depth examination of the profiles of fatally and catastrophically injured riders in 2013 and 2014, highlight a number of priority areas for action in Western Australia.

The following actions have been identified by the MSRSG as practical initiatives that have the best potential for achieving a reduction in the number and severity of motorcyclist crashes in the WA context. The actions relate to enhancements that will seek to:

- Encourage more responsibility by the riders for their personal safety and the safety of others;
- Improve rider interactions with other road users;
- Make the road and roadside environment more motorcycle friendly; and
- Improve the uptake of motorcycles that have better crash avoidance features.

4.1 Rider Responsibility

While the road, speed and vehicle design play an important role in influencing how the vehicle is used and performs, it is the rider or driver of a vehicle that has ultimate responsibility for their actions. A number of areas related to rider responsibility are worthy of further attention.

4.1.1 Motorcyclist visibility

In addition to lights and reflectors on the motorcycle itself, the use of high visibility clothing has the potential to mitigate the problem of perception by other road users. While many industries require the use of high visibility clothing as an occupational safety measure, there are mixed results regarding its effectiveness in reducing conspicuity-related crashes, depending on the time and location.

A 2004 case control study of New Zealand riders⁷ showed that fluorescent or reflective clothing and the wearing of white or light coloured helmets were associated with a reduced risk of motorcycle crashes. A further study⁸ of gap acceptances showed that car drivers accepted smaller gaps during the day when the rider was not wearing fluorescent clothing. The same applied when driving in the dark and the rider wearing reflective clothing.

⁷ S.B. Wells, R. Mullin, J. Norton, J. Langley, R. Connor, R. Jackson and R. Lay-Yee (2004), "Motorcycle rider conspicuity and crash-related injury: case control study" *British Medical Journal*, Vol. 328, No. 6444, pp 857-0.

⁸ P.L. Olson, R. Halstead and M. Sivak (1981), "Sensory conspicuity of powered two wheelers during filtering manoeuvres, according to the age of the car driver", *Le Travail Humain*, pp 7-30.

PRIORITY AREAS FOR ACTION

In contrast, studies based on reaction time or detection rates did not generally show better or quicker detection of riders when the riders were wearing bright clothing. One study⁹ found that observers responded quicker to motorcyclists in urban areas when the riders were wearing bright coloured or fluorescent clothing. This effect was reversed in rural settings where observers responded more quickly to riders in dark clothing. The researchers concluded that this was due to the brightness of the environment, the environment in the rural setting being clear blue sky.

Action 1 - Promote best practice recommendations for rider visibility with the aim being for the rider to show as much contrast with the environment as possible. As a general rule this would include the promotion of:

- high visibility clothing and white or light helmets when riding through highly dense traffic
- darker clothing when cruising in open spaces with high ambient light
- reflective clothing at night.

4.1.2 Rider positioning

Some crashes, particularly intersection crashes, are the result of the failure of drivers to see motorcyclists. Motorcycles are relatively small objects on the road, and it is sometimes difficult for drivers to judge their speed. It is important for riders to position themselves on the road so that other road users have the best possible chance of observing them in traffic.

The Motorcycle Riders Association has developed *Make Yourself Visible*, a brochure recommending road positions that increase the chances of riders being seen by other road users and reducing blind spots. The guide uses illustrations based on real motorcycle and scooter crashes, highlighting some of the challenges riders face in making themselves seen by other road users.

Action 2 - Promote the Motorcycle Riders Association brochure *Make Yourself Visible* and other material to encourage correct road positions for safer riding.

4.1.3 Protective helmets

While non-helmet wearing is not a major feature in Western Australian crash statistics, there is clear evidence that the wearing of a correctly sized and fastened helmet reduces the risk of death or serious injury in the event of a crash.

In Australia, a consortium of government agencies and a motorist organisation who share a common interest in improving motorcycle safety run the *Consumer Rating and Assessment of Safety Helmets* (CRASH) program. CRASH provides helmet buyers with independent and consistent information on the levels of protection from injury in a crash provided by motorcycle helmets and the comfort level of the helmet.

Action 3 - Promote the existence of CRASH to local riders, and if necessary, contribute as a funding partner to support the initiative.

⁹ G. Hole, L. Tyrrel and M. Langham (1996), "Some factors affecting motorcyclist's conspicuity", *Ergonomics*, Vol. 39, Issue 7.

PRIORITY AREAS FOR ACTION

Western Australia currently only permits motorcycle helmets that meet AS/NZ 1698:1988 and the later version AS/NZ 1698:2006 - which is not approved for sale under the Australian Competition and Consumer Council's (ACCC) Consumer Product Notice 9 (CPN 9). The State has held off on amending local legislation to address this and other anomalies and to clarify for riders which motorcycle helmets are approved for on-road use while the ACCC reviewed CPN 9 is being finalised. In early December 2015, the ACCC announced its decision to revoke CPN 9.

In February 2015 Western Australia participated in an inter-jurisdictional forum hosted by Standards Australia to address the motorcycle helmet standards issues. At the Forum, there were many areas in which participants from jurisdictions were in broad agreement, including the need for harmonisation across State and Territory road traffic law and the suitability of the United Nations ECE helmet standard for Australia.

A number of jurisdictions within Australia have since moved to amend their local road traffic law to allow for UN ECE 22.05 standard helmets and it is recommended that WA follow suit. The perceived advantages of the UN ECE 22.05 standard in terms of its larger range of sizes and lighter weights make it an attractive standard for riders at no cost to safety standards.

Action 4 - Include the United Nations ECE 22.05 helmet standard on the list of approved helmets for use in Western Australia.

4.1.4 Protective clothing

There is unequivocal research into the benefits of protective clothing, however mandating its use can be problematic, with no harmonised standards. It would also be counter-productive if a minimum standard was imposed that resulted in a price on equipment that exceeded the rider's willingness, or ability, to pay.

Notwithstanding this, the use of protective clothing through promotion to increase rider awareness has the potential to provide significant benefits.

The Road Safety Commission has signalled its intention to join Victoria, New South Wales (NSW) and other key players in the Victorian led development of a protective clothing rating consumer awareness tool. Similar to CRASH for motorcycle helmets and the Child Restraint Evaluation Program (CREP) for child car restraints, the proposed rating tool will give consumers objective and independent information on the relative safety offered by various rider garments.

Action 5 - Contribute to the development and support for a national motorcycle protective clothing rating tool in the first instance and then the eventual use of the tool to promote the wearing of protective clothing to riders.

4.1.5 Education and enforcement of high risk behaviours

While behaviours such as speeding, drink and drug driving, impairment through fatigue, using a mobile phone and other distractions place all drivers at risk, some risky behaviour may be even more serious for motorcycle riders.

Riding a motorcycle requires more coordination and balance than driving a car and the effects of alcohol on riders are more emphatic. Roughly one in five riders killed in Western Australia in 2013 and 2014 had an illegal BAC, and 28.6% had some alcohol present at the time of their death.

PRIORITY AREAS FOR ACTION

Western Australia is currently the only State which does not have a zero BAC restriction for all learner motorcycle riders, regardless of whether they have existing drivers' licences. Most Australian jurisdictions, with the exception of the Northern Territory and South Australia also have a further zero BAC limit for a period of one to three years for beginning riders.

Action 6 - Introduce a zero BAC limit for all learner motorcycle riders, regardless of other licences held.

Action 7 - Consider introducing a zero BAC limit for the first two years of the restricted licence phase.

Likewise, the effect of speed in crashes involving motorcyclists is exaggerated as motorcyclists are unprotected in the event of crashes. WA Police TIN data for the period July 2007 to December 2014 shows that most riders incurred one or more TINs, and that eight in ten TINs were for speeding.

The use of automated enforcement methods to deter and detect speeding vehicles is well-established worldwide with proven effects. With motorcycles generally having only a rear number plate, options for detection by camera include the use of rear facing cameras, the addition of front plates or other means of identification, coupled with strict owner onus laws.

In the early 2000's, Western Australia collaborated jointly with Victoria to investigate options for the front identification of motorcycles using decals and brackets to suit the many different designs of motorcycles. This exhaustive study failed to develop a common fixing method that would be suitable for every motorcycle model. Further work by Queensland in the late 2000's suggested that Radio-Frequency Identification (RFID) was also not a practical solution.

Action 8 - To enhance the detection and identification of speeding motorcyclists in WA, expand the use of rear facing cameras and introduce stricter owner onus legislation.

The need for, and proven effectiveness of, police enforcement to improve compliance with road rules by all road users is well-understood. A mix of traditional, visible enforcement (with on-the-spot roadside checks by police) and automated enforcement has the biggest deterrence effect.

Enforcement of road rules for other drivers is an important measure to improve rider safety. Enforcement of other drivers that leads to reduced speeds at intersections, reduced drink-driving and other dangerous behaviour will have benefits for motorcyclists as they are less likely to be the counterpart in these collisions or the severity of their injuries will be reduced.

It is recognised that both traditional and automated enforcement of motorcycle riders can be more complex. Their manoeuvrability and speed often means they are difficult to catch and stop at the roadside. Evidence also suggests that enforcement of riders is more effective if police officers are well trained to detect dangerous manoeuvres and equipped to intercept the riders quickly and safely. This often means that traffic police should be riding a motorcycle.

PRIORITY AREAS FOR ACTION

Action 9 - Given the inherent vulnerability of motorcyclists, continued attention should be paid in Western Australia to:

- Enforcing high risk road traffic laws across the general driving population using best practice methods (WA Police category A offences);
- Using intelligence on times, days, routes, ages etc to target specific enforcement of motorcycle and scooter riders;
- Enhancing penalties for low range speeding to ensure that repeat offenders can be ultimately managed through accrual of demerit points; and
- Raising awareness among the general population about their high risk driving and its impact on riders.

For motorcyclists, as for other road users, enforcement is most effective when coupled with communication campaigns and publicity. Various communication avenues are available including TV, radio, press, digital and social media and it is possible to communicate effectively on a modest budget provided the messages and target groups are well-defined. As well as Government, motorcycle riders' associations have a key role to play in informing riders about the rules and promoting respect for them.

Action 10 - Raise awareness among motorcyclists of the risks associated with riding and strategies for reducing risk.

Action 11 - Rider groups to consider the development of a Code of Conduct for Motorcycle and Scooter Riders for everyday riding, as well as group rides.

4.2 Rider interaction with other road users

The interaction between motorcyclists and other road users is an issue that needs to be considered. Multi-vehicle crashes could be potentially avoided if drivers had a greater awareness of motorcyclists, their inherent vulnerability, made better judgements and took responsibility for sharing the road with other road users.

4.2.1 Driver competencies and hazard perception

A 2015 Organisation for Economic Cooperation and Development (OECD) review into motorcycle safety concludes that many of the high risk traffic situations between other vehicles and motorcycles could be prevented if the drivers anticipated the presence of a motorcycle (when entering or crossing a road, when turning left and when changing lanes).¹⁰

Three of the most common crash types seen in the metropolitan area for the period 2009-2013 were multi-vehicle crashes in which motorcycles collided with other vehicles, usually turning passenger vehicles. These crash types arise when one vehicle does not see the other – typically the smaller motorcycle.

Analysis of the 2013 and 2014 fatal and catastrophic crashes at intersections showed that two movement types accounted for 54.3% of intersection crashes. These were:

- a vehicle turning right colliding with a vehicle from the opposing direction that was proceeding through the intersection and,
- a vehicle turning right colliding with a vehicle from the adjacent direction that was proceeding through the intersection.

While motorcycles are physically less visible than other vehicles, the problem of perception is complex. The visual characteristics of motorcycles, the sensory capabilities human, the atypical behaviour of bikes and the expectations that road users develop all play an important role.

While “failure to look” crashes are largely due to inadequate visual screening by the driver, there are flaws in the way humans perceive objects. Phenomena such as Motion Induced Blindness, where a small but salient object surrounded by a global moving pattern disappears temporarily from visual awareness, are well documented.

In demanding traffic environments, the potential for vehicle drivers to fail to perceive unusual or unexpected pieces of information is real. Furthermore, while a motorcycle may have been detected, it is often the case that the distance and approach speed of a motorcycle may be poorly assessed by the driver. Parameters that influence this poor detection and evaluation by a driver include:

- small size;
- obstructed visibility;
- rider behaviour and positioning; and
- low familiarity with motorcycles in the traffic stream.

¹⁰ International Transport Forum, OECD, Improving Safety for Motorcycle, Scooter and Moped Riders, 2015, p. 134.

PRIORITY AREAS FOR ACTION

These flaws in human perception make it a difficult proposition to just educate drivers to “look properly”. It is likely that innovative technological safety systems such as forward collision radar, blind spot monitoring and vehicle to vehicle communication will ultimately contribute to reducing the number of crashes involving motorcyclists and other vehicles. Vehicles may be able to ‘see’ the motorcycles on behalf of the drivers.

Action 12 - Support the research and development of vehicle safety systems that can overcome the physical limitations of the human driver to see motorcycles in the traffic stream.

Action 13 - Increase driver awareness of blind spots and the potential presence of motorcyclists and encourage the purchase of vehicles with blind spot monitoring and other features.

4.2.2 Motorcycle lane filtering

Lane filtering is a common practice among motorcyclists.

While there is a level of variation in the way lane filtering is defined, it generally refers to the act of using space in a lane to pass lines of slow moving or stationary vehicles at traffic signal controlled intersections in order to get to the front of the queue before the traffic moves off.

Lane filtering differs from another practice adopted by some motorcyclists called lane splitting. Lane splitting refers to the act of using space in a lane to pass lines of fast moving vehicles.

In Western Australia, South Australia, Victoria, Tasmania and the Australian Capital and Northern Territories, the operation of a number of separate road rules means the practices of lane filtering and lane splitting is considered difficult to perform legally in all but a small number of instances.

A 2012 Victorian Parliamentary review also recommended investigating the benefits and risks of lane filtering. The safety benefits are potentially a reduction in heat stress, a reduction in rear end crashes, and improved visibility of motorcycles as they move away from traffic. Potential safety dis-benefits are unknown.

On 18 October 2012, NSW announced it would commence a three month trial on 1 February 2013 to allow motorcyclists to filter through stationary vehicles at Sydney CBD intersections to test if the practice improves traffic flow. Following the trial, NSW moved to legalise lane filtering at low speed under certain conditions (2014), as has Queensland (2015).

Action 14 - Given the widespread nature of lane filtering, undertake a trial of motorcycle lane filtering in Western Australia with a view to amending legislation to permit the practice if results show no safety dis-benefits.

4.2.3 Use of bus and other special lanes

In 2013 a Western Australian stakeholder Working Group found evidence from both Australia and overseas that the use of bus lanes by motorcycles holds promise for improving the efficient movement of traffic without significant operational or safety problems. The Working Group recommended that a trial of the use of bus lanes by motorcycles in Perth be conducted to obtain evidence on (a) the impacts on buses, motorcyclists and other road users; (b) the extent of motorcycle usage of the bus lane (or lanes); and (c) to quantify the potential benefits to motorcyclists.

A twelve month trial commenced in February 2015, with motorcyclists permitted to ride in two marked bus lanes in Perth. An evaluation of the trial is expected in early 2016, which will guide future policy in this area.

PRIORITY AREAS FOR ACTION

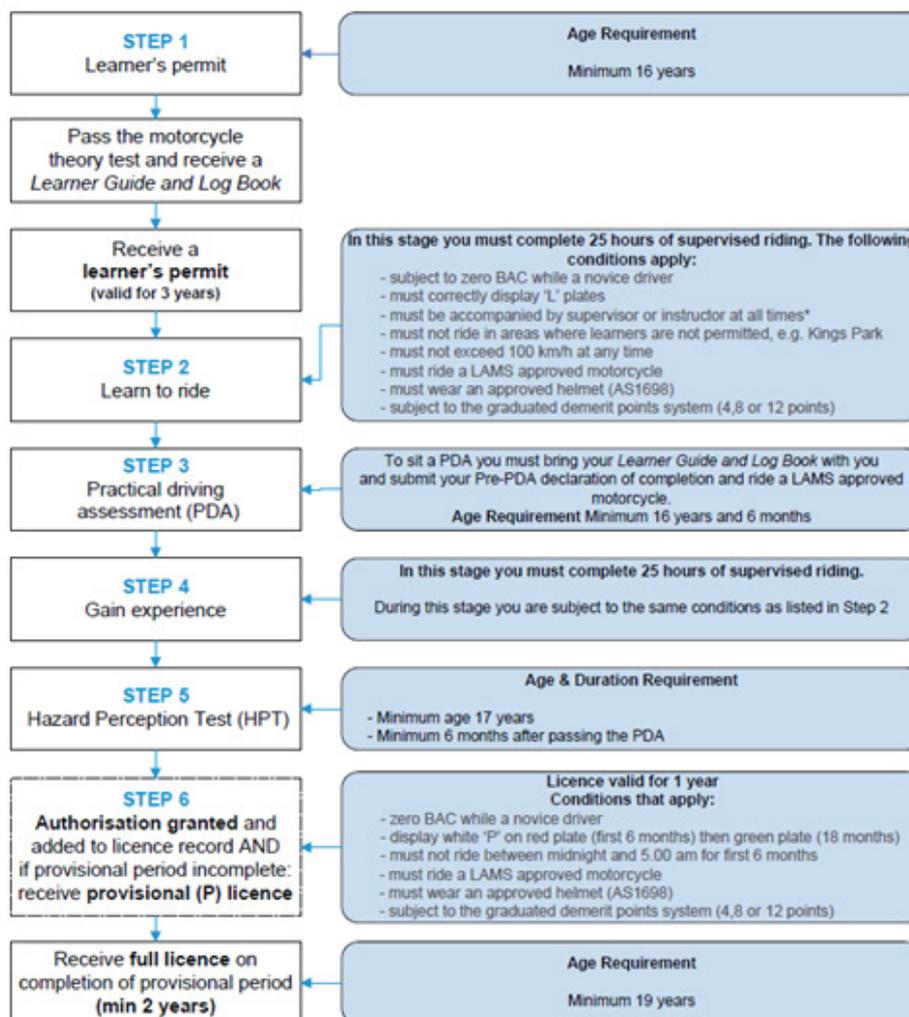
4.3 Motorcycle rider competencies

4.3.1 Graduated access to riding privileges

Graduated licensing systems help in better managing the impulsive behaviour of younger people by only allowing progressive access to driving privileges such as access to high performance motorcycles or riding with a maximum blood alcohol level of below 0.05 as they gain more driving experience and maturity.

As with graduated licensing for car drivers, the Graduated Rider Training and Licensing System (GRTL) is designed to provide new riders with skills and experience that can be developed gradually over time in low-risk environments. By testing the rider's knowledge and ability during the process, the restrictions are gradually removed and the process ends with the driver gaining a full licence.

Western Australia has a GRTL system for motorcyclists as detailed below.



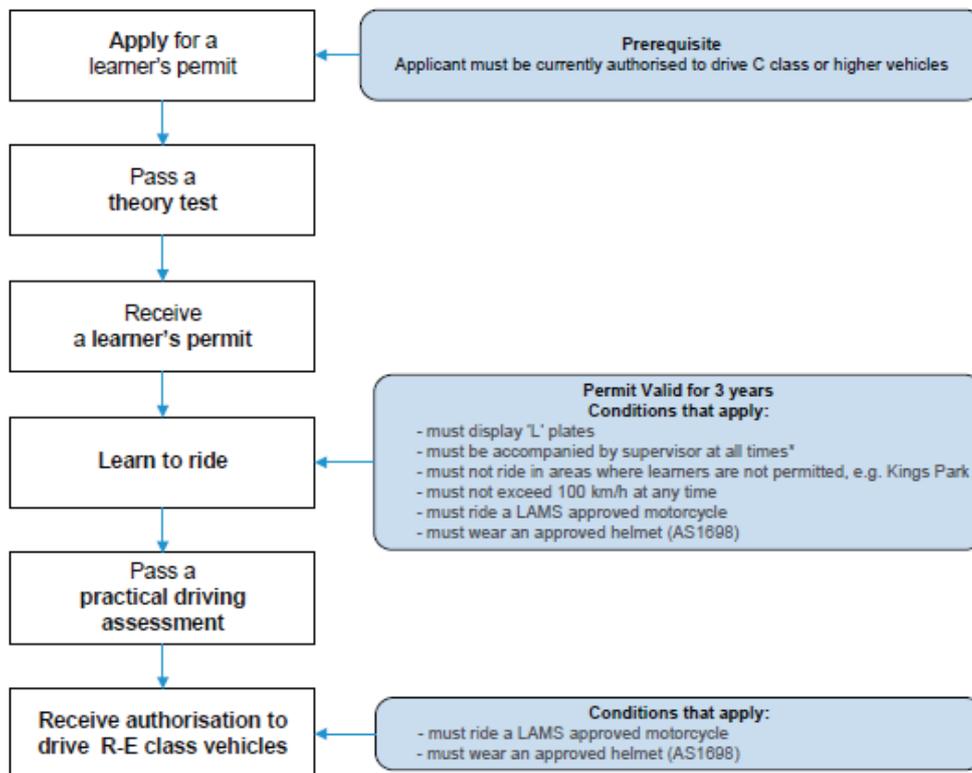
There is no pre-learner training or assessment in Western Australia. Pre-learner training aims to ensure that a rider obtains a level of basic riding knowledge and skills before obtaining a learner's permit and riding on the roads.

PRIORITY AREAS FOR ACTION

There is conflicting evidence as to whether mandatory or voluntary training have a direct correlation to a reduced crash risk. Pre-learner training can have additional functions, including educating about risk taking and attitudes.

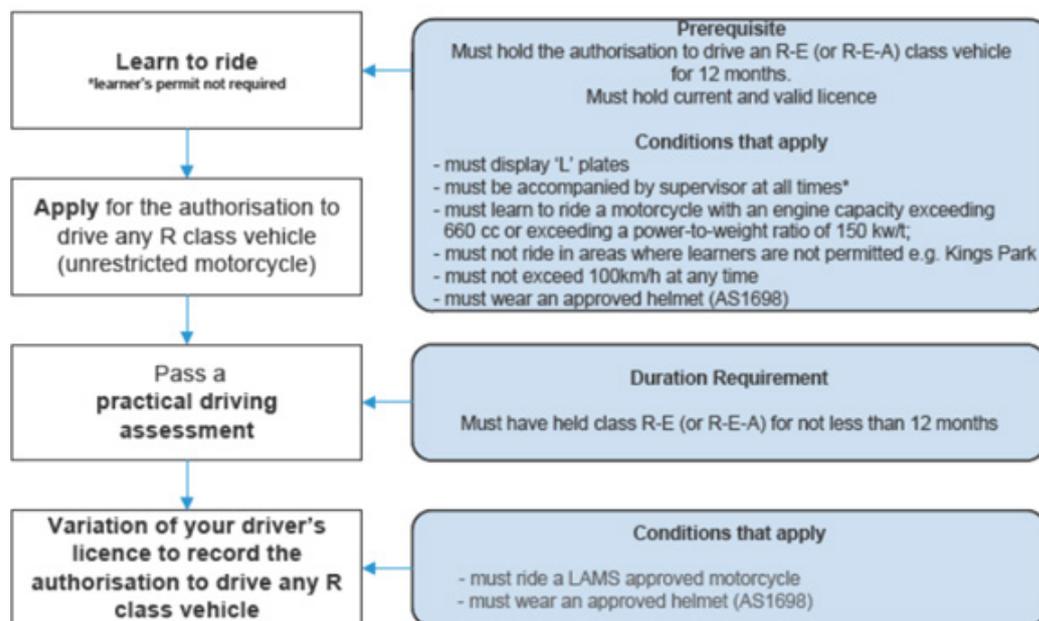
There is substantial evidence that motorcyclists in the first five years of riding are involved in more crashes than riders with more experience, especially in braking, curve riding and obstacle avoidance. Internationally, the European Union has a two year restricted phase and riders must be twenty four before moving to open licences. Given the age spread of riders involved in serious and fatal crashes in Western Australia, a minimum age may not be relevant but restrictions on riding for the first two years appear warranted.

The full GRTL process only applies when a person applies for a motorcycle riding authorisation as their first licence class. The diagram below illustrates the process to add the authorisation to ride a class R-E (LAMS) to the existing driving authorisation:



PRIORITY AREAS FOR ACTION

In order to remove the LAMS restriction, the following steps must be undertaken by a rider who wishes to obtain an unrestricted riding authorisation:



Action 15 - Given the additional risk posed by motorcycle riding compared to driving a passenger car, and the greater degree of technical competency required, it is suggested that the following potential enhancements to the GRTL be considered:

- Investigate the feasibility and nature of mandatory or voluntary pre-training. Evidence is inconclusive but many jurisdictions have some form of off-road qualification scheme which could be replicated or modified for use in Western Australia;
- (2) Introduce a minimum learner permit tenure period of six months prior to undertaking the R-E class practical riding assessment.

4.3.2 Basic riding competencies

Motorcycle characteristics require specific competencies compared to other vehicles. It is generally considered not sufficient to test these skills on a closed track given the ability to safely ride in traffic is important. The purpose of assessment is to assess rider's abilities and to improve the quality and safety of riders on the roads.

Testing should therefore aim to assess whether riders have learned to safely control a motorcycle of the class they're wishing to ride and have acquired the necessary on-road skills, including hazard perception ability and the understanding of riders' inherent vulnerability.

Given motorcycle dimensions are smaller than that of a car, motorcycles often 'disappear' in the blind spots of cars or heavy vehicles sharing the road. Thus, it is important that new riders learn to gain best visibility by positioning, speed and predictable riding behaviours. The inherent vulnerability also requires knowledge about the importance of good quality helmets and protective clothing.

PRIORITY AREAS FOR ACTION

Most Australian jurisdictions have some form of competency based assessment. A motorcycle competency standard is publically available in WA. While undertaking the practical riding assessment (PRA), assessors make an assessment against provisions of the motorcycle competency standard. The current practical riding assessment determines a rider's ability to complete tasks such as:

- Braking;
- Balancing;
- Parking;
- Perform a hill take off; and
- Managing road conditions

However, Western Australia does not currently have a competency based assessment model as the current assessment process is 'error-based' where applicants are marked down for the errors they make during the course of their riding assessment. The cardinality of the errors is 'weighted', i.e. certain mistakes (like those that have a high road or rider safety implication) can cause immediate failure whilst others are not considered risky enough to warrant failure. However, repeated or numerous minor mistakes can still result in a failed assessment. In essence, the process is subjective and thus the outcome can vary depending upon which assessor is allocated for the PRA.

Competency based assessment is an objective way to assess which focuses on an individual's demonstrated knowledge, skills or abilities performed to a specific standard.

Similarly, hazard perception testing is a standard component of car Graduated Driver Training and Licensing aimed at measuring a novice driver's ability to observe the whole road scene, identify and assess the potential hazards and make appropriate and timely responses. There is currently no specific motorcycle Hazard Perception Test (HPT) in WA, or any Australian jurisdiction, however NSW and Western Australia are jointly managing an Austroads project that will oversee the development of a motorcycle specific HPT and car based HPT.

Action 16 - Investigate the benefits of introducing a competency based practical riding assessment.

Action 17 - Investigate the benefits of introducing a pre-licence motorcycle hazard perception test.

4.3.3 Authorisation to ride

The close examination of riders in fatal and catastrophic crashes in 2013 and 2014 found that about half of crash involved riders had a record of prior motor vehicle driver licence sanctions such as licence suspension, cancellation, disqualification, or revocation on medical grounds, and around one in five riders who held or previously held a motorcycle licence had submitted one or more Fitness to Hold applications prior to their recorded crash, mostly for the renewal of an 'Ordinary Licence'.

Action 18 - Promote public awareness of the message that medical conditions affecting fitness to ride or drive should be reported.

PRIORITY AREAS FOR ACTION

4.3.4 Riding a moped on a car licence

In Western Australia it is currently possible to ride a moped under 50 cc on a car driver's licence (C class), a practice prohibited in all other States and Territories bar South Australia.

In 2009 a Spanish study assessed the crash risk for motorcyclists when their law changed in 2004 to allow car driving licence holders to ride a light motorcycle (< 125 cm³) without a specific motorcycle licence. The results of this study suggested that the number of road traffic injuries increases as a result of greater exposure to motorcycles when no special licensing requirement for motorcycle riders is in place.

Similarly, a 2015 study of the effect of increased licensing requirements for mopeds in Sweden found a 41% reduction in the rate of injury events involving 15-year-old moped drivers, and a 39% and 36% decrease in those involving 16-year-old and 17-year-old drivers, respectively. The effect in the 15-year-old stratum was decreased roughly by half after adjusting for exposure, but remained significant, and the corresponding estimates in the other age groups did not change noticeably.

Mopeds account for around 5% of the new motorcycle sales market across Australia, with sales for the six months January to June 2015 declining from its strong growth during the same period in 2014¹¹.

The in-depth study of 2013 and 2014 serious crashes showed that there were 3 mopeds involved in fatal crashes and 1 in a catastrophic crash, representing 4.5% of the powered two wheelers involved in fatal and catastrophic crashes in those years. Registration data for the same years indicates that mopeds and scooters made up 12.5% of the overall powered two wheel fleet in Western Australia.¹²

While mopeds do not appear to be over-represented in serious crashes at this point in time, an examination of the licensing requirement for riders is warranted, based on evidence and practice from other jurisdictions. The potential impact on those currently riding mopeds on a car licence or those operating moped hire businesses would need to also be considered.

Action 19 - Examine the potential impacts of removing the ability to ride a moped on a car licence from the current Western Australian licensing system, in line with other jurisdictions.

4.3.5 Additional training for at risk riders (early identified offenders, returning riders)

There is also anecdotal evidence that an increasing number of riders are returning to riding after a break. In many cases their riding skills are likely to have deteriorated since they last rode and many returning riders have purchased new larger capacity motorcycles than they would have ridden in the past. There is a general view that current training and licensing models are failing those who are returning to riding after a length of time.

Post licence education and training seeks to further develop the basic competencies that a rider gained during their initial training or refresh skills lost over time or when moving to a new motorcycle. It is therefore important that the content of any post-training licence training and education is adapted to the target group in mind.

¹¹ Half year 2015 motorcycle sales report, Federal Chamber of Automotive Industries.

¹² 104,569 motorcycles, including 14,806 scooters and mopeds were registered in 2013/14 in Western Australia. Data provided by the Department of Transport.

PRIORITY AREAS FOR ACTION

A number of overseas and most Australian jurisdictions offer post-licence training, generally on a voluntary basis. The effectiveness of these courses in reducing trauma amongst riders is difficult to assess, with small sample sizes who may not be representative of the broader rider population. There is some evidence that these courses may lead to increased risk of crashes if not directly linked to road safety.

Notwithstanding this, it is likely that well-designed post-licence courses focused on refreshing skills and raising awareness of risk can be useful to some riders. It will be important that any scheme established is sufficiently robust to address the main competencies and attitudes required for safe riding and that the model for delivery is sustainable over time.

Similarly, there has been research undertaken in Western Australia that clearly shows riders with an early history of traffic offending are at significant risk of death or serious injury in the future¹³. The in-depth analysis of the fatally and catastrophically injured riders in Western Australia in 2013 and 2014 identified that almost two-thirds were repeat traffic offenders, and just under half of all riders were charged with traffic offences in the 12 months prior to their crash.

There is merit therefore in considering whether riders presenting with a history of offences can be flagged at an earlier stage in their offending and directed to undergo some additional rider training and risk awareness. This would require the identification of a “trigger” level of demerits and a system for advising and then monitoring attendance at a suitable training course (at rider cost).

Action 20 - Consideration should be given to mandating additional rider training for identified early offenders to correct poor habits or reinforce appropriate skills.

Action 21 - The opportunity for additional training could also be offered for returning and other interested riders.

¹³ Kwok M Ho, Sudhakar Rao, Maxine Burrell, Tarun S. Weeramanthri, 'The Journey from Traffic Offender to Severe Road Trauma Victim: Destiny or Preventive Opportunity?', 22 April 2015.

4.3.4 Transferability of skills to different motorcycles

Around a third of the fatally injured riders in 2013 and 2014 were riding motorcycles that did not belong to them. These motorcycles were almost always borrowed, not stolen.

Since each motorcycle handles slightly differently, borrowed machines pose extra difficulties for riders, particularly if the borrowed motorcycle was a more powerful model. Some Australian jurisdictions warn that a large number of fatal crashes occur on borrowed motorcycles and recommend against lending motorcycles.¹⁴

Action 22 - Encourage riders through social media and rider groups not to ride unfamiliar motorcycles without training or lend their bikes to others.

¹⁴ <http://mylicence.sa.gov.au/my-motorcycle-licence/the-riders-handbook/road-rules>.

PRIORITY AREAS FOR ACTION

4.4 More motorcycle friendly transport system

Motorcycle-friendly road design, maintenance and infrastructure generally benefit all road users. While road environment factors play an important role in the crash severity and occurrence for all vehicles, a more frequent combination of road crash contributory factors are found in motorcycle and scooter crashes. This is because motorcycles and scooters are, by their nature, more sensitive than other road users to any road irregularities.

Road design and maintenance can also be an essential means to influence the 'right' rider behaviour in terms of speeds and manoeuvres undertaken, and in terms of understanding and expectancy of road and traffic situations.

4.4.1 Better planning and design

Mapping of fatal motorcycle crashes in Western Australia does not show clusters of 'black spots' which could be addressed through a black spot funding program. Instead, it points to a dispersed pattern of crashes, better approached through better planning and design.

There are a number of general principles which should be adhered to when considering motorcycles and scooters in the planning, design and construction of road environments, including:

- Readability - road users should be able to identify the trajectory of the road and any hazards. To allow appropriate anticipation and to avoid sudden manoeuvres, potentially dangerous situations should be easy to identify. Signing should be sufficiently visible and not contradictory with other signs or with the road context.
- Visibility - due to their smaller frontal size, motorcycles and scooters are more vulnerable than other motor vehicles to any kind of visibility obstructions. Obstacles that potentially obstruct other road users from seeing motorcycles should be avoided or removed, in particular in the vicinity of intersections or within curves.
- Forgiving - a Safe System should compensate for human errors. This involves first the possibility for road users to correct their errors without further consequences and secondly to mitigate their consequences when the crash cannot be avoided.

As part of the implementation of the action items from the 2009 MSSAG, a DVD aimed at showcasing motorcycle friendly road treatments that had been developed in Victoria was adapted for the WA context. This resource was distributed to local governments at the time, however, the resource is not widely available to those not in receipt of the DVD.

Action 23 - Promote the *Make Motorcycle Friendly* DVD showcasing good practice road design for motorcyclists to local government and make it more available through online download.

Action 24 - Support the running of Austroads workshops within Western Australia to share knowledge on safe system best practice road design that takes into account the vulnerability of motorcycles for local practitioners.

PRIORITY AREAS FOR ACTION

4.4.2 Better planning and design

The road surface and environment can pose a unique risk for motorcyclists and have a significant impact upon the likelihood of crash, the ability for the rider to recover and avoid the crash, and on the severity of the injury to riders and passengers should a crash occur.

It is well understood that some materials offer better and more durable skid resistance than others and these are generally covered in relevant technical guidelines for practitioners. Road authorities should be encouraged to understand what is required in relation to skid resistance, monitor this level and take action should it fall below acceptable levels.

Potholes, loose gravel, curbing, median strips and poor sightlines can also be more hazardous for motorcyclists compared to other road users.

It is important therefore, for all road authorities to have motorcycles in mind when it comes to their maintenance schedules. The identification of surface faults can be captured through regular inspection audits by the road authority or user driven through public reporting.

All road users have the option to report road and signal faults to Main Roads WA through its customer contact centre (Telephone: 138 138 or by email). Reporting in this manner involves a verbal or written description of the location by road name and nearest cross street, which can often make it difficult for the relevant road authority to find the exact location of the fault on the network. With the increasing use of technology such as smartphones, reporting of faults through the sending of GPS coordinates and images may provide the more detailed information necessary for agencies to respond.

While many of the roads that would be reported are not the responsibility of Main Roads, the agency acts as a channel for forwarding information on to the attention of the relevant local government.

Action 25 - Promote the Main Roads 138 138 reporting line to motorcyclists so minor road flaws on State and local roads can be brought to the attention of the relevant authority.

Action 26 - Consider the development of a method for reporting faults as GPS coordinates and other spatial data to improve location information.

Action 27 - Encourage road authorities to have a regular schedule of surface maintenance, particularly on known popular motorcycling routes.

4.4.3 Intersection design

With the majority of urban motorcycle crashes occurring at intersections, it is important that the design and operation of these minimise the potential for collision with motorcycles above 30-40 km/h and the likelihood of motorcycles being obscured by signs and vegetation and other objects. Intersections need to be clearly identified for all road users from all approaches, particularly those located on a curve, either side of crests or on a straight and inconspicuous (i.e. rural areas due to cuttings, urban areas signage, buildings, and poles), with appropriate lighting, signage and delineation.¹⁵

¹⁵ ST1870 Infrastructure Improvements to Reduce Motorcycle Casualties, Austroads, 2015, p. 164

PRIORITY AREAS FOR ACTION

There are a number of proven intersection treatments that can be deployed at new or existing intersections to improve potential outcomes for riders. These include, but are not limited to:

- reduced approach speeds at complex intersections;
- intersection and roundabout design that has good sight lines and approach angles of between 30 and 40 degrees;
- signage and road markings (including the consideration of painted median and curbing) that assist riders negotiate intersections in all conditions (weather, day/night etc.); and
- the use of filter right turns and red signal phases.

Action 28 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe intersection designs that take into account the needs and characteristics of motorcycles.

Action 29 - Continue to fund the upgrade of poor performing intersections in Perth and regional Western Australia through the Road Trauma Trust Account.

4.4.4 Addressing run-off road crashes

All road users make errors and for different reasons a vehicle may leave the road. The WA crash data for 2009-2013 clearly highlighted the prevalence of loss of control crashes on bends or on the straight (often after a bend), particularly in regional areas.

A small recovery zone next to the outer lane without obstacles can greatly enhance a driver and rider's chance of correcting minor mistakes without further consequences.

As with intersections, there are a number of proven engineering measures that can seek to eliminate the potential for a run-of road crash or reduce the severity of impact. These include:

- improving horizontal and vertical road alignment with wide and constant radiuses and good forward visibility;
- installing wide sealed shoulders on the outside of bends;
- ensuring roadside clear zones are void of all unnecessary objects, particularly on the outside of curves,
- flexible guide posts, signs and sign posts that will give in the event of a collision; and
- edge lines, delineators and warning signs that improve geometry predictability (ie curve tightens signs).

Action 30 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe curve and mid-block road design that takes into account the needs and characteristics of motorcycles.

Action 31 - Continue to fund the upgrade of poor performing lengths of rural and urban road that show a higher than average risk of run-off road crashes through the Road Trauma Trust Account.

PRIORITY AREAS FOR ACTION

4.4.5 Use of safety barriers

While there continues to be debate about the type and use of safety barriers that provide the best protection for motorcyclists, current evidence suggests that there is no dis-benefit in the use of barriers to protect road users from fixed objects such as trees and poles.

Recent research found that trees and poles were found to be a greater fatality risk than roadside barriers and that concrete barriers were a lower risk than W-beam barriers. The use of cushions on posts on wire rope barriers and modifications to steel guard rails provided positive benefits to reducing motorcyclist's injuries when impact is below 60km/h.

A recent summary of research on wire rope barriers found that:

- The average fatality rate for riders hitting roadside barriers in Victoria between 2001 and 2006 was 2 cases per year.
- The majority of crashes that involve a motorcycle fatality were caused by W beam barriers.
- Of the barrier fatalities, wire rope safety barriers accounted for 7.8% of deaths – that is 3 instances.
- Where a motorcycle rider does collide with a wire rope safety barrier, the deceleration tends to be much higher compared to concrete barriers.
- The results of simulations showed that 'while flexible barriers have advantages over concrete for cars, the opposite may be true for riders'.

On the basis of the available research, it appears that Wire Rope Safety Barriers do not factor greatly in crash statistics involving motorcyclists. However, they may present different risks to riders which are serious. The shared elements of all crash barriers, the posts and the capacity to cause deceleration, arguably present the greatest concern.

Action 32 - Barriers to be installed with attention to motorcycle safety.

4.4.6 Addressing high speeds

The use of traffic calming to moderate the speed of all vehicles can be beneficial, however, attention must be paid to their design. The choice of location and materials, plus their lighting and visibility, are important factors to consider in order to avoid adding hazards for the motorcyclist.

An alternative to traffic calming, particularly in regional areas, is the use of guideposts and line marking to provide visual cues to drivers and riders to moderate speeds. Research to date into various perceptual treatments for addressing vehicle speeds show mixed or insignificant results.

Action 33 - Continue to participate in the enhancement of Austroads and other technical guidelines to ensure that traffic calming measures to moderate travel speeds take the needs and characteristics of motorcyclists into account.

¹⁶ M. Bambach et al, Motorcycle crashes into roadside barriers – Stage 3: Survivability Analysis, NSW Injury Risk Management Research Centre, University of NSW, 2011.

¹⁷ Road Safety Committee, Inquiry into Motorcycle Safety, Victoria, December 2012, pp.300-301.

4.4.7 Popular and high risk routes

Crash statistics for WA 2009-2013 show an increased proportion of serious motorcycle crashes in regional WA on weekends. It is likely that recreational activity, either as an organised group ride or individuals, are attracted to certain routes where the freedom and other joys of motorcycling can be really experienced.

Instrumented motor cars are often used to assess the performance of a route, providing information to the road authority on surface condition and other parameters. An instrumented motorcycle that measures a range of road factors in real time, as well as capture video, has been used in Queensland for the audit of specific riding routes as part of a Motorcycle Mass Action Program.

Experience in other jurisdictions such as Victoria has shown that having an experienced rider travelling a route and communicating their experiences to a following vehicle can be equally beneficial as the instrumented bike, providing key information on sub-standard bends, surface, signage and markings.

Action 34 - Assess a small number of popular routes using a skilled and experienced rider communicating to a following vehicle, to identify the potential for a mass action treatment of issues.

PRIORITY AREAS FOR ACTION

4.5 Safer motorcycles and mopeds

While it is generally understood that vehicle technical failures are at best only minor contributors to motorcycle and scooter road crashes, vehicle improvements have potential to affect rider behaviour and improve rider safety.

4.5.1 Motorcycle anti-lock braking systems (ABS) and other braking technologies

ABS technology is common in passenger cars sold in Australia, however only around 20% of new motorcycles are sold with it.

The US Insurance Institute for Highway Safety studies of fatal crashes, insurance claims and test track performance all confirm the importance of ABS for motorcycles. The rate of fatal crashes is 31% lower for motorcycles equipped with optional ABS than for those same models without ABS.

A recent Australian study into the benefits of ABS on motorcycles has found that ABS could help in 93% of crash situations.¹⁸ The study into real world crashes in Australia found that ABS reduced motorcycle injury crashes by 31% and was even more effective in more serious crashes.

The introduction of technology on motorcycles that address stability, traction and braking properties of a motorcycle are therefore likely to enhance motorcycle safety in many of high crash situations:

- Combined braking systems – In which front and rear brakes work together.
- Amplified braking systems – Comparable to braking assistance in cars.
- Rear wheel lift off protection – Detects rear wheel lift off and removes the front brake momentarily.
- Brake by wire – Improves ABS results.
- Electronic traction control – Prevents rear wheel skids.
- Motorcycle stability control – Electronically combines braking while cornering in emergencies.
- Anti-hop clutch system for smoother and more consistent acceleration

The introduction of these types of technology lags behind that of similar systems in vehicles. Without an equivalent motorcycle crash testing and rating program such as the Australian New Car Assessment Program (ANCAP) or mandated inclusion for ABS, there is little incentive for manufacturers to offer this technology as standard or independent consumer information available to purchasers outside of the trade industry.

On the back of the strong evidence supporting the benefits of ABS, the Australian Government will shortly consider mandating ABS for motorcycles as part of a planned Regulatory Impact Statement (RIS) process. Issues of concern to motorcyclists in relation to ABS will be discussed as part of the RIS process.

Action 35 - Until a decision is made on mandatory inclusion on new models, promote the benefits of ABS to current and potential purchasers of new motorcycles.

¹⁸ B. Fildes, S. Newstead, S., M. Rizzi, M., Fitzharris, and L. Budd, (2015), *Evaluation of the effectiveness of Anti-Lock Braking Systems on motorcycle safety in Australia*, Monash University Accident Research Centre, Melbourne.

PRIORITY AREAS FOR ACTION

4.5.2 Daytime running lights

Although not compulsory, motorcyclists can purchase motorcycles that have hard wired head and tail lights or be encouraged to ride with their lights on.

Research conducted in New Zealand has shown that motorcycles with lights on during the day are easier to see than those without and are 27% less likely to be involved in a crash. Many new bikes have recognised the benefits of this research and include daytime running lights that improve depth of vision and conspicuousness for other road users.

Action 36 - Promote the use of Daytime Running Lights for motorcycles.

4.5.3 Non-compliant power assisted pedal cycles

WA Police report that during their routine traffic duties they are encountering people riding what are often marketed as Power Assisted Pedal Cycles (PAPC).

Under Western Australian legislation, if a pedal cycle is fitted with a motor, then it will fall into one of either two categories depending on the type and power output of the motor:

- cycles fitted with a low-powered motor that is prescribed by road laws that assists the rider whilst pedalling, referred to as PAPC; or
- cycles fitted with a more powerful motor that propels the vehicle without pedalling. These fall outside the definition of a PAPC and are a category of motor vehicle, more specifically a motorcycle.

Vehicles that do not meet the criteria for a PAPC are not able to be registered because they are not capable of meeting Australian Design Rules and other vehicle standards. The rider of such a 'pseudo motorcycle' can be charged with an array of offences including driving without a motorcycle helmet, unroadworthy or unregistered vehicle and no authority to drive.

A police officer would generally rely on the appearance of the vehicle and the manner in which the vehicle is driven to determine whether the vehicle is compliant as a PAPC. For example, if there are no pedals, chain or cogs then it is unlikely to be operated principally by human power as required by the definition for a PAPC. If the engine has large capacity, the vehicle travelled at high speed and/or has a throttle that allows the vehicle to be propelled without pedalling then it is most likely to be greater than 200W and therefore a motorcycle.

It is often the case that police require evidence of the power output of the engine being greater than 200W for any subsequent court proceedings. This is usually done by testing the power output of the vehicle using a Dynamometer. With sales of alternative electric bicycles and other forms of sustainable transport increasing, the prevalence of these non-compliant PAPCs on our roads is rising. It is understood that three fatalities recorded in 2014 were riding what Police considered to be illegal PAPCs.

It is therefore timely to consider the regulation framework governing the use of non-compliant PAPC and how they are to be managed within Western Australia.

Action 37 - Examine the regulatory framework for managing the use of non-conforming Power Assisted Pedal Cycles.

4.5.4 Improvements to motorcycle registration processes

The DoT currently collects information on the make of motorcycle but not the model. Improvements to data collection at the point of vehicle registration would allow for a more detailed understanding of motorcycle safety.

Action 38 - Enhance DoT's technological functionality to record more comprehensive information regarding motorcycles.

5. DELIVERING ON THE STRATEGIC DIRECTIONS

The actions outlined in this Strategic Directions document will be progressed over the next four years, 2016 – 2020.

5.1 Governance

The Road Safety Commission, as lead agency for road safety in Western Australia, will coordinate implementation of the plan, through our existing working relationships with agencies, and report on a regular basis to the Minister for Road Safety.

Consultation with rider groups and industry stakeholders will continue through the existing Motorcycle Safety Action Group (MSAG).

5.2 Order of actions

All actions will be undertaken with reference to likely impact on motorcycle safety, cost and timeliness of implementation.

While there is agency level commitment to implementation of the actions recommended in the report, Ministerial endorsement of actions in the Transport and other portfolios is required.

Action 39 - Agencies will develop an implementation plan which prioritises actions on the basis of cost, likely effectiveness, and timeliness of implementation.

Actions to be considered for implementation within the first 12 months (2016).

Action	Lead agency
Action 1 - Promote best practice recommendations for rider visibility with the aim being for the rider to show as much contrast with the environment as possible. As a general rule this would include the promotion of: <ul style="list-style-type: none">● high visibility clothing and white or light helmets when riding through highly dense traffic;● darker clothing when cruising in open spaces with high ambient light; and● reflective clothing at night.	RSC
Action 2 - Promote the Motorcycle Riders Association brochure <i>Make Yourself Visible</i> and other material to encourage correct road positions for safer riding.	RSC
Action 3 - Promote the existence of CRASH to local riders, and if necessary, contribute as a funding partner to support the initiative.	RSC

DELIVERING ON THE STRATEGIC DIRECTIONS

Action	Lead agency
Action 4 - Include the United Nations ECE 22.05 helmet standard on the list of approved helmets for use in Western Australia.	RSC
Action 8 - To enhance the detection and identification of speeding motorcyclists in Western Australia, expand the use of rear facing cameras and introduce stricter owner onus legislation.	WA Police, RSC
<p>Action 9 - Given the inherent vulnerability of motorcyclists, continued attention should be paid in Western Australia to:</p> <ul style="list-style-type: none"> ● Enforcing high risk road traffic laws across the general driving population using best practice methods (WA Police category A offences); ● Using intelligence on times, days, routes, ages etc target specific enforcement of motorcycle and scooter riders; ● Enhancing penalties for low range speeding to ensure that repeat offenders can be ultimately managed through accrual of demerit points; and ● Raising awareness among the general population about their high risk driving and its impact on riders. 	WA Police (enforcement) and RSC (legislation and education)
Action 10 - Raise awareness among motorcyclists of the risks associated with riding and strategies for reducing risk.	RSC
Action 14 - Given the widespread nature of lane filtering, undertake a trial of motorcycle lane filtering in Western Australia with a view to amending legislation to permit the practice if results	RSC
Action 22 - Encourage riders through social media and rider groups not to ride unfamiliar motorcycles without training or lend their bikes to others.	RSC
Action 23 - Promote the Make Motorcycle Friendly DVD showcasing good practice road design for motorcyclists to local government and make it more available through online	MRWA
Action 24 - Support the running of Austroads workshops within Western Australia to share knowledge on safe system best practice road design that takes into account the vulnerability of motorcycles for local practitioners.	MRWA
Action 25 - Promote the Main Roads 138 138 reporting line to motorcyclists so minor road flaws on State and local roads can be brought to the attention of the relevant authority.	MRWA
Action 35 - Until a decision is made on mandatory inclusion on new models, promote the benefits of ABS to current and potential purchasers of new motorcycles.	RSC
Action 36 - Promote the use of Daytime Running Lights for motorcycles.	RSC

DELIVERING ON THE STRATEGIC DIRECTIONS

Action	Lead agency
Action 37 - Examine the regulatory framework for managing the use of non-conforming Power Assisted Pedal Cycles	RSC
Action 39 - Agencies will develop an implementation plan which prioritises actions on the basis of cost, likely effectiveness, and timeliness of implementation.	All agencies

Actions to be considered for progression in Years 2-4 (2017-2019)

Action	Lead agency
Action 5 - Contribute to the development and support for a national motorcycle protective clothing rating tool in the first instance, and then the eventual use of the tool to promote the wearing of protective clothing to riders.	RSC
Action 6 - Introduce a zero BAC limit for all learner motorcycle riders, regardless of other licences held.	RSC, DoT
Action 7 - Consider introducing a zero BAC limit for the first two years of the restricted licence phase.	RSC, DoT
Action 11 - Rider groups to consider the development of a Code of Conduct for Motorcycle and Scooter Riders for everyday riding, as well as group rides.	Motorcycle Riders' Association
Action 12 - Support the research and development of vehicle safety systems that can overcome the physical limitations of the human driver to see motorcycles in the traffic system.	RSC
Action 13 - Increase driver awareness of blind spots and the potential presence of motorcyclists and encourage the purchase of vehicles with blind spot monitoring and other features.	RSC
Action 15 - Given the additional risk posed by motorcycle riding compared to driving a passenger car, and the greater degree of technical competency required, it is suggested that the following potential enhancements to the Graduated Rider Training and Licensing be considered: <ul style="list-style-type: none"> ● Investigate the feasibility and nature of mandatory or voluntary pre-training. Evidence is inconclusive but many jurisdictions have some form of off-road qualification scheme which could be replicated or modified for use in Western Australia; ● Introduce a minimum learner permit tenure period of six months prior to the undertaking of the R-E Class practical riding assessment. 	DoT
Action 16 - Investigate the benefits of introducing a competency based practical riding assessment.	DoT

DELIVERING ON THE STRATEGIC DIRECTIONS

Action	Lead agency
Action 17- Investigate the benefits of introducing a pre-licence motorcycle hazard perception test.	DoT
Action 18 - Promote public awareness of the message that medical conditions affecting fitness to ride or drive should be reported.	DoT
Action 19 - Examine the potential impacts of removing the ability to ride a moped on a car licence from the current Western Australian licensing system, in line with other jurisdictions.	DoT
Action 20 - Consideration should be given to mandating additional rider training for identified early offenders to correct poor habits or reinforce appropriate skills.	DoT
Action 21 - The opportunity for additional training could also be offered for returning and other interested riders.	DoT
Action 26 - Consider the development of a method for reporting faults as GPS coordinates and other spatial data to improve location information.	MRWA
Action 27 - Encourage road authorities to have a regular schedule of surface maintenance, particularly on known popular motorcycling routes.	MRWA and WALGA
Action 28 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe intersection designs that take into account the needs and characteristics of motorcycles.	MRWA
Action 29 - Continue to fund the upgrade of poor performing intersections in Perth and regional Western Australia through the Road Trauma Trust Account.	MRWA
Action 30 - Continue to participate in the development and enhancement of Austroads and other technical guidelines for safe curve and mid-block road design that takes into account the needs and characteristics of motorcycles.	MRWA
Action 31 - Continue to fund the upgrade of poor performing lengths of rural and urban road that show a higher than average risk of run-off road crashes through the Road Trauma Trust Account.	MRWA
Action 32 - Barriers to be installed with attention to motorcycle safety.	MRWA, Local Governments
Action 33 - Continue to participate in the enhancement of Austroads and other technical guidelines to ensure that traffic calming measures to moderate travel speeds take the needs and characteristics of motorcyclists into account.	MRWA
Action 34 - Assess a small number of popular routes using a skilled and experienced rider communicating to a following vehicle, to identify the potential for a mass action treatment of issues.	RSC

DELIVERING ON THE STRATEGIC DIRECTIONS

Action	Lead agency
Action 38 - Enhance Transport's technological functionality to record more comprehensive information regarding motorcycles.	DoT

5.3 Measuring performance

Monitoring and evaluating the performance of the Motorcyclist Safety Strategic Directions Plan 2016-2020 is crucial to ensuring that the actions and initiatives identified as having the best potential for road safety benefit are implemented as planned.

In late 2012, the then Office of Road Safety began reporting to the Road Safety Council on a set of Safety Performance Indicators that are used to measure progress against the high priority results areas of the Towards Zero Strategy. These Indicators seek to track progress and flag emerging areas of departure on three levels, namely:

- Final crash outcomes in terms of reductions in the number people killed and seriously injured (KSI)
- Intermediate outcomes that are expected to contribute to reducing serious crashes including changes to mean travel speeds, enforcement hit rates, safe system appropriateness of road and roadside infrastructure, community awareness of road safety messages and crashworthiness of vehicle fleet
- Output level of effort and activity in program areas such as enforcement and education, road treatments that are expected to contribute to improved outcomes.

The following Safety Performance Indicators for motorcyclists will be measured on a regular basis:

Safety performance indicator	Mechanism
Final outcomes	
Number and proportion of motorcyclists killed and seriously injured	Reported crash numbers
Number and proportion of multi-vehicle, single-vehicle, mid-block and intersection crashes involving motorcyclists	Reported crash numbers
Number and proportion of crashes involving motorcyclists where speed a factor	Reported crash numbers
Number and proportion of crashes involving motorcyclists where alcohol and/or drugs a factor	Reported crash numbers
Immediate outcomes	
Mean speeds (all traffic)	State speed survey
Community education message reach and takeout	Tracking surveys
Output/effort indicators	
Number of motorcycle specific enforcement operations	WA Police report
Number of motorcycle specific road treatments undertaken	MRWA report

