

PARLIAMENT OF NEW SOUTH WALES



Joint Standing Committee on Road Safety

Vulnerable Road Users

Inquiry into Motorcycle and Bicycle Safety

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Table of Contents

Membership and Staff.....	ii
Terms of Reference	iii
Chair’s Foreword	iv
List of Recommendations	vi
CHAPTER ONE - INTRODUCTION.....	1
Background.....	1
Conduct of Inquiry.....	1
Report Structure	1
CHAPTER TWO - USAGE PATTERNS AND TRENDS.....	3
Motorcycles.....	3
Pedal Cycles	6
CHAPTER THREE - UNDERLYING FACTORS IN CRASH INVOLVEMENT..	9
Motorcycles.....	9
Pedal Cycles	16
CHAPTER FOUR - COUNTERMEASURES AND SAFETY STRATEGIES...24	
Motorcycles.....	24
Pedal Cycles	34
CHAPTER FIVE - TRANSPORT PLANNING AND THE ROAD SYSTEM.....44	
Current Planning Guidelines.....	44
Motorcycles.....	45
Pedal Cycles	46
The Road Hierarchy.....	48
Road User Integration.....	48
CHAPTER SIX - CONCLUSIONS AND RECOMMENDATIONS	50
Appendix One – List of Submissions	58
Appendix Two – List of Witnesses.....	60
Appendix Three – Extract of Minutes	62

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Terms of Reference

The Committee will inquire into and report on vulnerable road users, specifically motorcycle and bicycle safety, with particular reference to:

- a) patterns of motorcycle and bicycle usage in New South Wales;
- b) short and long term trends in motorcycle and bicycle injuries and fatalities across a range of settings, including on-road and off-road uses;
- c) underlying factors in motorcycle and bicycle injuries and fatalities;
- d) current measures and future strategies to address motorcycle and bicycle safety, including education, training and assessment programs;
- e) the integration of motorcyclists and bicyclists in the planning and management of the road system in NSW;
- f) motorcycle and bicycle safety issues and strategies in other jurisdictions; and
- g) any other related matters.

List of Abbreviations

ABS	Australian Bureau of Statistics
ABS	Anti-lock Braking System
ARC	Australian Research Council
ASL	Advanced Stop Lines
ATC	Australian Transport Council
ATVs	All-Terrain Vehicles
BAC	Blood Alcohol Concentration
BEAM	Bicycle Education Activity Manual
CARES	Community and Road Education Scheme
COTA	Council on the Ageing
DCPs	Development Control Plans
DSRC	Dedicated Short Range Communication
GLS	Graduate Licensing Scheme
HEP	Helmet Evaluation Program
IRMRC	Injury Risk Management Research Centre
LGAs	Local Government Areas
MCC	Motorcycle Council of NSW
MOU	Memorandum of Understanding
OECD	Organisation for Economic Cooperation and Development
PDHPE	Personal Development, Health and Physical Education
RPAH	Royal Prince Alfred Hospital
RSOs	Road Safety Officers
RTA	Roads & Traffic Authority
STRA	Survive the Ride Association
TCS	Traction Control Systems
VMS	Variable Message Signs

Chair's Foreword

This report, the Committee's fifth and last in the current Parliament, marks the end of a comprehensive program of review of major road user groups and continues the work of Staysafe over successive Parliaments to improve safety on the roads of NSW.

The current inquiry into Vulnerable Road Users, focussing on motorcyclists and pedal cyclists, complements an earlier inquiry conducted last year into Pedestrian Safety. The Committee suggests that the reports be read together to provide an overall picture of recommended strategies to improve safety risks for these less protected groups of road users.

Major areas for suggested reform, some of which have been consistently stressed in all previous reports, include: improved data collection and management; improvements in roads engineering; better targeted education and public awareness programs and campaigns; and improved planning processes, including enhanced collaboration between the NSW Government and local councils.

A key message stressed throughout the Report is that roads serve as access points and vital arteries for the whole community. The diverse range of people using the road network creates policy and planning challenges for all agencies involved in managing the transport system and securing public safety.

Road agencies everywhere are constantly engaged in monitoring safety and devising countermeasures to mitigate risks. Staysafe makes its own contribution to this process by actively consulting and providing a public forum for discussion and debate about proposed strategies and interventions. The recommendations made in this and other Staysafe reports seek to promote full community participation in the policy process, which is one of the hallmarks of participatory democracy

I would like to record my appreciation to all those who have made a contribution to the work of the Committee in the last four years, particularly those who have made submissions and appeared before Staysafe at public hearings. Without this input, the Committee's work would not be as effective.

I would also like to thank all Committee Members for their efforts and deliberations and the Secretariat for their assistance in the conduct of the Committee's work in the 54th Parliament.

Geoff Corrigan MP
Chair

List of Recommendations

RECOMMENDATION 1:

The Committee supports the establishment by the RTA of an interagency crash data working group and recommends that, as one of its priorities, the working group should address the current lack of centralised data collection for off-road injuries and fatalities.

RECOMMENDATION 2:

The Committee recommends that, in order to provide data of higher quality and utility and to complement the Austroads initiative to enhance the provision of raw data by road agencies, the interagency crash data working group devise means by which data can be collected to differentiate between rider typologies.

RECOMMENDATION 3:

The Committee also recommends that the interagency crash data working group develop a strategy to better document the incidence of bicycle injuries on the roads in order to target appropriate interventions more effectively.

RECOMMENDATION 4:

The Committee recommends that the composition and membership of the Motorcycle Ministerial Advisory Council reflect the interests of all stakeholders and that it adopts the practice of the Victorian Motorcycle Advisory Council of appointing an independent Chair to oversee its operations and to provide effective leadership.

RECOMMENDATION 5:

The Committee recommends that the RTA strengthen its monitoring of road surface conditions to improve safety for vulnerable road users and implement a direct reporting system to alert the appropriate engineering and maintenance areas of the agency and local councils to potential hazards, for immediate remediation as problems arise.

RECOMMENDATION 6:

The Committee recommends that the RTA trial a system of bike boxes, also known as advanced stop lines (ASL), that allow bicyclists to move in front of vehicles when stopped at a signalised intersection in order to reduce the potential for conflicts with vehicle turning movements on the green signal.

RECOMMENDATION 7:

The Committee also recommends that separate signal phases for bicyclists at intersections, which stop all vehicular traffic while permitting cyclists to proceed through the intersection in designated directions, should be trialled where appropriate.

RECOMMENDATION 8:

The Committee recommends that the RTA conduct a comprehensive review and safety audit of shared paths and zones and undertake appropriate engineering modifications and other necessary measures to reduce potential risks to users of these facilities.

RECOMMENDATION 9:

The Committee recommends that the RTA sponsor research into the impact of rider fatigue in motorcycle crashes. If found to be a significant risk factor, this should form the basis of an education awareness campaign and also be incorporated into awareness training for novice riders.

RECOMMENDATION 10:

The Committee recommends that the RTA report on the results of its current trial of post-licence mentoring activities and implement appropriate strategies to improve the skills of novice riders on the basis of the findings of this research.

RECOMMENDATION 11:

The Committee recommends that the RTA and the NSW Police Force evaluate the effectiveness of the CARES program with a view to increasing its funding for wider expansion.

RECOMMENDATION 12:

The Committee recommends that the RTA and local councils conduct further educational campaigns to make road users aware of the location, operation and potential risks associated with the use of shared paths and cycleways.

RECOMMENDATION 13:

In the interests of public safety and in recognition of the high degree of motor coordination and vigilance required to ride a motorcycle in a safe manner, the Committee recommends that the *Road Transport (Safety and Management Act) 1999* be amended to reduce the legally prescribed blood alcohol concentration level applying to motorcycle riders to 0.02.

RECOMMENDATION 14:

The Committee recommends that the RTA initiate a new broadly based campaign to promote the Road Rules. This includes an emphasis on the different rules applying to all road users and highlighting areas of potential conflict. Included in this campaign strategy should be a strong focus on educational resources for schools, the inclusion of more detailed information about vulnerable road users in licensing test arrangements and targeted media and public information material delivered in a variety of print and electronic formats.

RECOMMENDATION 15:

The Committee recommends that the RTA closely monitor the results of the Motor Accidents Authority review of protective motorcycle clothing and ensure that any implementation of such a system includes the effective public promotion of suitable clothing to consumers.

RECOMMENDATION 16:

In view of the increasing popularity and use of mobility scooters, the Committee also recommends that the RTA investigate this category of motorcycle use as part of the Motorcycle Safety Strategy, including the increasing prevalence of smaller motorcycles, such as Vespas, and the implications for safety of the lack of requirement to wear protective clothing.

RECOMMENDATION 17:

The Committee recommends that the RTA review The George Institute for Global Health's research findings regarding retro-reflective materials and visibility aids for cyclists and promote the safety benefits of these aids as part of its education and promotional activities.

RECOMMENDATION 18:

The Committee recommends that the RTA promote the adoption of Australian Design Rules for anti-lock braking systems and traction control systems for motorcycles as soon as practicable.

RECOMMENDATION 19:

There are obvious benefits in closer collaboration between the NSW Government and local councils in the setting and implementation of road safety priorities. Therefore, the Committee recommends that the NSW Government examine the feasibility of extending the current provisions applying in the Memorandum of Understanding with the City of Sydney and negotiate similar arrangements with other local councils, in order to assist with road safety transport planning and implementation at the local level.

Chapter One - Introduction

Background

- 1.1 Alternatives to the motor car as a mode of transport, particularly motorcycles and pedal cycles, are increasing in number on the road network in NSW. In the case of motorcycles, this is partly due to economic factors and because of increased congestion on the roads. Pedal cyclists are motivated by health, environmental and recreation considerations, as well as greater efficiency of commuting.
- 1.2 The potential for conflict on the road system and the attendant risks of serious injury and fatality, particularly for more risk exposed categories of vehicles, has prompted the Committee to undertake an investigation of this class of road user in order to gauge the extent of recent developments and to make recommendations to mitigate risk exposure.
- 1.3 On 17 May 2010, the Committee resolved to conduct an inquiry into Vulnerable Road Users with the following terms of reference:
 - a) patterns of motorcycle and bicycle usage in New South Wales;
 - b) short and long term trends in motorcycle and bicycle injuries and fatalities across a range of settings, including on-road and off-road uses;
 - c) underlying factors in motorcycle and bicycle injuries and fatalities;
 - d) current measures and future strategies to address motorcycle and bicycle safety, including education, training and assessment programs;
 - e) the integration of motorcyclists and bicyclists in the planning and management of the road system in NSW;
 - f) motorcycle and bicycle safety issues and strategies in other jurisdictions; and
 - g) any other related matters.

Conduct of Inquiry

- 1.4 The Committee launched the Inquiry on 23 June 2010 by advertising in *The Sydney Morning Herald* and *The Daily Telegraph* as well as on the Committee's website. In addition, the Chair wrote to constituent organisations seeking submissions by 6 August 2010. In total, the Committee received 57 submissions from private citizens, bicycling and motorcycling interest groups, local governments, research centres, and government and non-government organisations. A full list of submissions can be found at Appendix One.
- 1.5 Public hearings were held in Sydney on 12 and 13 October 2010 to take evidence from public agencies with responsibility for bicycle and motorcycle safety, as well as other relevant organisations and individuals. The schedule for the public hearings is detailed at Appendix Two.

Report Structure

- 1.6 The Report summarises the information provided in submissions and obtained during evidence given at public hearings, supplemented with other research gathered during the course of the Inquiry. Issues of concern to both motorcycle and pedal cycle

Introduction

groups, where there are obvious commonalities of interest and impacts, are covered jointly, while each chapter also deals separately with specific issues related to each group.

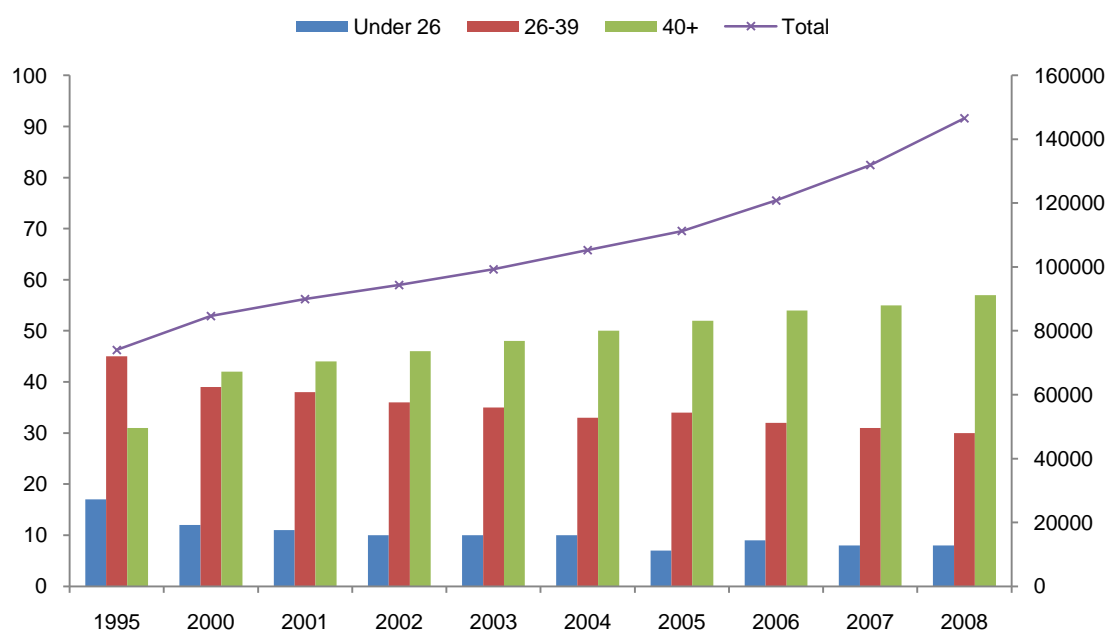
- 1.7 Chapter Two details the usage patterns of motorcycles and bicycles, including the injury and fatality rates for both road user groups. The underlying factors that contribute to crash involvement are explored in Chapter Three. This includes a consideration of the demographic, behavioural, and drug and alcohol use factors associated with riders. The issue of licensing and training regimes is highlighted, along with the adequacy of engineering solutions and treatment of road infrastructure.
- 1.8 Having identified the factors underlying motorcycle and bicycle crashes, Chapter Four examines the current range of countermeasures and safety strategies employed to address these issues, including: road engineering and technology; the use of protective equipment; the licensing and training framework; and public education and enforcement strategies.
- 1.9 Chapter Five looks at the current transport planning framework and guidelines and the extent to which the needs of motorcycle and bicycle road user groups are integrated into the planning system in New South Wales.
- 1.10 The final Chapter presents the Committee's conclusions and recommendations.

Chapter Two - Usage Patterns and Trends

Motorcycles

2.1 Motorcycle riders constitute an increasingly numerous category of road users. The number of registered motorcycles as a proportion of the total vehicle fleet on NSW roads has risen in the last decade from 2 per cent in 2000 to 4 per cent in 2009. According to the RTA, motorcycle registrations in NSW increased by 50 per cent and licences by 18 per cent between 2004 and 2009.¹ These increases, by age category, are set out in the following Diagram:²

DIAGRAM 1 - AGE OF REGISTERED OWNERS OF MOTORCYCLES IN NSW, 1995-2008



2.2 The Motorcycle Council of NSW (MCC) notes that the number of registered motorcycles constitutes only about 50 per cent of all motorcycles sold, due to their unsuitability for registration or use solely for off-road riding.

2.3 In their appearance before the Committee, Council representatives expanded on this as follows:

In broad terms, about half of all motor cycles which enter the country under the motor cycle classification are registered. Of the unregistered proportion, a half of that or a quarter of the total are ATVs or four wheel vehicles, quad bikes, often used on farms but more increasingly used in recreation.³

2.4 Licence statistics also misrepresent the number of motorcycle riders, as discussed further in Chapter 3.

2.5 The shifting age profile of riders is evident in Table 1. The majority of riders in the 26-30 year category is now replaced by riders aged 40 years and over. This is one of the significant characteristics of motorcycle riders identified by the MCC, which

¹ Submission 47, RTA, p. 10.

² Submission 41, Motorcycle Council of NSW, p. 3.

³ Transcript of Evidence, 13 October 2010, p. 10

Usage Patterns and Trends

makes the observation that the average age of riders is 43 and the average age of newly licensed riders is 33, as opposed to 18 years for drivers.⁴

- 2.6 Another variable to be taken into account is that many riders use their motorcycles only occasionally during the week and more often on weekends as recreation. In addition, some riders maintain their rider licence status during their 30's without riding, as they raise a family and return to active riding later in life.⁵
- 2.7 The increasing number of riders can be attributed to a range of factors. In its submission to the Inquiry, the Survive The Ride Association states: "In 2009, the Sydney metropolitan area contained 50 per cent of the motorcycle registrations in NSW and 70 per cent of the scooter registrations. Sales of scooters has grown significantly more than other road motorcycle categories over the past few years as a response to both traffic congestion and fashion trends."⁶
- 2.8 In evidence to the Committee, the RTA also commented on the increase in mobility scooter use as a mode of transportation and a new user category on NSW roads, as follows:
- We know that there are a lot of off-road serious injuries involving mobility scooters. There has also started to emerge in the last few years the odd on-road fatality or crash involving mobility scooters in breakdown lanes being cleaned up, et cetera. It is an emerging issue. It is one that is being put under the national spotlight. As part of the national road safety strategy and national forums, a uniform approach to mobility scooters is being addressed. We know there is something there to deal with. It is not only on public road roads, it is in shopping centres and in many areas that there needs to be some sort of control around mobility scooters.⁷
- 2.9 Despite the increasing number of motorcycles on the roads, there has not been a commensurate increase in casualties over time, except for last year. This is not to say, however, that motorcycle riding is safe. Accounting for approximately 0.5 per cent of all motor vehicle travel, motorcycles are involved in approximately 15 per cent of all fatal crashes. According to the RTA: "It is estimated that motorcycle riders and passengers are around 20 times more likely to be killed than car occupants."⁸
- 2.10 It should also be noted that although there has been a steady increase in motorcycle injuries since 2003, the fatality trend has been subject to much greater variation. The casualty trend figures for 1996-2009 are set out in the following Diagram:⁹

⁴ Ibid.

⁵ Submission 38, Survive the Ride Association NSW, p. 3.

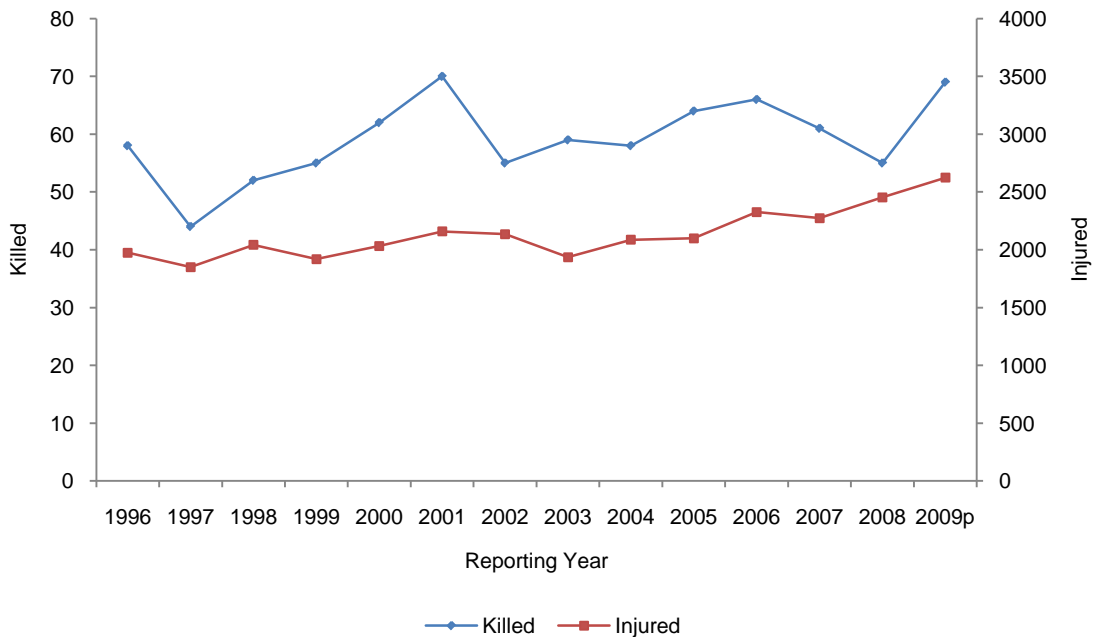
⁶ Ibid.

⁷ Transcript of Evidence, 12 October 2010, p. 10

⁸ Submission 47, RTA, p. 12.

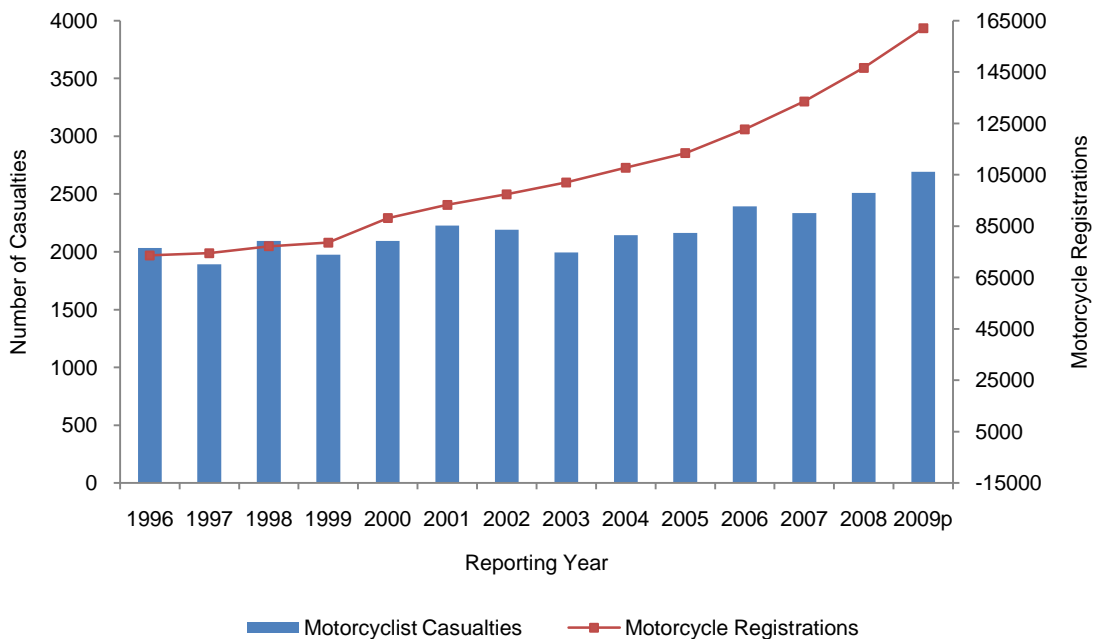
⁹ Ibid, p. 14.

DIAGRAM 2: MOTORCYCLIST CASUALTIES, BY DEGREE OF CASUALTY AND REPORTING YEAR, NSW, 1996-2009



2.11 When plotted against registrations over the same period, the following pattern emerges in the Diagram below:¹⁰

DIAGRAM 3: MOTORCYCLIST CASUALTIES BY MOTORCYCLE REGISTRATIONS, BY REPORTING YEAR, NSW, 1996-2009

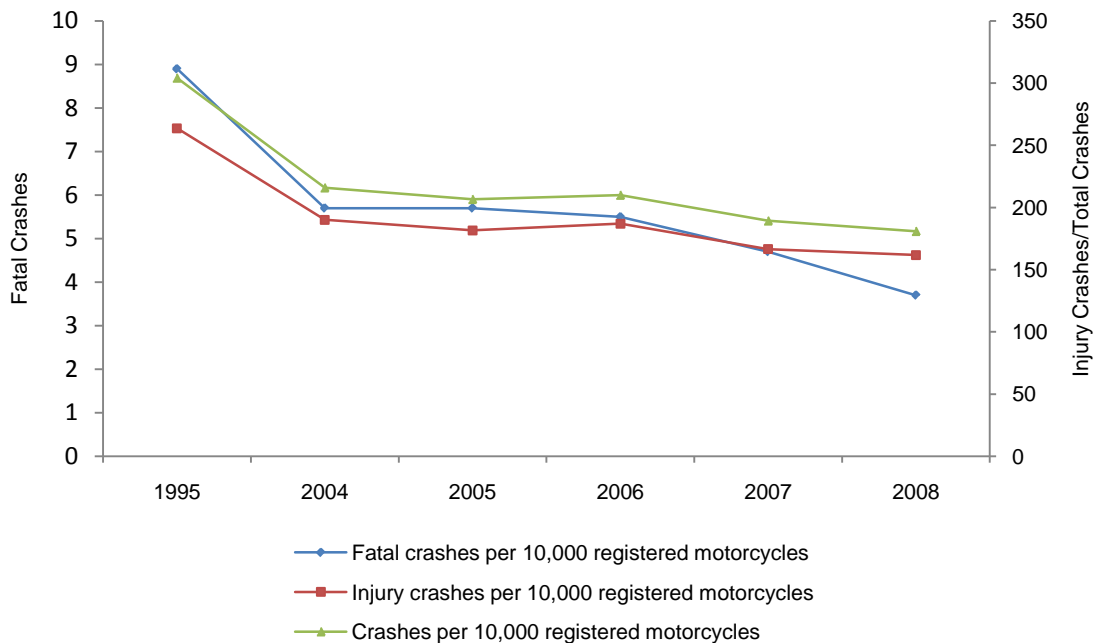


2.12 The Motorcycle Council of NSW has provided figures to demonstrate that the crash rate per 10,000 registered vehicles declined substantially in the period 1995, 2004-08, as set out in the following Diagram:¹¹

¹⁰ Ibid, p. 15.

¹¹ Submission 41, Motorcycle Council of NSW, p. 4.

DIAGRAM 4: NUMBER OF CRASHES PER 10,000 REGISTERED MOTORCYCLES IN NSW, 1995, 2004-08



- 2.13 It should be noted, however, that this represents registered vehicles only and the data is compromised by the large number of unregistered motorcycles and unlicensed riders. The MCC estimates that half the number of motorcycle injuries resulting in hospitalisation are the result of off-road activities, including on farm and recreational riding.¹² These factors are explored in greater detail in the following Chapter.
- 2.14 In terms of future trends, Survive The Ride Association of NSW claims that increasing traffic congestion in the Sydney metropolitan area and poor public transport alternatives will result in the continuing growth of registered motorcycles to "...above 4 per cent in the next few years. In addition, with the increase in support at the local government level for motorcycles as a viable transport option the number of riders using their motorcycles for commuting will also increase."¹³

Pedal Cycles

- 2.15 A variety of influences, including health promotion messages, environmental concerns, economic factors and traffic congestion, have contributed to the growing number of people riding pedal cycles. The submission from the RTA cites information from the Household Travel Survey showing that on an average day in 2008-09, Sydney residents made more than 150,000 bike trips of up to 10 km. Moreover, "Average weekday cyclist numbers using the Sydney Harbour Bridge Cycleway rose by 30 per cent between 2008 and 2009, and by 25 per cent for the Anzac Bridge Cycleway. There has also been strong growth of recreational cycling, with the most recent Australian Government figures showing that in 2008 over half a million NSW adults, 20 per cent more than the year before, rode a bike for exercise, recreation or sport (NSW BikePlan, 2010)."¹⁴

¹² Ibid, p. 5.

¹³ Submission 38, Survive the Ride Association NSW, p. 4.

¹⁴ Submission 47, RTA, p. 6.

- 2.16 NRMA Motoring and Services, in its submission, refers to a recent survey of its own membership reporting that only 2 per cent of respondents were regular bicycle riders and 69 per cent did not use a bicycle. The organisation goes on to suggest that "...bicycles are not seen by many as a viable commuting option in NSW."¹⁵ This view is disputed in the majority of other submissions to the Inquiry.
- 2.17 According to Bicycle NSW, "...the trend toward higher levels of bicycling for the journey to work occurs in LGAs where councils have recognised the value of bicycling for transport and made positive investments including in infrastructure, facilities, updating planning controls (e.g. parking DCPs), offered training courses in cycling proficiency and bicycle maintenance, and used these more effective transport policies for their own corporate mobility management/Travel Demand Management plan (sometimes called 'Workplace Travel Plan') (OECD (2010))."¹⁶
- 2.18 A deficiency in reliable data was identified as a hindrance to short to medium term bicycle planning and development. The RTA submission refers to "...an incomplete understanding of who rides bicycles, as well as why and where they ride [and that] data collected by various stakeholders is scattered and inconsistent and of varying quality."¹⁷ As a consequence, the RTA commissioned an external study to establish an improved evidence base for policy formulation.
- 2.19 The NSW BikePlan, issued in May 2010, documents the Government's commitment to cycling as a healthy and sustainable alternative to other modes of transport and sets out a policy framework and action timetable for delivering cycling infrastructure across NSW. This forms part of the NSW State Plan, which has set a target of 5 per cent travel by bike across Sydney, for trips up to 10 km long, by 2016. To achieve this target the Metropolitan Transport Plan includes \$158 million over 10 years to deliver Sydney metropolitan cycle paths with an additional \$5 million per year for cycleways in regional NSW.¹⁸
- 2.20 The NSW Injury Risk Management Research Centre also acknowledges the inadequacy of existing data about levels and patterns of bicycle use. The IRMRC is currently involved in a large cohort study of NSW cyclists to provide data to inform policy and planning for safer cycling. "Researchers hope to enrol at least two thousand cyclists to measure cycling patterns, and crash, near miss, and injury rates, over a one year period. These rates will be examined in the light of exposure (distance and duration of travel), and infrastructure utilisation. The research is being funded by an ARC Linkage Grant, with RTA, Bicycle New South Wales, Sydney South West Area Health Promotion Service and Willoughby City Council as research partners."¹⁹
- 2.21 At the local government level, the City of Sydney has released its own policy document entitled the Cycle Strategy and Action Plan 2007-2017, which emphasises the benefits of cycling as a preferred mode of transport. According to the City of Sydney, "Since 2002 Australian bicycle sales have been in excess of one million each year... The ABS Census, 2006, showed an increase in people choosing to ride

¹⁵ Submission 48, NRMA Motoring & Services, p. 9.

¹⁶ Submission 49, Bicycle NSW, p. 15.

¹⁷ Ibid, p. 10.

¹⁸ Submission 47, RTA, p. 8.

¹⁹ Submission 54, IRMRC, p. 13.

Usage Patterns and Trends

to work in the capital cities – with 10,887 people (18 per cent increase since 2001) riding to work in Sydney."²⁰

- 2.22 The City of Sydney submission also quotes the following figures²¹ in relation to increases in the use of key cycle routes in Australian capital cities between 2005 and 2008, issued by the Australian Bicycle Council: Sydney 38 per cent; Melbourne 76 per cent; Brisbane 51 per cent; Perth 22 per cent; Adelaide 51 per cent.
- 2.23 According to its submission: "The City's social research shows that 85 per cent of non-riders and occasional riders say they would ride, or ride more, if separated from the hostile traffic conditions found in Sydney. Separated cycleways will give current non-riders and occasional riders the security to start riding in the city."²²

²⁰ Submission 53, City of Sydney, p. 7.

²¹ Ibid.

²² Ibid.

Chapter Three - Underlying Factors in Crash Involvement

Motorcycles

- 3.1 As noted in previous chapters, motorcycle riders do not constitute a homogeneous group but reflect a diverse range of individual interests and motivations across the general population. A useful classification system to describe riders was provided in the submission from Survive The Ride Association NSW (STRA), which cited a recent UK research report illustrating various rider sub-groups as follows:
- Riding Hobbyists – Older, summer only riders who enjoy the social interaction with other riders almost as much as the riding itself.
 - Performance Disciples – Committed all year riders with a focus on high performance riding and a strong dislike for anything that gets in the way of it.
 - Performance Hobbyists – Solitary summer only riders for whom riding is all about individual experiences and sensations and who are not concerned about what other riders are doing.
 - Look-at-me-Enthusiasts – young (or never grew up) riders with limited experience but limitless enthusiasm for whom riding is all about self-expression and looking cool.
 - Riding Disciples – Passionate riders for whom riding is a way of life built on a strong relationship with the bike itself and membership of a wider fraternity of riders.
 - Car Aspirants – Young people looking forward to getting their first car when finances/age allow but for the time being are just happy to have their own wheels.
 - Car Rejectors – Escapees from traffic jams, parking tickets, fuel costs and other problems of car use and who don't care for motorcycles but do care for low cost mobility.¹
- 3.2 Based on these categories, the following crash propensity for each sub-group was documented as follows:
- Riding Disciples and Riding Hobbyists have a relatively low accident propensity. Both have mean accident propensity scores significantly lower than the overall mean.
 - Performance Disciples have a higher accident propensity, although in part this is because of a higher annual mileage.
 - Car Aspirants and Look-at-me Enthusiasts have the highest accident propensity on either measure. Both have mean accident scores significantly higher than the overall mean.
 - Car Rejectors and Performance Hobbyists also have somewhat higher accident propensities although lower annual mileages mean they may not have accidents as often as Performance disciples.²

¹ Submission 38, STRA, pp. 1-2.

² Ibid.

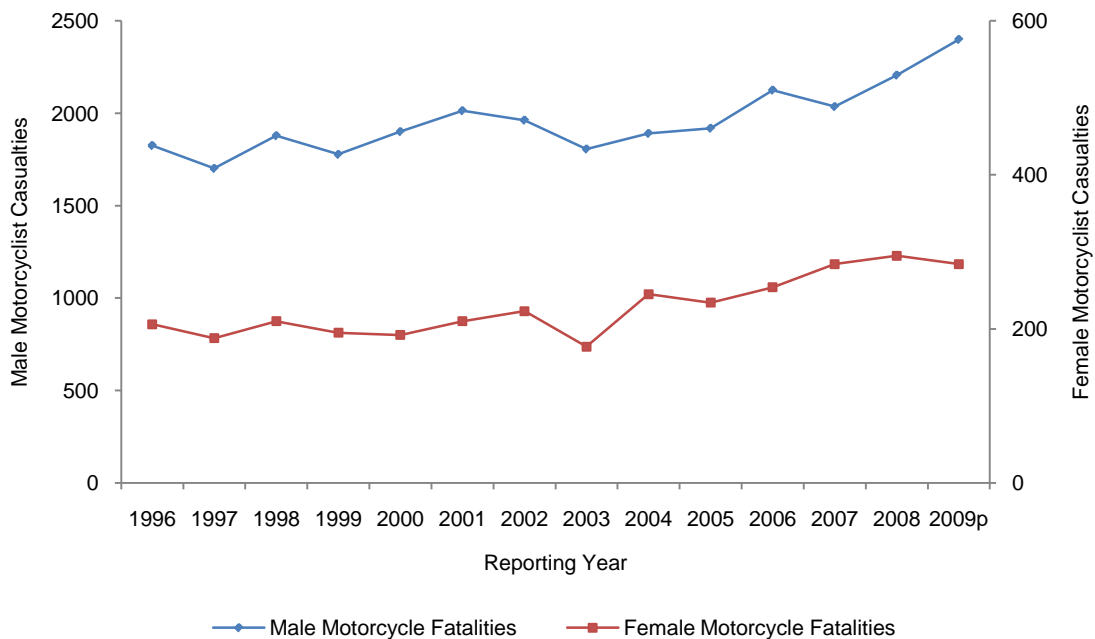
Underlying Factors in Crash Involvement

- 3.3 It should be noted however, that riders may be represented in more than one category and may migrate across categories over time.
- 3.4 The Motorcycle Council of NSW (MCC) uses a crash modality framework to categorise crash causality. These categories (including NSW figures for 2008) are; single vehicle crashes (41.3 per cent); multi-vehicle crashes caused by riders (23.4 per cent); and multi-vehicle crashes caused by other drivers (35.3 per cent). According to the MCC, single vehicle crashes account for over two fifths (43 per cent) of all motorcycle fatalities, 75 per cent of which occurred on curved sections of road.³
- 3.5 Between 2005 and 2009 there were a total of 12,091 motorcyclist casualties, of which 315 were fatalities and 11,776 were injuries.⁴ In an endeavour to isolate the contributing factors leading to adverse events involving motorcycles, the RTA has set out a set of key characteristics in its submission. These are: gender; age group; urbanisation; day and time of crash; road conditions; rider behaviour; license status; and alcohol involvement.

Demographic Factors

- 3.6 Motorcyclist casualties in NSW are predominantly male and have been increasing since 2003. It is important to note, however, that female casualties have remained static since 2007, while male casualties have grown by 18 per cent in the same period.⁵ This is set out in the following Table:⁶

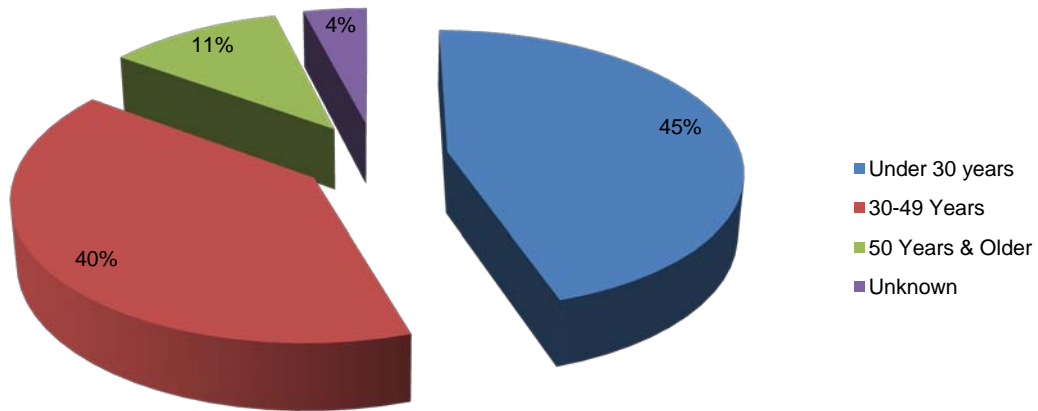
DIAGRAM 5: MOTORCYCLIST CASUALTIES BY GENDER AND REPORTING YEAR, NSW, 1996-2009



- 3.7 In terms of age distribution, 45 per cent of casualties are 29 years and under, with riders aged 30-49 constituting 40 per cent and those aged 50 and over representing 11 per cent of all casualties. This is illustrated as follows:⁷

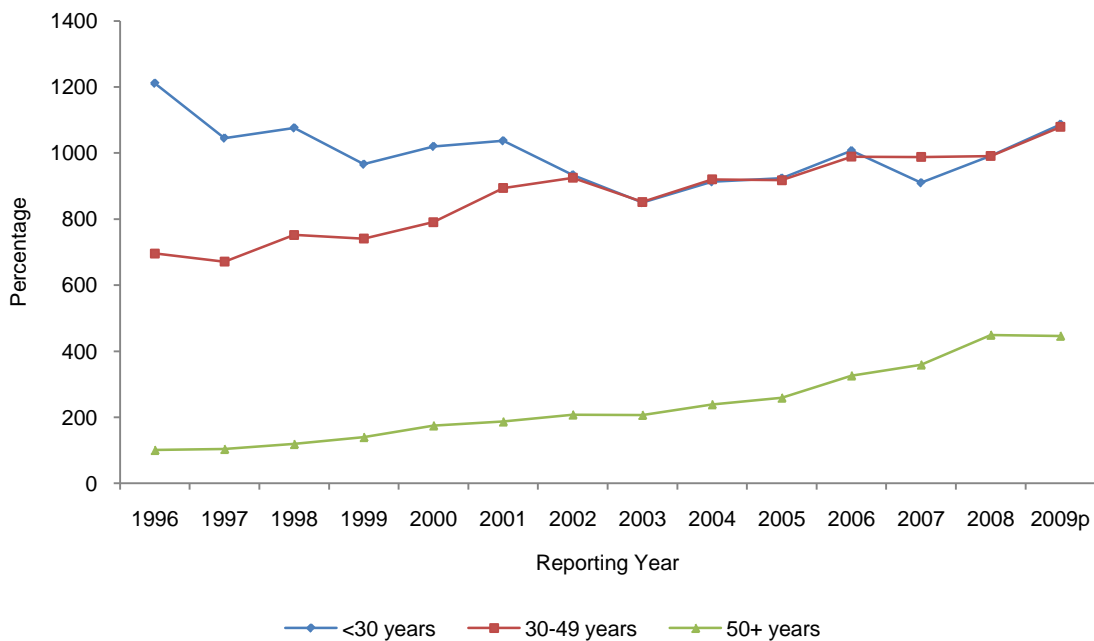
³ Submission 41, MCC, p. 6.
⁴ Submission 47, RTA, p. 15.
⁵ Ibid.
⁶ Ibid, p. 16.
⁷ Ibid, p. 17.

DIAGRAM 6: MOTORCYCLIST CASUALTIES BY AGE GROUP, NSW, 1996-2009



3.8 It should be noted in this context that while under 30 year old riders comprise the highest number of casualties, this age group has trended down since 1996 and is now approximating that of the 30-49 age group. The group with the greatest percentage increase in recent years is the over 50 cohort, which has more than doubled its casualty rate since 2003. This compares with a 28 per cent increase for under 30 year old riders and 27 per cent for 30-49 year old riders in the same period, as set out in the following Table:⁸

DIAGRAM 7: MOTORCYCLIST CASUALTIES BY AGE GROUP AND REPORTING YEAR, NSW, 1996-2009



3.9 Crash location is another variable to be taken into account when examining causality. Whereas most motorcycle injuries occur in metropolitan settings, the majority of

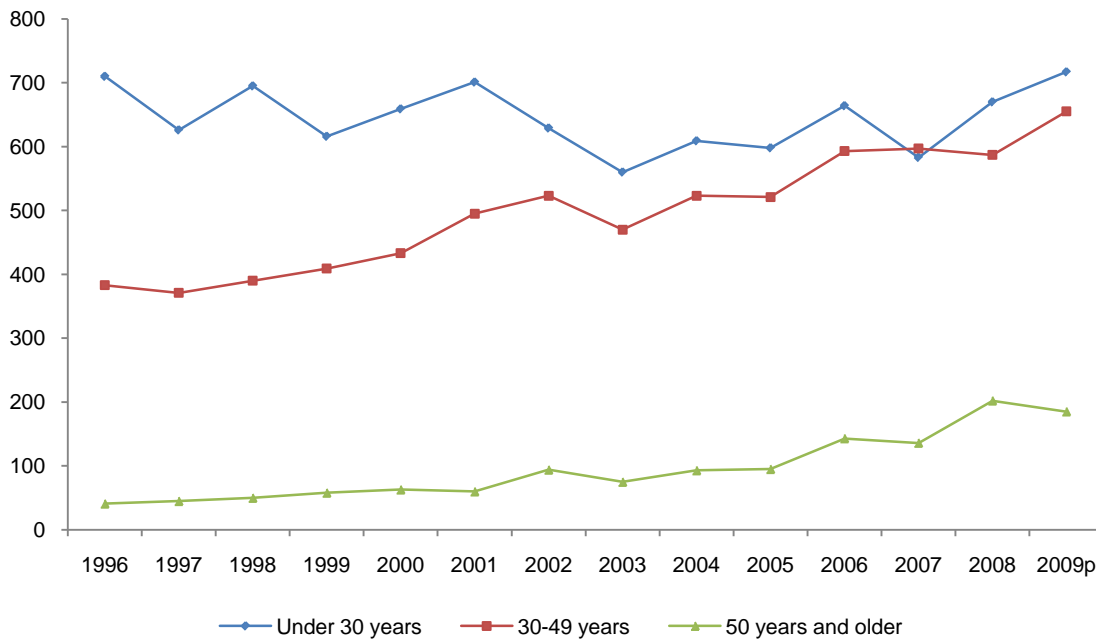
⁸ Ibid, p. 18.

Underlying Factors in Crash Involvement

fatalities occur in non-metropolitan areas. According to the RTA, non-metropolitan locations tend to have higher posted speed limits, with consequential increased impact speed and longer emergency service response times.⁹

- 3.10 In 2003, metropolitan fatalities started trending down, while non-metropolitan fatalities rose, with a 33 per cent increase in 2009. Injury figures for both groups have increased steadily since 2003 but recent data for metropolitan areas has shown a slight increase over non-metropolitan injuries.
- 3.11 Moreover, in metropolitan areas, 30-49 year-old motorcyclist casualties have increased consistently over the long term. Recent increases for this age group (since 2008) are similar to those observed for younger motorcycle casualties (who now account for the highest number of motorcyclist casualties in metropolitan areas). Older motorcyclist casualties have increased steadily over the long term, but have dropped slightly since 2008.¹⁰
- 3.12 In the case of non-metropolitan areas, older casualties have increased consistently since 2002 and young casualties have decreased over the longer term, although there was a 15 per cent spike for this group between 2008 and 2009.
- 3.13 The following Diagrams¹¹ illustrate these trends:

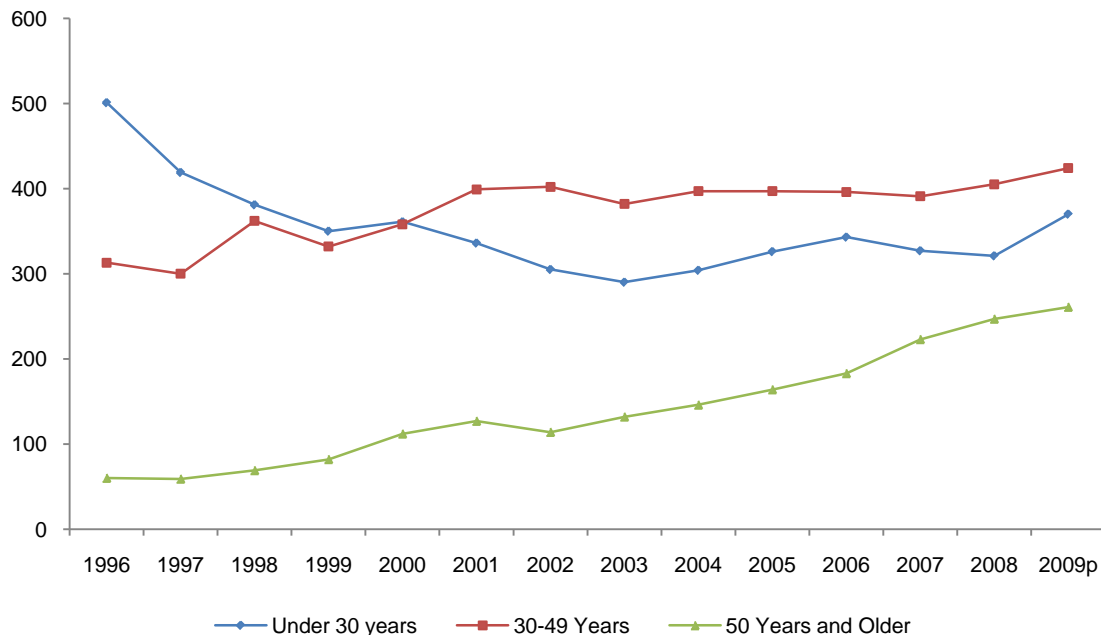
DIAGRAM 8: MOTORCYCLISTS CASUALTIES IN METROPOLITAN AREAS, BY REPORTING YEAR AND AGE GROUP, NSW, 1996-2009



⁹ Ibid.

¹⁰ Ibid, p. 20.

¹¹ Ibid, pp. 20-21.

DIAGRAM 9: MOTORCYCLIST CASUALTIES IN COUNTRY AREAS, BY REPORTING YEAR AND AGE GROUP, NSW, 1996-2009

Temporal Factors

3.14 Motorcycle casualties in metropolitan settings tend to occur evenly throughout the week, with a peak period between 4-8pm on weekdays and 12-4pm on weekends. In non-metropolitan areas, the peak casualty period is 12-4pm on weekends, consistent with weekend leisure riders, particularly in the 30-49 age group.¹² It should also be noted in this context that 73 per cent of fatalities occur in daylight and a majority of fatalities also occur in fine weather.¹³

Road Conditions

3.15 A consistent theme running through the Inquiry is the impact of poor road infrastructure on motorcycle safety. Ninety-four per cent of fatalities occur on sealed roads and according to RTA data, a higher proportion of young motorcyclist fatalities occur on straight metropolitan roads with lower speed limits (25 per cent). In contrast, 30-49 year-old motorcyclist fatalities tend to occur on curved country roads (42 per cent). Similarly, older motorcyclists are killed on curved country roads (55 per cent), and particularly on those with higher speed limits (37 per cent).¹⁴

3.16 A complicating factor, identified in Chapter Two, concerns the classification of roads and its affect on available statistics. Most motorcyclist fatalities occur on either unclassified roads (44 per cent) or classified roads other than freeways/motorways and State highways (36 per cent).

3.17 A greater proportion of young motorcyclist fatalities occur on metropolitan unclassified roads with lower speed limits (23 per cent). In contrast, many motorcyclists aged 30-49 are killed on non-metropolitan classified roads with mid-

¹² Ibid, p. 22.

¹³ Ibid, p. 30.

¹⁴ Ibid, p. 25.

Underlying Factors in Crash Involvement

range and higher-end speed limits (32 per cent). Older motorcyclist fatalities tend to occur on non-metropolitan unclassified roads with speed limits of 100km/h and above (18 per cent), as well as high speed-limited non-metropolitan State highways (16 per cent).¹⁵

- 3.18 In terms of road configuration, casualties tend to occur at intersections and on two-way undivided roads, with a strong majority of fatalities occurring on two-way undivided roads (62 per cent).¹⁶

Behavioural Factors

- 3.19 According to RTA statistics, speed is a major factor in motorcycle crashes and is involved in 55 per cent of fatalities. This is a much larger percentage than the 40 per cent of speed related fatalities for all road users in NSW over the same period.¹⁷
- 3.20 The NSW Police Force reported on 332 fatal motorcycle crashes in 2005-2009 and identified the rider as being "at fault" in 78 per cent of crashes in that period. Rider factors impacting on the crashes were speeding (31 per cent), alcohol (20 per cent) and speed and alcohol combined (7 per cent).¹⁸
- 3.21 According to the NSW Police Force, the figures suggest that riders in the medium to high range of BAC (0.08 - 0.150 and higher) were intoxicated prior to the crash.¹⁹
- 3.22 While alcohol involvement, at 20 per cent, is the same rate as that of all road users, available data suggests that unauthorised motorcycle riders are over-represented in the higher blood alcohol range and twice as many authorised motorcycle riders under the influence of alcohol are involved in casualty crashes in the lower range.
- 3.23 Unauthorised riding is another major factor in fatal crashes, representing 20 per cent of the rider population. Significantly, unauthorised riders are 3-4 times more likely to be involved in a fatal crash than unauthorised drivers.²⁰ The Survive the Ride Association has provided figures for motorcycle licence holders in NSW over the last decade, indicating that this has been relatively stable at 8-9 per cent of the total licence population²¹. This is illustrated in the following diagram:

¹⁵ Ibid, p. 26.

¹⁶ Ibid, p. 28.

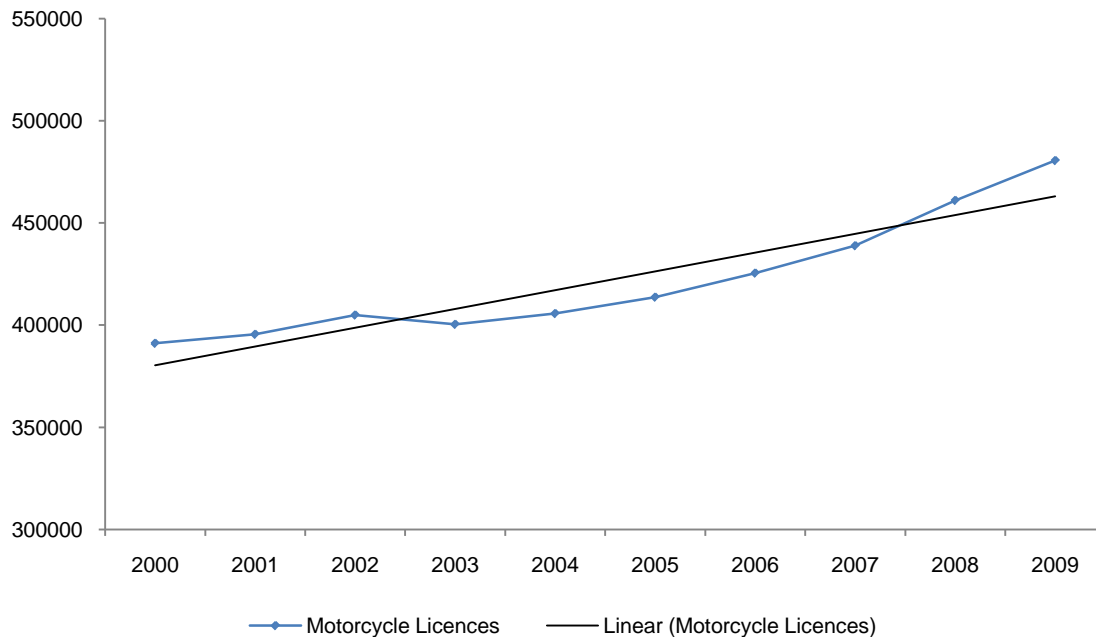
¹⁷ Ibid, p. 32.

¹⁸ Submission 55, NSW Police, p. 2.

¹⁹ Ibid.

²⁰ Submission 47, RTA, p. 33.

²¹ Submission 38, STRA, pp. 2-3.

DIAGRAM 10: NSW MOTORCYCLE LICENCES

- 3.24 The license figures understate the number of registered motorcycles on NSW roads, which has increased from 2 per cent of the total registered motorised vehicle fleet in 2000 to 4 per cent in 2009. Additionally, this figure does not include the large number of off-road motorcycles sold in the same period.²²
- 3.25 The George Institute for Global Health, in public hearing evidence, referred to a study which demonstrated the importance of unauthorised riders in determining causality and designing appropriate safety countermeasures:
- The Federal Office For Road Safety did a study in 1999, in which they took the unlicensed riders out of the equation to see what difference that made in terms of the patterns of behaviour that you observe with legitimate, legal, sober motor cyclists and the risk patterns are very different, so again in any counter-measure that is focussed particularly on fatals you are going to be finding evidence for extreme behaviour that is not characteristic of the general population and it is the general population that we have the best chance of identifying counter-measures that will make a difference because they are a more compliant group.²³
- 3.26 The RTA suggests that unauthorised motorcycle riders may simply disregard enforced BAC thresholds given that they are already breaking the law, whereas lower-level alcohol involvement is a relevant factor for authorised motorcycle riders.²⁴ Comparative figures for motorcycle riders and motor vehicle drivers are set out in the following graphs:

²² Ibid, p. 3.

²³ Transcript of Evidence, 13 October 2010, p. 42.

²⁴ Submission 47, RTA, p. 36.

DIAGRAM 11: PERCENTAGE DISTRIBUTION OF MOTORCYCLE RIDERS UNDER THE INFLUENCE OF ALCOHOL INVOLVED IN CASUALTY CRASHES, BY BAC BAND, 2005-2009

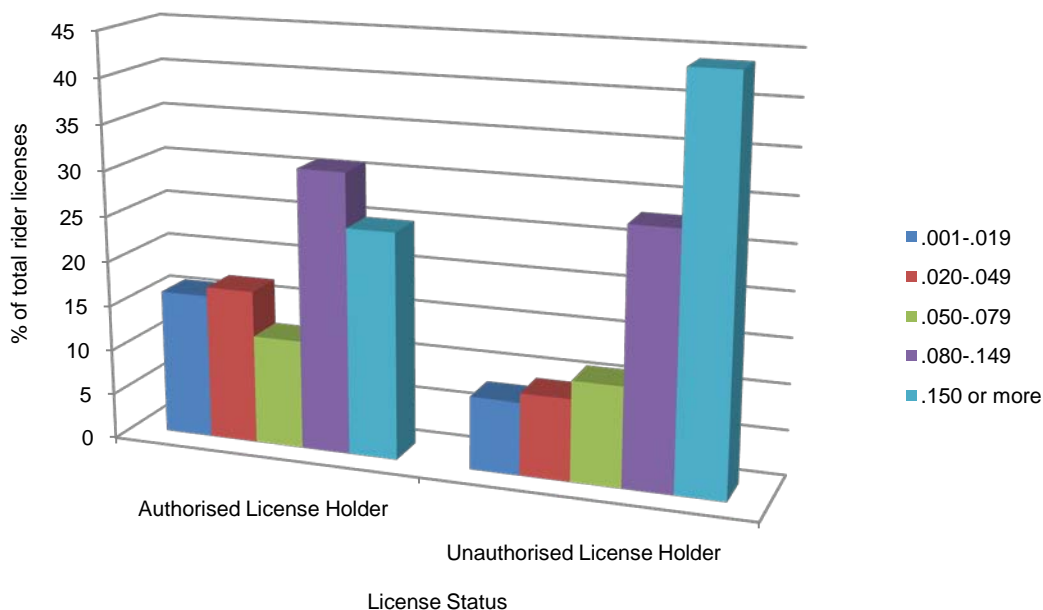
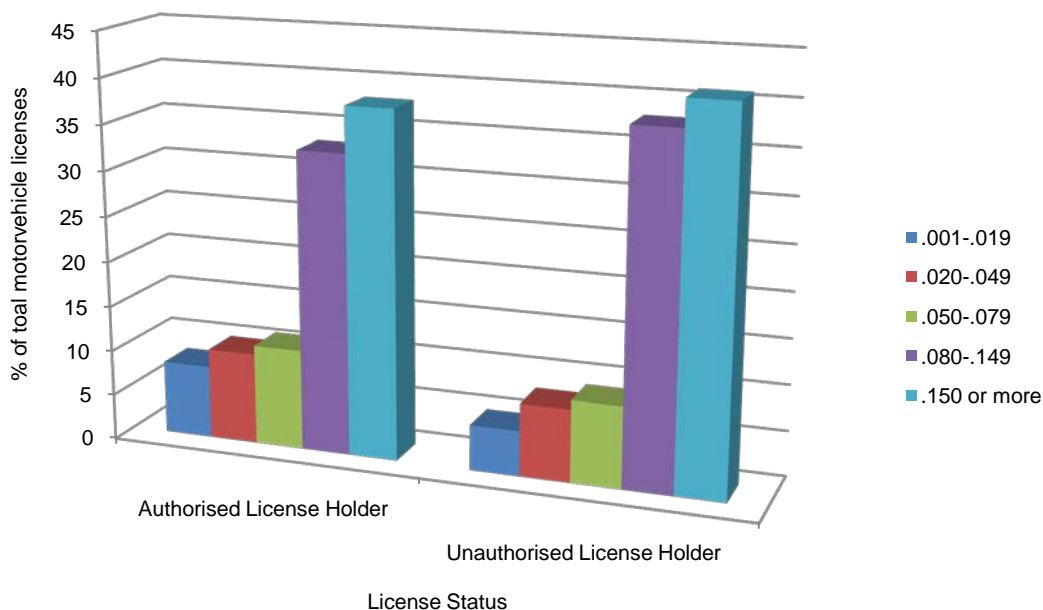


DIAGRAM 12: PERCENTAGE DISTRIBUTION OF MOTOR VEHICLE DRIVERS UNDER THE INFLUENCE OF ALCOHOL INVOLVED IN CASUALTY CRASHES, BY BAC BAND, NSW, 2004-2009



Pedal Cycles

3.27 There is a generally expressed view in evidence to the Committee that pedal cycle casualties in NSW are under-reported to Police and therefore not captured in the RTA database. This view is reinforced by reference to hospital trauma studies and hospital data which includes off road incidents. It is also complicated by many such

incidents involving an individual child riding a single cycle or including an unidentified motor vehicle.²⁵

- 3.28 The need for improved data collection was stressed by The George Institute for Global Health. In its appearance before the Committee, Institute representatives discussed the issue in the following terms:

I want to highlight the issue of data. The people before us from IRMRC highlighted this issue also, that there is a big shortfall in terms of available data on cyclists. Most of the studies focus on police collected data and from the work that I did here in New South Wales linking, for example, the hospital data to the police data shows that in terms of cyclists there is about more than half cyclists' injuries are not actually captured in police data. All the evidence that we have in terms of what factors contribute to cyclist's crashes, we do not know about most of cyclists' crashes. They are in the hospital data but not in the police data.²⁶

- 3.29 The Institute elaborated on the need for better information as follows:

A lot of research in road safety does use fatal data and with cars that is understandable, because of the sheer volume but when you are dealing with motor cycles or pedal cycles, you are dealing with very small samples and I believe there is a serious risk that you identify and place emphasis on counter measures which are actually examples of extremes and you are at risk therefore of missing opportunities for counter measures that might be effective... My recommendation there is that all viable road user data should be based on all crashes, not just on fatal crashes, because the numbers are too small.²⁷

- 3.30 In its evidence to the Committee, the NSW Department of Health referred to the benefits of data linkage to improve the gathering and sharing of information. Specific reference was made to the establishment of a data centre to facilitate data transfer across government agencies. According to the Assistant Director appearing at the Committee's public hearing:

It is our view that data linkage is an excellent tool for diagnosing and identifying trends across government agencies and other sources... That system is in operation and the area health services can access the data through ethics and other procedures.²⁸

- 3.31 NSW Health also highlighted the lack of a centralised collection of data for off-road injuries and fatalities in the following terms:

That falling through the cracks, if you like, results in a lack of oversight by any single agency or any collective of agencies and, as a consequence, it appears to us that that mitigates or limits the focus on any agency in terms of addressing that particular issue. Our view is that we need to collect some data but, more importantly, we need a system whereby there is an agency or collective of agencies to respond to such data. The data suggests there is a particular need and that sort of approach is warranted.²⁹

- 3.32 As previously documented in this and other recent Staysafe inquiry reports, particularly the 2009 Pedestrian Safety Report,³⁰ the Committee has concerns about the current usefulness and accuracy of crash casualty data. In its response to earlier Staysafe recommendations, the RTA has indicated that an interagency group, comprising the RTA, NSW Health, Police, Ambulance, the Motor Accidents Authority

²⁵ Ibid, p. 38

²⁶ Ibid, p. 41.

²⁷ Ibid, p. 42.

²⁸ Transcript of Evidence, 13 October 2010, p. 29.

²⁹ Ibid.

³⁰ Staysafe, Pedestrian Safety, Report No. 3/54, December 2009.

Underlying Factors in Crash Involvement

and other relevant agencies would be established in mid 2010. The focus of this group was stated to be the establishment of appropriate terms of reference and highlighting key issues to be addressed.

- 3.33 The Committee stresses the need for a comprehensive and responsive crash data collection system with enhanced user functionality, to disseminate consistent and accurate road safety information to all interested parties.
- 3.34 The Committee also notes and supports an enhanced national approach to the provision of raw data by road agencies, as recommended in a recent Austroads report. The recommendations include additional investment in the quality and quantity of data being provided, that data should be provided free of charge on each road agency's website and that a National Framework for Cooperation be established to allow all roads authorities to meet, actively participate and share information on a more regular basis.³¹
- 3.35 Utilising available data, the period 2004 to 2009 has resulted in 55 pedal cycle fatalities and 5,775 injuries.³² An analysis of casualty trends for pedal cycles point to a range of contributing characteristics, broadly in line with those applying to motorcycle rider crashes. These are: demographic; road conditions; temporal factors; behavioural factors; and crash typology.
- 3.36 It should also be noted that, as for motorcycle riders, there are distinct categories of pedal cyclists who use the road system for recreational, commuting and/or commercial purposes. While existing data provided to the Committee does not differentiate between these groups, and while acknowledging that there will be some degree of overlap, the underlying reason for undertaking the ride is also a factor influencing rider behaviour.
- 3.37 A refinement of data collection categories should improve the design of appropriate safety infrastructure and education programs and result in better targeted strategies to improve safety outcomes.

Demographic Factors

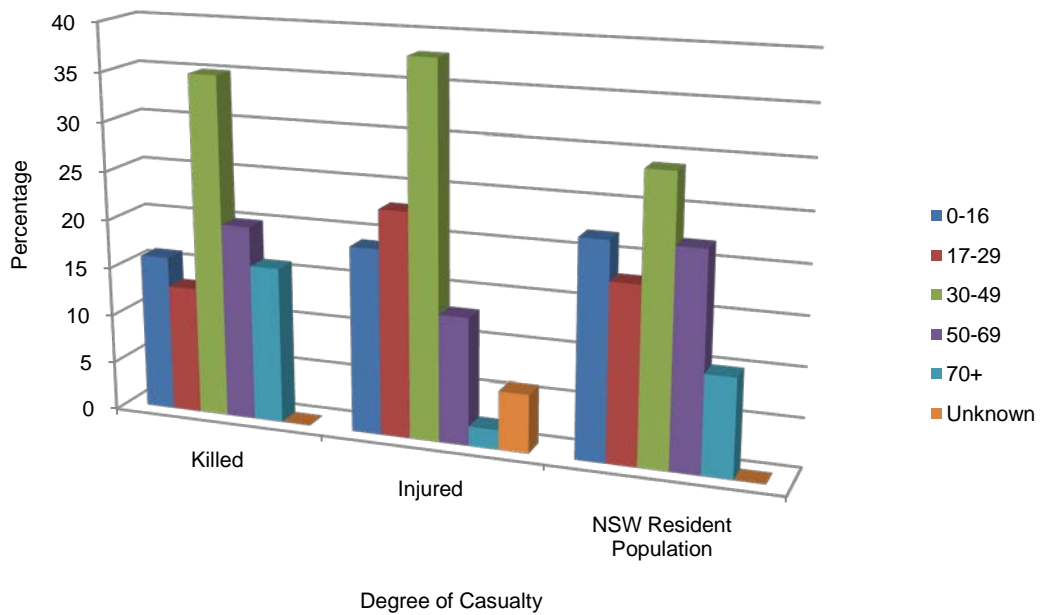
- 3.38 The greatest number of pedal cycle crashes are in the 30-49 age category. Eighty-seven percent of fatalities and eighty-four percent of injuries are suffered by males in age group distributions set out in the following Diagram:³³

³¹ Austroads, The Commercial and Core Function Role of Road Agencies in Providing Raw Data and/or Traveller Information, AP-R352/10, February 2010.

³² Submission 47, RTA, p. 45.

³³ Ibid, p. 46.

DIAGRAM 13: PEDAL CYCLIST CASUALTIES, 2005-2009, DEGREE OF CASUALTY, AGE GROUP

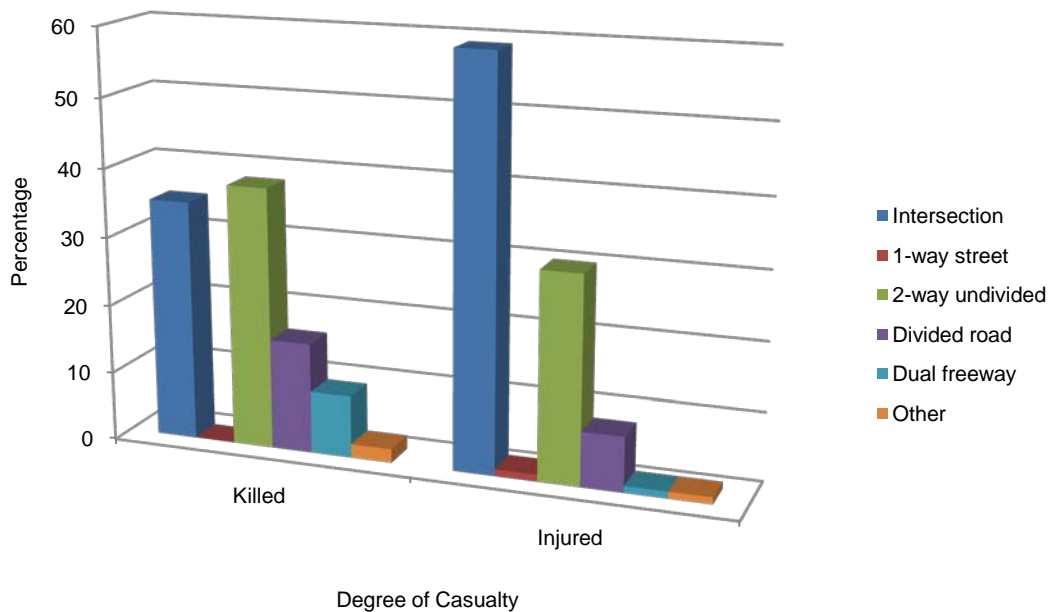


- 3.39 It is important to note that children are underrepresented in these figures, accounting for 16 per cent of fatalities and 19 per cent of injuries while representing 22 per cent of the NSW resident population. However, as previously indicated, the crash database figures may not accurately reflect the true situation. According to the RTA, demographic shifts and changes in pedal cycle usage may account for this data.³⁴
- 3.40 In terms of crash location, 73 per cent of all pedal cycle injuries occur on metropolitan roads and the majority of fatalities take place at mid-block locations with 38 per cent of all fatalities occurring at on 2 way undivided roads and a further 25 per cent of all fatalities occurring on divided roads or dual carriageway freeways. In contrast, nearly 60 per cent of all injuries occur at intersections and only 1 per cent occur on dual carriageway freeways, as detailed in the following Table:³⁵

³⁴ Ibid.

³⁵ Ibid, p. 49.

DIAGRAM 14: PEDAL CYCLE CRASHES, 2005-2009, DEGREE OF CASUALTY, LOCATION TYPE



Road Conditions

- 3.41 Although the highest number of pedal cyclist injuries occur in 50km speed zones (54 per cent), the proportion of fatalities increases dramatically in higher posted speed zones. This is reflected in figures indicating six times the number of injuries in 80km zones, increasing to eight times in 100km zones. Additionally, local (unclassified) roads account for one third of cyclist fatalities and almost two thirds of injuries, while freeways and highways also account for one third of fatalities but only 11 per cent of all injuries. This is consistent with higher posted speed limits on highways.³⁶
- 3.42 According to BIKESydney, specific infrastructure for cycling at intersections is poor or non-existent. This is due to the primacy of motorcars on the road system and directly contributes to the exposure risks for riders. In response to a survey of its membership, 87 per cent reported that they felt anxious cycling on a road where there were no bicycle markings or lanes.³⁷
- 3.43 Further comments made in response to the BIKESydney survey in relation to unsafe road conditions include the presence of potholes, glass or debris on road surface, badly aligned stormwater and drainage grates, ruts and uneven surfaces and high lips on ramps.³⁸ A strong plea is made for more vigilant roads maintenance with an emphasis on road conditions for pedal cycle riders.

Temporal Factors

- 3.44 Pedal cycle fatalities are skewed towards Saturdays (24 per cent of all fatalities) and Sundays (20 per cent of all fatalities), while injuries are more prevalent during the weekdays, peaking on Tuesday through to Thursdays with around 16 per cent of all injuries. Compared to the distribution of pedal cyclist injuries, fatalities are over-represented during the early morning (4am to 8am) and the middle of the day (noon to 2pm). A large portion injuries occur in the afternoon to early evening from 2pm to

³⁶ Ibid, p. 50.

³⁷ Submission 42, BIKESydney, p. 27.

³⁸ Ibid, p. 30.

8pm (45 per cent), compared with only 29 per cent of fatalities occurring during this period.³⁹

- 3.45 Overall pedal cycle casualties increase during the morning and afternoon peak hours on weekdays, particularly in the metropolitan areas. In contrast, pedal cycle casualties are lower on the weekends and generally peak in the morning in metropolitan areas. For the 30 to 49 year age group there is a strong pattern of pedal cycle casualties during the morning and afternoon peak hours during weekdays. In contrast, child aged pedal casualties peak in the afternoon throughout the week.⁴⁰
- 3.46 It should also be noted that three quarters of fatalities and injuries occur in daylight and 87 per cent of injuries occur in fine weather.⁴¹

Crash Typology

- 3.47 Eighty-six percent of pedal cycle crashes involve another vehicle at first impact. Other stationary objects involved in collisions include fences and guardrails. Whereas most pedal cyclist casualties involve a car or car derivative, compared with pedal cyclist injuries there is a strong over-representation of heavy trucks amongst fatalities. Heavy trucks are around 13 times more likely to be involved in a pedal cyclist fatality, with 1.9 per cent involvement in all pedal cyclist injuries but accounting for 24 per cent of all fatalities.⁴²
- 3.48 Figures cited in the submission from the City of Sydney, derived from RTA data from 1999 to 2008, indicate that pedal cycle crashes resulted from the following incidents:
- 13.4 per cent of crashes involving cyclists were due to vehicle doors opening in their path;
 - 11.2 per cent of cyclists were hit by vehicles at right angles at cross intersections;
 - 10.1 per cent of cyclists were hit by vehicles turning right, across the cyclist's path;
 - 8.4 per cent of cyclists were side swiped;
 - 6 per cent of cyclist crashes involved pedestrians stepping into the cyclists path; and
 - 1.2 per cent of cyclist crashes involved pedestrians on a footpath.⁴³
- 3.49 Contributing driver factors impacting on pedal cycle safety cited in the BIKESydney submission include: driver distraction from in-vehicle and mobile devices; poor knowledge of road rules in relation to cycling; aggressive driving; police inaction to cycling incidents; and inconsistent prosecutions of cycling related cases.⁴⁴

Behavioural Factors

- 3.50 Pedal cycle casualties are most frequent on roadways, representing 73 per cent of fatalities and 69 per cent of injuries. Cyclists travelling on footpaths are involved in 20 per cent of injuries and 7 per cent of fatalities. Although most cycling casualties

³⁹ Submission 47, RTA, p. 51.

⁴⁰ Ibid, p. 53.

⁴¹ Ibid, p. 55.

⁴² Ibid, p. 57.

⁴³ Submission 53, City of Sydney, p. 9.

⁴⁴ Submission 42, BIKESydney, pp. 40-45.

Underlying Factors in Crash Involvement

are not coded for rider error, 11 per cent of fatalities and 4 per cent of injuries involve the rider disobeying a traffic control. Additionally, 11 per cent of fatalities involve loss of control by the pedal cyclist.⁴⁵

- 3.51 According to the RTA, alcohol results vary across pedal cyclist severity, with relatively low levels of unknowns for fatalities (20 per cent) compared to the levels for injuries (60 per cent). Alcohol samples for pedal cyclists are required for persons aged over 16 years and are usually taken for fatalities or where injuries are presented at a hospital within two hours of the crash. Where alcohol results are known, around 14 per cent of fatalities and 13 per cent of injuries involve a pedal cyclist with a blood alcohol concentration of 0.05 or more.⁴⁶
- 3.52 NSW Police Force figures for 2005-09 indicate that in the 66 fatal pedal cycle crashes reported, the rider was considered to be "at fault" in 61 per cent of cases and alcohol was present in 15 per cent of cases. In 90 per cent of alcohol involved fatalities, the BAC level was between 0.158 and 0.188.⁴⁷
- 3.53 It should be noted that the description of "at fault" is contested by cycling organisations and is qualified in the submission from the City of Sydney. The submission makes the point that "incorrect" actions on the part of cyclists does not mean that drivers do not also contribute to a crash and that slower driving speeds can prevent crashes from occurring.⁴⁸
- 3.54 The submission from the NSW Police Force also indicated that of the 66 fatalities reported, 55 per cent of the deceased riders were not wearing helmets.⁴⁹
- 3.55 In relation to protective headwear, the RTA submission reported that at least one-third of all pedal cycle fatalities and at least 18 per cent of all pedal cycle injuries were not wearing a helmet, with young cyclists least likely to wear a bicycle helmet while riding, as illustrated in the following Diagram.⁵⁰

⁴⁵ Ibid, p. 58.

⁴⁶ Ibid, p. 59.

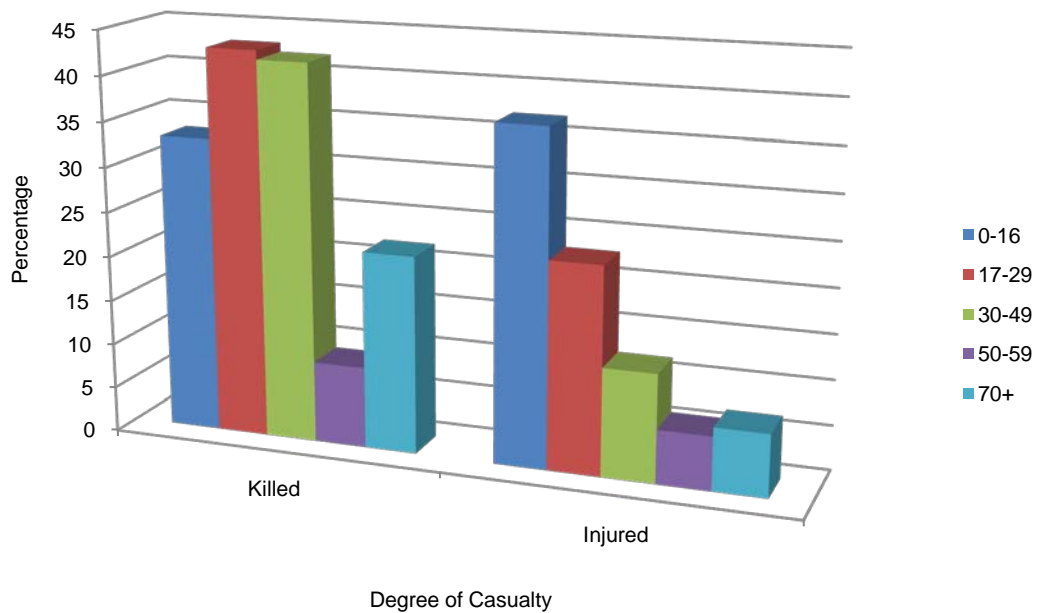
⁴⁷ Submission 55, NSW Police, p. 2.

⁴⁸ Submission 53, City of Sydney, p. 10.

⁴⁹ Submission 55, NSW Police, p. 2.

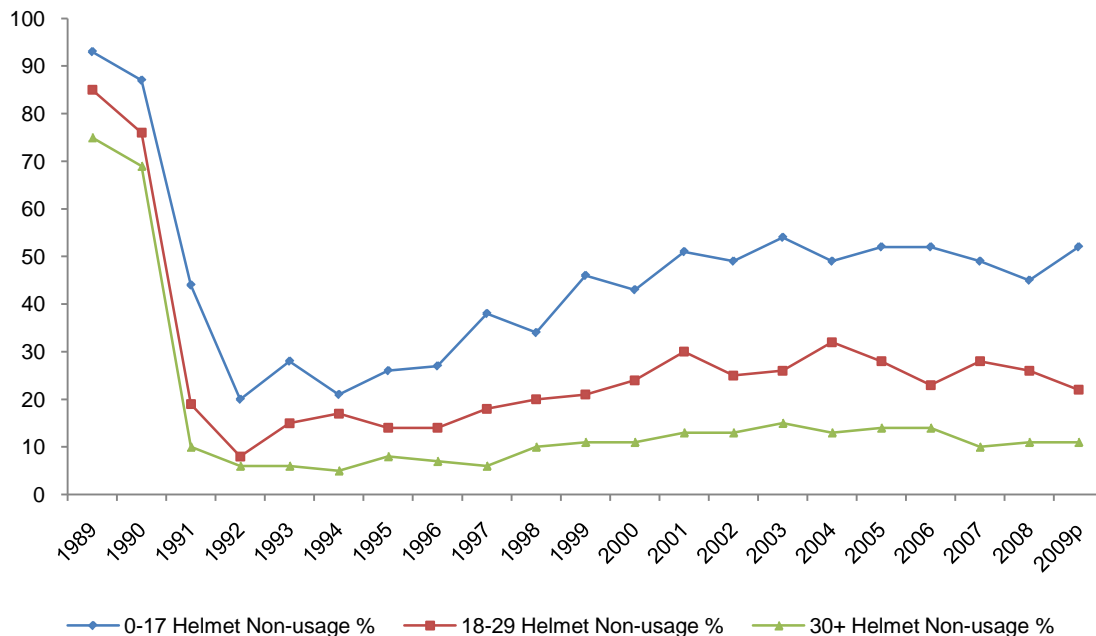
⁵⁰ Submission 47, RTA, p. 60.

DIAGRAM 15: PEDAL CYCLIST CASUALTIES, 2005-2009, DEGREE OF CASUALTY, HELMET NON-USAGE, BY AGE GROUP



3.56 Protective headwear usage patterns have stabilised more recently, after the dramatic decline following the introduction of compulsory helmets in 1989, as demonstrated below.⁵¹

DIAGRAM 16: PEDAL CYCLE CASUALTIES, NSW, 1989-2009, % OF CASUALTIES NOT WEARING HELMET, BY AGE



3.57 The issue of the role of protective headwear for cyclists will be developed in greater detail in the following Chapter.

⁵¹ Ibid, p. 61.

Chapter Four - Countermeasures and Safety Strategies

- 4.1 Previous chapters have referred to data and information deficits for motorcycle and pedal bicycle usage trends and casualty figures. These deficits are related to: currently incompatible data categories making the sharing of statistical information between collection agencies problematic; definitional issues around injury severity; and lack of data on off-road crashes. Staysafe has reinforced the importance of addressing these issues in previously tabled reports.
- 4.2 Despite these shortcomings, initiatives have been undertaken to address vulnerable groups at highest risk of casualty and to mitigate identified shortcomings in safety responses to date.
- 4.3 At the national level, the Australian Transport Council (ATC) in its National Road Safety Action Plan 2010 sets out several measures to address the specific needs of motorcyclists and pedal cyclists. These include: a greater focus on the needs of motorcycles and pedal cycles in road infrastructure design and maintenance; community and public education programs to highlight risks and promote preventative strategies; minimum standards and a safety rating system for helmet and protective clothing use; and improved safety information.¹
- 4.4 The ATC has agreed to establish a new strategy for the period 2011-2020, which is in early stages of development. The NSW Government examined the special needs of vulnerable road users as part of a 2009 Road Safety Roundtable, which included the Chair of Staysafe, Mr Geoff Corrigan MP. Issues specifically addressed by the Roundtable included improvements to road infrastructure, enhanced data collection, increased information provision and targeted road user and driver education campaigns.
- 4.5 More recent initiatives have responded to the factors set out below.

Motorcycles

- 4.6 The following summary highlights key motorcycle trauma risks. These involve crashes where casualties:
 - Are predominantly male;
 - Mostly occur on straight metropolitan roads or curved country roads; and
 - Are more likely to occur on weekends between 12pm and 4pm (particularly in relation to 30-49 year-olds in country areas).
- 4.7 In addition, the following issues appear particularly relevant to motorcycle trauma:
 - Motorcyclist casualties from motorcycle-object crashes, particularly those involving trees and bushland; and
 - Motorcycle riders under the influence of currently legal levels of alcohol have a disproportionately high casualty crash involvement rate compared to motor vehicle drivers.

¹ Submission 44, Department of Infrastructure, Transport, Regional Development and Local Government, p. 10.

- 4.8 RTA analysis also highlights three key casualty age groups (under 30 year-olds, 30-49 year-olds, and 50 year-olds and over), with the following characteristics:
- Young motorcyclist fatalities (under 30 years) tend to occur on metropolitan roads with lower speed limits (particularly at intersections);
 - 30-49 year-old motorcyclist fatalities tend to occur on country roads (particularly classified roads); and
 - Older motorcyclist fatalities (50 years and above) tend to occur on country roads with higher speed limits (particularly two-way undivided curved roads).²
- 4.9 As part of the NSW Government's Road Toll Response Package announced on 29 March 2010, the RTA was asked to develop a Motorcycle Safety Strategy. In response to this, the RTA is currently "analysing a range of crash data and reviewing a range of research papers, as well as action plans both interstate and internationally, to define the key strategies to improve the safety of motorcycle and scooter riders in NSW for possible inclusion in a future NSW strategy."³
- 4.10 A further development resulting from the Response Package is the establishment of a Motorcycle Ministerial Advisory Council, including key industry representatives such as the NSW Police Force, the Motor Accidents Authority, the Motorcycle Council of NSW and NRMA Motoring & Services.
- 4.11 The Council's main priority is to "promote the safety of motorcyclists by educating drivers and riders of best practice on the road and reminding them of road rules and regulations".⁴ The RTA has provided supplementary information stating that the Council's inaugural meeting had been scheduled for 15 November 2010, followed by "...a series of consultation workshops and meetings requiring valuable input and guidance from the Council. Some of the area of focus for the strategy will include education and awareness campaigns, rider safety and protection, and safer road environment."⁵
- 4.12 Details of existing strategies to improve vulnerable road user safety are detailed in the submission from the RTA. These consist of engineering, traffic and behavioural measures.
- 4.13 Engineering solutions are designed to prevent crashes and reduce crash impact on riders and pillion passengers. The RTA has "been implementing enhancements to safety barriers systems which reduce trauma for motorcyclists, including "boots" on guardrail terminal ends, guide posts that collapse or "lay over" when hit (spring mounted). Additionally, the RTA has improved road line marking along identified narrow roads with tight horizontal curves specifically for motorcyclists. Examples include the installation of centreline markings along the Illawarra Highway and Macquarie Pass to discourage motorcyclists from riding on the incorrect side of the road around tight curves."⁶
- 4.14 As part of its initiatives across its six regions, the RTA has been reviewing its motorcycle routes and implementing countermeasures to improve signage, upgrade barriers, improve road surfaces and provide vehicle turn out areas for slow vehicles.

² Submission 47, RTA, p. 37.

³ Ibid, p. 63.

⁴ Minister for Roads, Media Release, 23 October 2010.

⁵ Supplementary Information, RTA, 18 November 2010.

⁶ Submission 47, RTA, p. 63.

4.15 Speed zone reviews and the provision of police enforcement bays have also been provided in certain areas.

Road Signage

4.16 In addition to the production of Hazardous Motorcycle curve signs placed in areas which may be risky to motorcyclists, the RTA also uses various forms of signs and roadside communications to provide safety messages to motorcycle riders. These include:

- use of variable message signs (VMS), particularly on key motorcycling routes targeting motorist (blind spots) and motorcyclists (slow down, set up, drinking and riding don't mix etc.);
- delivery of Motorcycle Campaigns (messages and VMS) at times of peak demands associated with planned events, such the provision of messages in the Southern Region for those making the trip to the Phillip Island Moto GP;
- provision of road safety and police enforcement information at message boards at rest locations and known gathering points for motorcyclists;
- small and large billboards; and
- safety messages at roadside banner sites.⁷

4.17 According to the RTA: "An evaluation has found that crashes involving motorcycles and all vehicles had reduced in the three year period after the installation of the signage, compared to the three years prior to the installation."⁸

4.18 The importance of speed as a risk factor cannot be overstated. Established speed limits generally reflect the risk to road users and vary with road conditions to enhance motorcycle rider safety, particularly on winding sections of the roadway. Speed limit reviews on known motorcycle routes result in the reduction of some speed limits and the installation of upgraded speed advisory and curve warning signage in accordance with the NSW Speed Zoning Guidelines.

4.19 Examples of this include:

- Bells Line of Road (Completed October 2008);
- Putty Road (Completed October 2007);
- Old Northern Road (Completed November 2007);
- Wisemans Ferry Road (Completed November 2007);
- Royal National Park, Sutherland (Completed January 2007); and
- Galston Gorge (Currently underway).⁹

Roadside Barriers

4.20 To develop a greater understanding of why motorcycles crash into roadside barriers and how the injuries are sustained, The NSW Centre for Road Safety co-sponsored a University of New South Wales Injury Risk Management Research Centre project on Motorcycle Crashes into Roadside Barriers. This study involved actually crashing

⁷ Ibid, p. 66.

⁸ Ibid.

⁹ Ibid, p. 67.

motorcycles and crash test dummy riders into the barriers to evaluate crash outcomes.

4.21 Elaborating on the conduct of the study, the RTA discussed its benefits in the following terms:

It is a major piece of research into motorcycle crashes into roadside barriers. They are doing modelling and real world testing of all three of the most popular barrier types—the concrete, the guardrail and the wire. They are comparing the risk or the safety of each type of barrier to motorcyclists. With the wire rope barrier, a lot of concerns that have been communicated to me are about the wire itself. What appears to be at risk is in fact the posts rather than the wire, but the posts exist on the guardrail as well and they are actually stronger than they are. So it is not clear-cut which is the safer. Certainly the wire is a lot safer for drivers; there is no question about that. The post exists on the guardrail, which is the most commonly used crash barrier out there, so there is an added risk to that. This piece of research, which is only halfway through—it is a full-year piece of research—and it is being looked at by road safety experts all over the world. This is actually a very big one in terms of world reputation.¹⁰

4.22 Two progress reports have been drafted to date: 'Crash Characteristics and Causal Factors' and 'Progress Report of Crash Mechanics and Injuries' and these are currently being reviewed.

4.23 The RTA is also examining the results of a study of the Swedish 2+1 road system, incorporating wire rope barriers on medians and road edges, undertaken recently using 5 years before and after crash data. The evaluation covered 470 km of what the Swedish researchers refer to as “collision free” expressways of which 336 km have a speed limit of 110 km/h. These are otherwise known as 2+1 roads. Sweden’s 2+1 roads are a category of three lane road, consisting of two lanes in one direction and one lane in the other, alternating every few kilometres, and separated with a steel wire rope barrier.

4.24 The Swedish study showed that where wire rope safety barriers had been installed, there was a 40 per cent to 50 per cent reduction in motorcycle fatality risk (Arne Carlsson 2009). The report also noted a reduction in motorcycle speeds through sections that had wire rope safety barrier installed.¹¹

4.25 Recent similarly effective installations of wire rope barriers were carried out in New Zealand on the Centennial Highway. Prior to installation of the barriers there were 12 fatalities and 4 serious injuries over a 10 year period (1996 – 2004). After installing median wire rope barrier and reducing the speed limit from 100 km/h to 80 km/h there have been no fatalities or serious injuries over the past five years (2005 – 2009).¹²

Behavioural Measures

4.26 Safe rider behaviour and practices are encouraged and reinforced through public education and awareness campaigns. The RTA aims to increase motorcyclists’ awareness of road safety through education and advertising concerning:

- risks associated with speed/ riding too fast for the road conditions;
- risks and appropriate actions associated with riding in traffic;
- risks associated with drinking and riding; and

¹⁰ Transcript of Evidence, 12 October 2010, p. 14.

¹¹ Submission 47, RTA, p. 67.

¹² Submission 54, NSW Injury Risk Management Research Centre, p. 9.

- safe practices concerning cornering, braking and road positioning.
- 4.27 Driver awareness of motorcycle riders, including the need to look out for motorcycles, is addressed through public education and advertising concerning:
- checking for blind spots, when changing lanes; and
 - allowing motorcyclists more space in traffic when turning at intersections.¹³
- 4.28 Other RTA produced educational material includes the Road Users and Motorcycles Users Handbooks, the "Braking Habits" publication and a range of other information resources on the RTA website. Specific awareness campaigns conducted in 2010 include "safe cornering" and "check twice for bikes" to increase the visibility of motorcycle riders by drivers. Additional campaigns targeting motorcycle riders are designed around drink riding and providing safe buffers between riders and other road users on the road.
- 4.29 In terms of the provision of funding for safety related activities, the RTA makes an annual funding grant of \$20,000 to the Motorcycle Council of NSW Incorporated to highlight safety issues to riders.
- 4.30 Concurrently, the RTA conducts a State-wide motorcycle safety advertising campaign that is delivered in conjunction with Motorcycle Awareness Week. This campaign highlights safety messages for riders and motorists. The RTA has allocated \$543,000 for motorcycle safety awareness initiatives in the 2010/2011 financial year. In addition, many broader campaigns (e.g. on speed enforcement or RBT) include motorcyclists as part of the target audience.¹⁴
- 4.31 The NSW Police Force Commander of Traffic Services highlights the risks of drinking and riding as a key factor in motorcycle crashes and supports an examination of the current blood alcohol concentration (BAC) levels applying to motorcycle riders:
- With the increasing motor cycle population you have got some information there about post mortem results of 64 riders. It does show that 22 of those were under the legal limit but certainly I believe the combination of having a low level alcohol, two beers at lunch or something, drive this big bike, a bit older in age, probably contributed to the crash as much as someone over .05. I think we need an education program. We are looking at the limitations, or BAC limits for motor cycle riders. To reduce that to .02 may be one way of preventing the temptation to have your one or two drinks and hop on a bike, which I believe leads to being off the edge. That is from information I have. I would call it at least an education campaign.¹⁵
- 4.32 The suggested reduction in reducing the BAC for motorcycle riders to 0.02 is also supported by the NSW Injury Risk Management Research Centre's Chair of Road Safety:
- I would heartily agree with that. Riding a motor cycle is a complicated exercise. It is much more demanding in terms of driving load on the rider compared to driving a car. You have to be defensive in your driving. You have to be aware of small defects in the road, like potholes or drop offs. There has to be considerable focus and it demands full presence of your mind while riding. Alcohol reduces that focus.¹⁶
- 4.33 Local Government is also funded through the Local Government Program for public awareness campaigns targeting motorcyclists. These campaigns are highly localised

¹³ Submission 47, RTA, p. 68.

¹⁴ Ibid, p. 82.

¹⁵ Transcript of Evidence, 13 October 2010, p. 24.

¹⁶ Ibid, p. 34.

and generally timed to coincide with activities or events where high volumes of motorcyclists are expected, such as recreational motorcycling rides or Motorcycle Awareness Week activities.

- 4.34 A neglected area of driver involvement in crashes identified in the submission from the NSW Injury Risk management Research Centre (IRMRC) is motorcycle rider fatigue. According to the IRMRC: "...there is preliminary evidence suggesting that fatigue is common, impairs riding performance and may contribute to a significant proportion of crashes. However, strategic investment in good quality research is required to properly understand the extent and nature of the problem so that targeted, evidence driven policy responses can be developed."¹⁷
- 4.35 This issue, and the appropriateness of the current prescribed BAC level for motorcycle riders, will be further developed in the final Chapter of the Report.

Licensing and Training

- 4.36 NSW has a Graduated Licensing Scheme for motorcycle riders, together with a comprehensive licensing, training and testing scheme to ensure riders are appropriately skilled.
- 4.37 The Graduated Licensing Scheme for motorcycle rider licence applicants requires that new riders pass through three licensing stages before obtaining an unrestricted rider licence:
- Learner rider licence;
 - Provisional (P1) rider licence; and
 - Provisional (P2) rider licence.
- 4.38 The Graduated Licensing Scheme (GLS) for motorcycle riders commenced on 1 June 2009. Under the scheme, rider licence applicants who are issued with their first NSW provisional rider licence from 1 June 2009 are required to hold a provisional P1 licence for a minimum of 12 months and a provisional P2 rider licence for a minimum of 24 months before graduating to an unrestricted rider licence. The underpinning principle of a GLS is the gradual easing of restrictions as novice riders gain experience and skills.
- 4.39 The new scheme addresses the over-representation of motorcyclists in crashes through restrictions that include alcohol, speed, demerit points and motorcycles that can be ridden. While it is appropriate that all new riders undertake the provisional P1 phase, an exemption from the provisional P2 phase is available for riders aged 25 and over who hold an unrestricted driver licence.
- 4.40 According to the RTA: "...the introduction of this scheme means that novice riders will now be riding a moderately powered motorcycle for a minimum of three years, up from one year. The first cohort of riders moving from the provisional (P1) phase to the provisional (P2) phase commenced 1 June, 2010. This cohort will have a further two years experience riding a moderately powered motorcycle before they can opt to move to a motorcycle suitable for more experienced riders."¹⁸
- 4.41 To obtain a rider licence in NSW, applicants must first undertake rider training. The rider training scheme has been operating in NSW since 1990. The scheme is compulsory and covers key riding skills and low-risk road riding strategies required

¹⁷ Submission 54, IRMRC, p. 11.

¹⁸ Submission 47, RTA, p. 71.

for safe riding. The training is comprised of two stages – pre-learner training and pre-provisional training.

- 4.42 The NSW rider training curriculum is recognised as reflecting best practice. The curriculum was originally based on the American Motorcycle Safety Foundation rider training curriculum. Over time, it has been redeveloped and adapted to local needs by the RTA in conjunction with the rider training industry. It is built upon a mix of theory and skills, and the practical application of these. The curriculum and training activities are aligned to the most common crash types affecting riders. It guides applicants through the thinking and riding strategies that they can use to reduce their likelihood of crash involvement.
- 4.43 Applicants must be at aged least 16 years and nine months to be issued with a learner rider licence. Applicants can, however, attend training from the age of 16 years and six months.
- 4.44 The Learner Approved Motorcycle Scheme (LAMS) was implemented in late 2002 and complements the RTA's approach to rider licensing and training. The LAM scheme allows learner and provisional riders to ride moderately powered motorcycles up to an engine capacity of 660ml and replaced the previous 250ml based restriction. The scheme has undergone independent evaluation, which included an analysis of motorcycle crash data and comment on the scheme from stakeholders such as police and motorcycle representative groups. The evaluation report found that LAMS has been widely accepted and is working well. In 2009, Austroads agreed to adopt the NSW LAMS model throughout Australia.¹⁹
- 4.45 A further area addressed in submissions concerns post licence tuition and continuing education. The representative from the Survive The Ride Association (STRA) NSW told the Committee:
- Ongoing education is required. You do not get just on courses the skills to ride a motor bike, just like driver training. There are lots of variations in road conditions and different machinery, so that develops over time and particularly in issues such as cornering and braking, it is far more sensitive on a motor bike. That has to develop over time. The brain cannot pick that up in a two day course.²⁰
- 4.46 In response to questioning regarding its recommendation directing the RTA to fund voluntary post-licence education for motorcycle riders, the STRA responded:
- A lot of the knowledge about not using the front brake on corners, that sort of stuff, is covered during the learners and provisional courses. There are separate segments on those issues. The unfortunate thing is there is so much other information covered in the courses that it does not necessarily all sink in. The issue of the initial cost of running such an extended program might be problematic. That is why I was suggesting that something like a voluntary program would then be able to be picked up by those people who could actually afford it.²¹
- 4.47 The RTA, in supplementary answers to questions following the public hearing, has indicated that it does not support post-licence training on the basis that: "...the effectiveness of post-licence training for riders, as is the case for drivers, is unproven. Post licence training is often in the form of 'advanced' driver/rider training. The research conducted to date into advanced driver training courses suggests that such courses are counter-productive. Advanced driving and rider training courses focus

¹⁹ Ibid, p. 76.

²⁰ Transcript of Evidence, 13 October 2010, p. 17.

²¹ Ibid, p. 18.

heavily on developing skills that are more applicable for use on motor racing circuits than for application on public roads and may lead to over-confidence and optimism bias. Consequently, they are unlikely to contribute to road safety."²²

- 4.48 According to the RTA, mentoring programs conducted on-road have a greater chance of success and it is currently trialling such programs with the Motorcycle Council of NSW. The RTA is also examining the benefits of a behavioural safety intervention program with novice drivers in partnership with VicRoads and other agencies.²³

Vehicle Technology

- 4.49 A range of vehicle safety features are available to enhance motorcycle rider safety. These include automatic headlamps, anti-lock braking systems (ABS) and traction control systems (TCS).
- 4.50 Many motorcycles have installed headlamps which automatically come on when the engine is running and extinguish when the ignition key is turned off. This improves motorcycle visibility on the road and alerts other road users to their presence. Motorcycles that do not have this installed require riders to turn their headlamps on manually during daylight hours, but this is not universally adopted and relies on the diligence of the rider.
- 4.51 Installation of an anti-lock braking system (ABS) has proven to reduce the likelihood of a motorbike going into a skid during severe brake force application and reduces the need for the rider to balance front and rear braking effort to maintain control. Due to the fear of losing control through skidding, a rider may not apply enough brake effort early in an emergency braking manoeuvre (especially to their front wheel). This can result in the bike not slowing adequately to avoid a crash or not reducing speed sufficiently to reduce crash severity.
- 4.52 The NRMA is a strong supporter of ABS technology for motorcycles and recommends the adoption of an Australian Design Rule for anti-lock braking systems for motorcycles by 2013. Additionally, the NRMA supports the adoption of traction control for motorcycles and makes a similar recommendation in this regard.²⁴
- 4.53 A Traction Control System (TCS) monitors the rotation of the wheels and when it detects wheel spin in the driven wheel, moderates the engine power to stop the bike from losing traction and skidding. The TCS operates on motors with an electronic fuel injection system and acts through the engine management computer to perform its functions. The TCS also uses the wheel rotation sensor system fitted with ABS brakes. Most larger and more powerful motorbikes have electronic fuel injection systems and hence, according to the RTA: "...TCS would be an appropriate requirement on motorbikes of larger engine capacity (for example, those not included in the Learner Approved Motorcycle Scheme)."²⁵
- 4.54 RTA representatives appearing before the Committee voiced their support for motorcycle safety technology requirements.

We are looking at potentially mandating ABS. We know that it has incredible benefits for motorcyclists. It could be that what electronic stability control has done for light

²² Supplementary Information, RTA, 18 November 2010.

²³ Ibid.

²⁴ Submission 48, NRMA Motoring & Services, p. 8.

²⁵ Submission 47, RTA, p. 85.

vehicles we believe that ABS can do for motorcyclists. We are also looking at traction control.²⁶

Protective Equipment

- 4.55 The Committee has received overwhelming evidence supporting the benefits of protective clothing and headwear for motorcycle riders.
- 4.56 There is a legal requirement for all motorcycle riders and pillion passengers to wear a helmet. The RTA has recently initiated a Helmet Evaluation Program (HEP), designed to assess the relative safety performance of motorcycle helmets available in Australia. The information helps motorcyclists purchase the safest motorcycle helmet. According to the RTA: "The assessment protocol compares helmets in impacts beyond the requirements of the Australian Standard and determines how well they will protect the wearer's head in a range of crash scenarios. It also assesses the level of rider comfort."²⁷
- 4.57 Similar to the Child Restraint Evaluation Program which commenced in 1992, HEP is also an ongoing program that annually assesses new models of motorcycle helmets, with results presented in a brochure first published in May 2010 entitled *Safer Motorcycle Helmets: your guide to choosing and buying motorcycle helmets*. In the 2009/10 program, 12 helmets (8 full face and 4 open face helmets) have been evaluated both in term of crash protection and comfort level performance as well as the likelihood for the helmets to fit a wide range of head sizes.
- 4.58 There has been some difference of opinion expressed about the protective value of full as opposed to open faced helmets. A witness from the Motor Cycle Council of NSW who is also a Member of the Australian Standards Committee for Motor Cycle Helmets referred to some disputation among rider groups about helmets and standards and made the following observations:
- In broad terms full face helmets are great because they have got a closed visor, they offer you quite a lot of protection in a face plant type fall but there are problems with standards and helmets. Many of the helmets which arrive here in Australia, because we have the Australian standards for helmets, but we are a tiny dot of the market in the international scene, so we tend to get helmets here which are multiply compliant...The degree of protection offered by helmet versus no helmet is such a gap that when we start coming down to looking at the difference between full face or open face, we are into the trivial area really. If you look at the data, we cannot really tell the difference. There may be a cosmetic outcome but in terms of safety of did this person die or suffer a brain injury - it is a matter of wearing a helmet or not wearing a helmet.
- 4.59 In a recent development, the Minister for Roads has announced a new high-velocity ballistic cannon to test the strength of helmets. The new testing procedure also measures the protection provided by motorcycle helmet visors against projectiles such as stones and road debris against Australian Standard AS 1609, which governs eye protectors for motor cyclists and racing car drivers.²⁸
- 4.60 As part of the development of the NSW Motorcycle Safety Strategy, the RTA is also investigating further possible regulatory and non-regulatory measures to better ensure that motorcyclists wear appropriate clothing and personal protection equipment for riding.

²⁶ Transcript of Evidence, 12 October 2010, p. 6.

²⁷ Submission 47, RTA, p. 85.

²⁸ Minister for Roads, Media Release, 3 November 2010.

- 4.61 The George Institute for Global Health is involved in two studies looking at protective clothing use by motorcycle riders. One of these is the Novice Rider Study, conducted with a cross sectional survey of over 1000 riders, recruited when they attended the compulsory NSW pre-provisional rider training course.
- 4.62 The aim was to identify factors associated with the use and non-use of protective clothing by novice motorcycle riders in order to understand the rationale by which motorcyclists make decisions about usage of protective clothing. The survey also asked about the actual riding exposure of learner riders to validate their crash risk rate. The long-term objective was to develop an educational intervention program to increase the use of protective clothing. Analysis of results is in progress.²⁹
- 4.63 The second study, known as the GEAR study, is a one year prospective cohort study of 212 motorcyclists who crashed on public roads in the ACT. The aim is to identify the associations between usage/non-usage of motorcycle protective clothing and injury and subsequent disability.
- 4.64 According to The George Institute: "This will be the first study worldwide to distinguish between different qualities of protective clothing and to examine the role of impact protectors in preventing injury. In order to ensure a representative sample of all riders who crash, injured riders were recruited from hospitals and uninjured riders are sourced through motorcycle crash repair services. The riders were also followed-up at six weeks and six months to monitor their recovery progress and quality of life following the crash."³⁰
- 4.65 Other submissions have stressed the benefits of specific protective clothing. NRMA Motoring and Services supports the development of an independent star rating program to test and rate protective clothing, along with a public education campaign to promote its benefits.³¹
- 4.66 In his appearance before the Committee, Michael Richardson MP related his own experience as the survivor of a recent motorcycle crash and stressed the benefits of protective clothing:
- When you come off the bike you only have the gear that you are wearing to protect you. I am constantly amazed at some of the outfits that I see motor cyclists wearing. I was going back home from my office at about 7 o'clock on a winter's night and I saw a fellow going up the road nearby riding a motor bike whilst wearing shorts. It was not necessary to wear shorts, it was nine degrees.³²
- 4.67 Mr Richardson expanded on his position as follows:
- ...you cannot actually mandate that you have got to wear full leathers, full face helmet and boots at all times; you just cannot do that; that is not practicable. What I have really advocated here, beyond consideration of helmets, mandating for example, that you must wear long trousers and some sort of proper shoes, lace up that are not going to fall off as soon as you come off the bike and even women wearing fashion shoes could do that and then change their shoes when they get to work.³³
- 4.68 Staysafe was informed that the Motor Accidents Authority has formed a working group on protective clothing and will consider a business model to develop a rating

²⁹ Submission 45, The George Institute for Global Health, p. 8.

³⁰ Ibid.

³¹ Submission 48, NRMA Motoring and Services, p. 5.

³² Transcript of Evidence, 13 October 2010, p. 2.

³³ Ibid, p. 4.

system. It will also enable motorcyclists to make informed choices about protective clothing.³⁴ Progress on this working group will be closely monitored.

Enforcement

4.69 The NSW Police Force also adopts measures and directs operational resources to combat drink driving and speeding. Strategies are devised based on collected police data to concentrate on areas deemed to be "high risk". Enhanced enforcement programs include targeting speeding, drink driving and antisocial driver behaviour. This is augmented by media campaigns, education programs in schools and community based initiatives.³⁵

Emerging Issues

4.70 Another issue identified during the Inquiry is the increasing use of mobility scooters. The RTA has acknowledged that this is an area for future attention locally and nationally, due to the number of off-road injuries involving mobility scooters.

There has also started to emerge in the last few years the odd on-road fatality or crash involving mobility scooters in breakdown lanes being cleaned up, et cetera...As part of the national road safety strategy and national forums, a uniform approach to mobility scooters is being addressed. We know there is something there to deal with. It is not only on public road roads, it is in shopping centres and in many areas that there needs to be some sort of control around mobility scooters...It is being addressed both in road rules forums and national safety forums, because every State has identified an increase in the numbers and these incidences of injuries and fatalities are starting to populate our road toll figures, so the trend is emerging. You can physically see the increase in the number of mobility scooters around.³⁶

4.71 The NSW Police Force Commander of Traffic Services, in his appearance before the Committee, made reference to the lack of appropriate clothing and increased injury risk by riders of small motorcycles:

I think the vast majority of motor cyclists you have described do have the good leathers because they can afford the leathers and the helmets. What I see is people riding to work on their Vespas or smaller bikes in suits and with shoes and that is an issue of concern. The fact is if they come off they will be seriously injured.³⁷

4.72 Staysafe supports further investigation of this category of motorcycle use, including the increasing prevalence of smaller motorcycles, such as Vespas, and the implications for safety of the lack of requirement to wear protective clothing.

Pedal Cycles

4.73 The following summary highlights key pedal cycle safety characteristics and trauma risks, as detailed in Chapter Three. It should be noted in this context that levels of notified pedal cycle fatalities and injuries have remained relatively stable over the last 20 years, despite an increase in the number of cyclists. At the same time, it should also be acknowledged that there is substantial underreporting of cycling injuries.

- The majority of pedal cycle fatalities and injuries occur in the metropolitan areas;
- The majority of pedal cycle fatalities and injuries are males;

³⁴ Submission 52, MAA, p. 3.

³⁵ Submission 55, NSW Police Force, p. 3.

³⁶ Transcript of Evidence, 12 October 2010, p. 10.

³⁷ Transcript of Evidence, 13 October 2010, p. 23.

- Over the long term, child-aged pedal cycle casualties have decreased but these have been offset by increases in the older age groups;
- The majority of injuries occur at intersections whilst the majority of fatalities occur away from intersections on single undivided carriageways, divided carriageways or dual carriageway freeways/motorways;
- Pedal cycle fatalities are more prevalent on high speed, higher order RTA classified roads, whilst injuries are more prevalent on low speed unclassified (local) roads;
- There are peaks in pedal cycle casualties during the morning and afternoon peak hour periods on weekdays, and during the afternoon on weekends;
- The majority of pedal cyclist casualties involve an impact with another vehicle, with impacts involving heavy trucks over-represented amongst pedal cycle fatalities;
- The majority of pedal cycle casualties have no error coded for the pedal cyclist, but 11 per cent of fatalities involved the pedal cyclists disobeying a traffic control;
- Around one in seven pedal cyclist casualties (with a recorded alcohol result) have a BAC of 0.05 or more; and
- Around one third of fatalities and 18 per cent of injuries are not wearing a helmet.³⁸

4.74 A major policy initiative to respond to the dramatic growth in pedal cycle ownership, and corresponding increase in recreational cycling, was the launch of the NSW BikePlan by the NSW Government on 16 May 2010. According to this publication: "It's estimated that 159,000 trips are made by bike on an average weekday in Greater Sydney in 2010. The most recent Australian Government figures show that in 2008 over half a million of NSW adults – 20 per cent more than the year before – rode a bike for recreation, exercise or sport. In 2009, Australians bought over 1,150,000 new bikes, compared to 937,000 cars – the tenth year in a row of bike sales outstripping cars."³⁹

4.75 The BikePlan constitutes a policy document detailing "...how the Government will work in partnership with local councils, communities and businesses to increase and promote safe cycling as a transport alternative, which will also provide environmental and health benefits for the community... The NSW BikePlan outlines a ten-year bicycle infrastructure plan and will provide further information on the projects to benefit from the \$158 million announced in the Metropolitan Transport Plan."⁴⁰

Road Engineering

4.76 The road environment poses many safety risks to pedal cyclists. This is due to a range of engineering features which are biased towards the needs of motor vehicles and drivers. A particular element of road design identified as high risk for cyclists is negotiating roundabouts at intersections.

4.77 The George Institute for Global Health refers to a recent review of the literature on the most effective intersection treatments designed to improve bicycle access and safety. The review found that bike boxes, also known as advanced stop lines (ASL),

³⁸ Submission 47, RTA, p. 62.

³⁹ NSW BikePlan, NSW Government, May 2010, p. 7.

⁴⁰ Submission 47, RTA, p. 86.

that allow bicyclists to move in front of vehicles when stopped at a signalised intersections reduced the potential for conflicts with vehicle turning movements on the green signal. Other review findings include the benefits of separate signal phasing for cyclists and coloured bicycle lane markings through intersections.⁴¹

4.78 While acknowledging that modifications to the existing road infrastructure will have benefits for cycling safety, Staysafe supports the construction of separate cycleways reserved for cyclists and agrees that providing well marked, cycle specific facilities improves cyclist safety. The increasing number of recreational cyclists, who ride for enjoyment as much as for efficiency, tend to be the main users of this dedicated part of the road system.

4.79 Purpose-built infrastructure has been identified in the NSW BikePlan as a key component of a safe and enjoyable cycling environment. This has the following features:

- In Greater Sydney, subregional bike networks in the River Cities of Parramatta, Liverpool and Penrith will be supported by connections between the city's Major Centres. Local cycleway connections, jointly funded by the NSW and local governments, will feed into the metropolitan and subregional networks;
- In central Sydney, NSW Government support for an inner Sydney strategic cycle network will extend the reach of City of Sydney cycle links into surrounding local council areas; and
- In regional NSW and cities like Newcastle and Wollongong, cycleway investment will support access to important community facilities. Other initiatives, such as the NSW Coastline Cycleway, will deliver active transport options across the State, especially in lower-density areas not serviced by public transport.⁴²

4.80 Examples of work proposed to be undertaken by the NSW Government over the next decade include:

- Completing missing links in Sydney's regional bike route network where strong growth in cycling is already being experienced, or where major construction works present an opportunity to improve cycling facilities;
- Completing bicycle networks in and around the 'River Cities' serving western Sydney's areas of high population growth, namely Parramatta, Liverpool and Penrith;
- Helping councils to provide facilities that extend across local council boundaries and which improve accessibility for short cycling trips to town centres, educational facilities, shops and regional services;
- Connecting and upgrading off-road cycle links in identified Aboriginal communities;
- Providing cycleways as part of all State Road projects in country NSW;
- Progressively completing the NSW Coastline Cycleway;
- Developing and installing standard bicycle route signage that indicates distance and anticipated trip duration to key destinations; and

⁴¹ Submission 45, George Institute, p. 14.

⁴² NSW BikePlan, NSW Government, May 2010, p. 8.

- Promoting end-of-trip facilities such as showers and bicycle parking facilities at major trip destinations, including secure cages or bicycle lockers at key transport hubs to encourage integrated transport use.⁴³
- 4.81 The provision of an integrated cycle network aims to provide cyclists with more space and reduce potential conflict between cyclists and other road users. In addition, the needs of cyclists are taken into account in separate road engineering maintenance and upgrade improvements, which include:
- making on-road cycle provisions, where possible, as part of road resurfacing projects through new line marking design;
 - carrying out lane reconfiguration where feasible, with resurfacing, to provide wider shoulder provisions for cyclists; and
 - including as part of major intersection upgrades, where practical, cycle facilities in accordance with relevant Austroads standards.⁴⁴
- 4.82 Councils across NSW are supported by the RTA's Local Council Cycleways Program, which has provided an average of at least \$5 million in 50/50 funding each year for the last five years. In 2009/10 the program has funded 92 cycle projects, delivered in partnership with 77 local councils across the State.
- 4.83 The City of Sydney is leading in the rollout of a new cycleway network and is "building the first parts of a high-quality 200 kilometre bicycle network which will create cycling links with surrounding council areas and between the villages in our LGA."⁴⁵ However, not all parts of the cycleway system are reserved for the exclusive use of cyclists; with only 25 per cent of the City of Sydney's network dedicated to separated cycleways.
- 4.84 Bicycle NSW makes a strong plea for greater consideration of the potential hazards on shared paths. In their submission, Bicycle NSW argues that: "Both cyclists and pedestrians would like a better class of facility which recognises their varying operating characteristics. Recent research in Queensland and Victoria (VicRoads 2010) has looked at the operating capacity and level of service issues on shared paths of varying widths and user volumes. With higher volumes, wider paths are recommended to a point where separate paths for cyclists and pedestrians would be the preferred and safer solution."⁴⁶
- 4.85 There has been much criticism of the design and current rollout of the cycleways, particularly in the City of Sydney. Many complaints relate to the lack of connectivity and inconvenience during the installation process. The Transport Manager for the City of Sydney responded to this in the following way:
- What we are trying to do is encourage those people who do not currently cycle to make the choice to cycle because we are providing them with a safe way and means of doing so. We are only at the very beginning of that journey... We are still three years away from having the majority of our network connected. If you live on a bit of road that goes from where you want to be to where you want to go and we have got the network; people will use it.⁴⁷

⁴³ Submission 47, RTA, p. 86.

⁴⁴ Ibid, p88.

⁴⁵ Submission 53, City of Sydney, p. 3.

⁴⁶ Submission 49, Bicycle NSW, p. 14.

⁴⁷ Transcript of Evidence, 13 October 2010, p. 49.

Countermeasures and Safety Strategies

- 4.86 Reference has also been made to the lack of coordination between the RTA and the City of Sydney in the management of traffic signalling and appropriate design of cycleways merging into the road system.
- 4.87 A positive development has been the recent announcement of a Memorandum of Understanding (MOU) between the NSW Government and the City of Sydney Council. This MOU, effective from 2010 to 2015, will govern traffic management, road user access and transport planning for the Sydney metropolitan area.⁴⁸ Elements of this MOU, which will improve bicycle safety include: a 40km/h speed limit in the CBD; 10km/h shared zones in streets and laneways; separated cycle networks; and road intersection improvements.

Educational and Behavioural Measures

- 4.88 Road safety education is a mandatory component of the NSW Board of Studies Personal Development, Health and Physical Education (PDHPE) syllabus. This requirement was covered extensively in the Committee's earlier report on Young Driver Safety and Education Programs.⁴⁹
- 4.89 Bicycle safety awareness programs are delivered at primary school level through the RTA's NSW School Road Safety Education Program with curriculum based resources providing: "...a range of teaching and learning experiences and activities for students on the broader issue of 'safety on wheels'".⁵⁰ This material addresses the wearing of helmets, appropriate supervision and safe places to ride.
- 4.90 At secondary level, bicycle safety material is delivered which consolidates earlier learning and promotes the development of attitudes and values to inform safe riding decisions and behaviours. In 2010, the RTA has redeveloped a Bicycle Education Activity Manual (BEAM). This resource outlines a range of teaching activities to develop cycling skills. The manual, in draft form, is currently being piloted in senior primary schools and high schools.⁵¹
- 4.91 In addition to educational programs delivered through the school curriculum, the RTA directs a promotional mail out annually to actively encourage schools to address bicycle safety issues. Bicycle safety awareness campaigns are also conducted during NSW Bike Week, where local communities are encouraged to participate and consider the needs of cyclists as legitimate road users.
- 4.92 Specific road safety issues affecting Aboriginal communities, including bicycle helmet wearing, are addressed through the Road Safety Aboriginal Program aimed at increasing the knowledge and understanding of bicycle safety in NSW Aboriginal communities. Bike safety and helmet exchange days are conducted with Aboriginal groups, where children are given bike safety presentations and can exchange their old helmet for a new one, which is correctly fitted.⁵²
- 4.93 The Community and Road Education Scheme (CARES) is an educational program conducted jointly by the NSW Police Force, RTA and local government. The CARES facilities deliver bicycle and road safety education programs designed primarily for

⁴⁸ Premier of NSW, Media Release, 13 September 2010.

⁴⁹ Staysafe Committee, Report on Young Driver Safety and Education Programs, Report No. 1/54, November 2008.

⁵⁰ Submission 47, RTA, p. 88.

⁵¹ Ibid, p. 89.

⁵² Ibid, p. 92.

students in years five and six. There are five facilities in the Sydney Metropolitan Region including Bass Hill, Prospect, South Sydney, St Ives and St Marys.⁵³

- 4.94 In his appearance before the Committee, the NSW Police Force Commander of Traffic Services discussed the success of the CARES program, as follows:

I think the CARES program is very beneficial for road safety. I think it does need some more capacity. Expansion to what locations I do not know. It is very resource intensive. From a policing point of view it takes two police officers off the street full time so you would need to ensure that we had the resources there to service the area if it was a location given at Orange or somewhere that we could expand and have police to do the job.⁵⁴

- 4.95 NSW Police also deliver lectures on bicycle safety to schools in Lismore, Ballina and Casino. These lectures provide information on protective equipment, riding on the road, riding on the footpath and riding in bike lanes.⁵⁵
- 4.96 Health Promotion Units in the Sydney South West Area Health Service and the Northern Sydney Central Coast Area Health Service have been actively involved in promoting safer cycling in their areas. This includes cycling skills courses conducted through primary and secondary schools and a cycling research project to evaluate the number of injuries and near misses that cyclists have encountered in NSW.⁵⁶
- 4.97 Bicycle user groups, such as Bicycle NSW, also conduct educational programs for novice and experienced riders. In evidence to the Committee, the Chief Executive of Bicycle NSW told the Committee that:

We run a number of programs, including a schools program to educate young people as to how to cycle safely. We also run a Commuter Challenge to encourage people to commute to work, and to keep track of that we give awards based on that... We run the Spring Cycle and with the Amy Gillett Foundation we are running their cycling event next year. We also are about to reintroduce Bicycle NSW to the regional parts of New South Wales with regional rides beginning sometime early next year. The first one will likely be down in Goulburn. We are going to reintroduce our ability to get bicyclists to enjoy different regions of New South Wales. We also conduct rider leader training. We help people who are going to ride with others to understand the rules of the road and for them to pass that on.⁵⁷

- 4.98 NSW Health and the RTA also provide funding for injury prevention activities to non-government organisations. The Centre for Road Safety has funded Youthsafe to conduct research and produce publications addressing issues such as correct bicycle helmet use. The Fact Sheet on helmet use, referenced in the Youthsafe submission, was designed to: "...provide information supporting correct use of bicycle helmets amongst young bicycle riders in the 12 to 15 age group."⁵⁸ The publication was targeted at:

- parents of young adolescents;
- others in a position to influence young adolescent bicyclists such as schools, education institutions, TAFE teachers and students and the cycling community in general; and

⁵³ Submission 55, NSW Police Force, p. 6.

⁵⁴ Transcript of Evidence, 13 October 2010, p. 25.

⁵⁵ Submission 55, NSW Police Force, p. 6.

⁵⁶ Submission 27, NSW Health, p. 5.

⁵⁷ Transcript of Evidence, 12 October 2010, p. 28.

⁵⁸ Submission 47, RTA, p. 90.

- Road Safety Officers (RSOs).
- 4.99 The RTA has produced and distributed a community education brochure *Share and be aware – travelling together safely*, which includes information on the use of shared paths by both pedestrians and bicycle riders. The objective of producing the brochure was to increase awareness of the rights and responsibilities of all road users and the ways that they should interact with each other on the road network. The RTA has also produced a publication explaining how cyclists involved in on-road training can ride safely in groups. This was released in November 2009.
- 4.100 A similar brochure has been published by the City of Sydney, in order to describe the range of cycleways which make up the various bike routes on the cycling network. The brochure sets out the rules and signage applying to use of these cycleways for specific categories of road users. This includes: dedicated bike lanes; separated cycleways; shared paths; bike only contra-flow lanes; shoulder lanes; and mixed traffic lanes.⁵⁹
- 4.101 In order to better understand the risks and nature of conflict between cyclists and pedestrians a research study was carried out in NSW in 2009, under the auspices of the RTA. This consisted of an observational study to explore the number and nature of conflicts that may be occurring between bicyclists and pedestrians on shared paths. Specifically the aims of the study were to determine the:
- Number of conflicts that occur between bicyclists and pedestrians at selected locations on shared paths; and
 - Characteristics of any conflicts that may occur.
- 4.102 The RTA's research study involved 672 observation hours at 10 shared path locations in Sydney, Newcastle and Wollongong. The observational results showed that only five actual conflicts occurred between pedestrians and bicyclists over the course of the study.
- 4.103 The research report concluded that although the actual risk of injury is quite small, there is still scope to improve safety, and the perception of safety, on shared paths and recommended:
- Review of shared path standards in terms of minimum width, visual and physical obstructions, lane markings and signage followed by an audit of existing shared paths with the aim of bringing them up to standard, with high priority sites being addressed first.
 - Education of both pedestrians and bicyclists to inform people what a shared path is, educate the public about the rules and encourage courteous behaviour from all parties.⁶⁰
- 4.104 A joint bicycle cohort study project is also being conducted by the University of NSW, with contributions from Willoughby Council, Bicycle New South Wales Incorporated, Sydney South West Area Health Promotion and the RTA. This research project aims to increase the understanding of cyclist behaviours and risks under different conditions, and to provide exposure data using a series of questionnaires, self-reports and independent measurements.

⁵⁹ Sydney's bicycle network – Keeping safe on our new-look streets, City of Sydney.

⁶⁰ Ibid, p. 91.

- 4.105 The City of Sydney has also commissioned the development of a Cycling Behaviour Change Strategy to increase the take up of cycling and to address conflicts between cyclists and other road users. The preliminary draft of the report relating to this research has identified a number of interventions that will increase bike riding and improve the on-road and on-path relationship between bike riders and other road users.
- 4.106 Staysafe looks forward to the outcomes of these studies and the implementation of recommendations designed to address policy and planning safety issues affecting bicycle riders in contact with other road users.

Bicycle Helmets

- 4.107 The NSW Road Rules state that the rider of a bicycle must wear an approved bicycle helmet. This applies to all cyclists, regardless of age, including children on bicycles with training wheels and any child being carried as a passenger on a bike or in a bicycle trailer. The RTA approves the use of helmets that meet the Australian and New Zealand Standard (AS/NZ 2063).⁶¹
- 4.108 The compulsory wearing of bicycle helmets is currently the subject of much contention and heated debate. The Committee received submissions and took evidence from a number of witnesses who held strong views concerning the merits and disadvantages of mandatory helmet wearing.
- 4.109 Arguments for the removal of mandatory bicycle helmet legislation include the claims that: it discourages people from riding, thus forgoing potential health benefits; adds to the image of cycling as a dangerous activity; takes the emphasis away from unsafe infrastructure, vehicle speed and driver attitudes; and that there is minimal evidence that helmet legislation reduces cyclist head injuries.⁶²
- 4.110 Evidence was cited that countries which have introduced compulsory helmet wearing (New Zealand, Canadian provinces, Sweden) all experienced immediate declines in bicycle riding, with no demonstrable improvements in head injury data.⁶³ This was, however, disputed in other evidence received by Staysafe.
- 4.111 A submission made by the trauma unit at Royal Prince Alfred Hospital (RPAH) includes a review of cyclists admitted for treatment of injuries to the Hospital due to road traffic incidents from 2008 to 2010. The results of this review indicate that of the 287 patients with available information, helmet use was associated with lower rates of head injury, intracranial and facial injury.⁶⁴
- 4.112 The George Institute for Global Health refers to a Cochrane Review of five case controlled studies from different countries, which concluded that cycle helmets decrease the risk of head and brain injury by between 65 per cent and 88 per cent and decrease the risk of facial injury by 65 per cent.⁶⁵
- 4.113 Evidence received from the RTA at the Committee's public hearing supported this position. The General Manager of the Safe Roads Branch stated that:
- Head injury forms the greatest risk to cyclists. One-third of cyclists admitted to emergency departments were not wearing helmets, two-thirds of hospital admissions

⁶¹ Ibid, p. 91.

⁶² Submission 23, Associate Professor Rissel, p. 5.

⁶³ Ibid, p. 4.

⁶⁴ Submission 26, RPAH, p. 9.

⁶⁵ Submission 45, George Institute, p. 17.

involve cyclists not wearing helmets, and one-third of deaths involve cyclists not wearing helmets. There is research that shows a helmet will protect the brittle nature of the outside of the head and the soft tissue within the brain. There is some good research that shows that helmets do work. The data shows that the people being injured and admitted to hospital have not been wearing helmets.⁶⁶

- 4.114 Although there are divergent positions on this issue, the majority of submissions and the bulk of evidence received by the Committee support the current mandatory use of helmets for bicycle riders.

Enforcement

- 4.115 A major issue raised in evidence to the Committee concerns adherence by all road users to the rules of the road. Examples are given in submissions of inappropriate behaviour by pedal cyclists, motorcyclists, motorists and other road users resulting in conflict, leading to crashes. The President of BIKESydney expressed it in the following terms:

I think that generally there is a lack of understanding of the road rules by all road users. There are specific rules that apply to bike riders that do not apply necessarily to car drivers, and those are not necessarily understood well by bike riders and by car drivers. I think some of that misunderstanding means that people break the law because they are trying to keep themselves safe... I think that some of the illegal behaviour we are seeing on the roads by cyclists is actually a response to try to make themselves feel safe... I suppose what we would say is that we see—and the evidence is—that there is a general breaking of the law on the road by all road users, and that happens in relation to pedestrians, cyclists and people in motor vehicles.⁶⁷

- 4.116 Staysafe agrees that there is a need to ensure that all road users are made aware of the Road Rules as they apply to their preferred mode of travel and to reinforce the message that additional care must be taken to safeguard the most vulnerable category of people using the road system.

Bicycle Safety Technology

- 4.117 Improvements in the design and manufacture of pedal cycles, together with advances in equipment attached to the cycle frame, provide additional safety benefits for riders. In relation to systems which activate automatically, known as passive systems, mounted lighting serves to increase the visibility of the bicycle rider to others in low light conditions and to enhance the ability of the rider to see the roadway by illuminating the way forward.
- 4.118 In order to conform to the Road Rules, bicycle riders in NSW must have at least one effective brake and a bell, horn, or similar warning device, in working order. In hazardous conditions or at night, bicycles must display:
- a flashing or steady white light that is clearly visible for at least 200 metres from the front of the bicycle, and
 - a flashing or steady red light that is clearly visible for at least 200 metres from the rear of the bicycle, and

⁶⁶ Transcript of Evidence, 12 October 2010, p. 2.

⁶⁷ Ibid, pp. 36-37.

- a red reflector that is clearly visible for at least 50 metres from the rear of the bicycle when light is projected onto it by a vehicle's headlight on low-beam.⁶⁸
- 4.119 Tungsten filament lamps have now been replaced by High Intensity Discharge and Light Emitting Diode headlights, which confer safety and energy efficiency benefits.⁶⁹
- 4.120 Retro-reflective materials, in the form of reflectors, reflective tape, and reflective clothing, are also useful in making a cyclist more visible to other road users. Reflective materials can be applied to the bike, the rider and their luggage. Bicycle tyres are also available with reflective sidewalls.
- 4.121 According to The George Institute, a systematic review of visibility aids for pedestrians and cyclists found that fluorescent materials in yellow, red and orange have been found to improve driver detection during the day whereas lamps, flashing lights and retro-reflective materials in red and yellow, improved recognition at night.⁷⁰
- 4.122 On the road, the RTA is examining the potential use of video detection systems to detect potential bicycle and vehicle collisions. Warning messages from this system could be displayed on roadside variable message signs located on the approach to the crossing point or inside the vehicle via Dedicated Short Range Communication (DSRC) systems.⁷¹ This approach is supported by the NRMA, which advocates the use of electronic signs to advise motorists of the presence of cyclists, for example, along General Holmes Drive at the airport tunnel in Sydney's south.⁷²
- 4.123 Motor vehicle technology can also assist other road users. The NSW Centre for Road Safety is examining the potential road safety benefits of infra red camera technology to detect pedestrians and bicycles in reduced visibility and low light situations. BMW offers an infra red detection system marketed as BMW Night Vision on a number of its models currently available in Australia.⁷³
- 4.124 A number of other motor vehicle manufacturers have introduced collision avoidance systems with automatic brake support to minimise the damage caused by frontal collisions. When a vehicle equipped with one of these systems detects an impending collision it automatically applies the brakes to reduce the impact speed. Reduced impact speeds would have a significant positive effect on bicycle related crash outcomes.
- 4.125 Other potential future developments include shape shifting cars, active bonnet lift systems and pedestrian protection airbags, which will also assist cyclists on the road and reduce the severity of any crash impact and consequential injury.

⁶⁸ Supplementary Information, RTA, 18 November 2010.

⁶⁹ Submission 47, RTA, p. 94.

⁷⁰ Submission 45, George Institute, p. 16.

⁷¹ Submission 47, RTA, p. 95.

⁷² Submission 48, NRMA Motoring & Services, p. 12.

⁷³ Submission 47, RTA, p. 95

Chapter Five - Transport Planning and the Road System

- 5.1 An underlying theme running through the Inquiry was the historically differential treatment provided to the various categories of road users as part of the planning and management of the road system. Evidence received by the Committee overwhelmingly supports the recalibration of planning policies to reflect new strategies designed to provide more equitable access by all user groups and to minimise conflict on the roads.
- 5.2 Submissions consistently refer to the lack of responsiveness of road planning authorities to the needs and safety concerns of motorcycle and bicycle riders. Although it is recognised that this situation is changing in response to increased rates of take up of these alternatives to motor vehicles and the recognition that a more sustainable approach to transportation has significant economic, environmental, health and community benefits.
- 5.3 From a road user safety perspective, a recent shift in philosophy is the development of what is known as the Safe Systems approach to the road network. One component of this approach is the recognition that road users make mistakes, but should not pay a disproportionate price for this in the way of serious injury and death. The other is an appreciation of the limitations of the human body to absorb physical forces. Combined, these two considerations give rise to an approach where the road system is designed to expect and accommodate human error by the adoption of countermeasures incorporating users, vehicles, speeds and road environments, as well as their interaction.¹
- 5.4 The adoption of such an approach has potentially broad consequences for setting speed limits on roads and for treating all road users as equal partners in the achievement of safety goals. This includes designing roadside infrastructure to minimise risks to motorcyclists and pedal cyclists and reduce injury severity.

Current Planning Guidelines

- 5.5 In terms of existing planning instruments, the RTA in its submission refers to its 2009 updated urban design policy for roads, *Beyond the Pavement- RTA Urban Design Policy, Procedures and Design Principles*.
- 5.6 *Beyond the Pavement* sets out the RTA's urban design policy, details the requirements and processes for managing and implementing design objectives and describes the principles to be incorporated into infrastructure projects. The document is supplemented by a series of subject specific guidelines addressing particular features, such as bridges, noise walls and landscaping and a range of other RTA publications such as the *NSW Bicycle Guidelines*.²
- 5.7 Salient features of *Beyond the Pavement* relating to cycling include Section 1.3, as follows: "Road planning and design must contribute to the accessibility and connectivity of communities and a general permeability of movement through all areas by all modes of movement including walking and cycling".³

¹ Vagaja, D., Safe Systems Approach for Mining Safety, QRC H&S Conference, 2010.

² *Beyond the Pavement – RTA urban design policy, procedures and design principles*, RTA, July 2009.

³ Submission 47, RTA, p. 104.

- 5.8 *Beyond the Pavement* also refers to major road systems being: "...more than just infrastructure for the efficient movement of people, goods and services. As well as meeting traffic needs, these road systems have a prime influence on the structure, revitalisation and functioning of the urban environment. Investment in the road system also has major implications for urbanism, that is for the quality of the urban environments in which communities live, work and recreate. Major road systems strongly impact on essential community needs such as access and connection, convenience, movement choice, and an attractive environment."⁴
- 5.9 Section 3 of *Beyond the Pavement* emphasises the specific needs of cyclists and makes reference to: the integration of bicycle and shared paths within the network to connect communities; the integration of cycling facilities with those provided by local councils; improved cycling access to public transport; provision of adequate crossing points for cyclists; improved network functionality for roads and cycleways; and integration of road and cycleway design at selected locations.⁵
- 5.10 It should also be noted in this context that the NSW State Plan has set a target for cycling in the following terms: "[to]...increase the mode share of bicycle trips made in the Greater Sydney region, at a local and district level, to 5 per cent by 2016."⁶
- 5.11 NSW planning documents are devised within an overarching national and international road safety framework, with specific characteristics reflecting local needs and conditions. At the national level, Austroads has published a number of guides, including one on Road Design and another dealing with Road Safety. In a recent road safety report, Austroads makes a series of recommendations to improve the safety of vulnerable road users, including:
- Progressively improving provision for cyclists.
 - Progressively improving measures to encourage safe motorcycling.
 - If necessary, reformulating the issue of promoting or providing for walking and cycling as creating a walking and cycling infrastructure and traffic environment which will encourage high levels of walking and cycling will result in casualty rates which match crash rates in countries such as the Netherlands.
 - For the time being at least, until more definitive evidence is available, refrain from promoting the view that increasing the number of pedestrians or cyclists will by itself reduce the crash rate for these modes. Instead, promote the view that concerted policy initiatives and infrastructure provision can create an environment where walking and cycling are encouraged and are safe activities."⁷

Motorcycles

- 5.12 The submission from The George Institute for Global Health refers to: "... the lack of recognition of motorcycles as a separate class of vehicle by regulation or within policy for road safety or for traffic management and transport planning purposes."⁸
- 5.13 Quoting from results of consultations in the development of the Motorcycle Council of NSW (MCC) Safety Strategic Plan, The George Institute further states that: "... Road

⁴ *Beyond the Pavement* – RTA urban design policy, procedures and design principles, RTA, July 2009, p. 38.

⁵ Submission 47, RTA, p. 104.

⁶ NSW Government, NSW State Plan 2010, p. 11.

⁷ Austroads, Road Safety Consequences of Changing Travel Modes, Report AP-R361/10, p. 55.

⁸ Submission 45, George Institute, p. 7.

authorities are not required to make separate provision for motorcyclists in the design of roads and facilities, nor to develop expertise in motorcycle safety engineering, behavioural risks and associated factors. In relation to planning, the NSW Department of Planning does not treat motorcycles as a separate form of motorised transport in the data analysis for the NSW survey of household travel. As a consequence motorcycles were not mentioned in the Sydney Metropolitan Strategy."⁹

- 5.14 The MCC reinforces this view in its own submission to the Inquiry and claims that the lack of recognition of motorcycles in the planning process has relegated motorcycling to an enforcement issue.¹⁰ The recommendation by the MCC to establish a motorcycle advisory committee may now be met, in part, by the commitment of the RTA to establish a Motorcycle Ministerial Advisory Council as part of its proposed Motorcycle Safety Strategy, as described in the previous Chapter.
- 5.15 The submission from the NRMA similarly recommends the development of a strategic plan within 12 months to reduce motorcycle fatalities and injuries and ensure that motorcycles are recognised in transport policy and planning and in road design, construction and maintenance.¹¹
- 5.16 The Survive the Ride Association of NSW (STRA), expresses a strongly held view that the level of infrastructure spending on motorcycles does not match the demonstrated need, as reflected in hospital critical trauma admissions and relative to amounts expended on motor vehicle infrastructure. According to the STRA submission: "...As motorcycle riders represent 25 per cent of the serious and critical injuries we expect that the relevant level of funding will be committed to implementing strategies to assist riders to both avoid crashes and minimise injuries when the inevitable mistakes are made."¹²
- 5.17 The RTA's commitment to a new Motorcycle Safety Strategy provides a mechanism for addressing some of these shortcomings and the Committee will discuss this further in Chapter Six.

Pedal Cycles

- 5.18 Many of the planning issues affecting motorcyclists also apply to pedal cyclists. In the words of the International Federation of Bicycle Messenger Associations: "...Australia needs to start designing streets for people and not automobiles."¹³
- 5.19 Bicycle NSW makes reference to the fact that: "...the management of the road network retains a disproportionate bias for maintaining speed and high motor vehicle flows, rather than people flows. Priorities of different sections within road authorities and local councils can compromise road safety and access and mobility by pedestrians and cyclists."¹⁴ For this reason, Bicycle NSW recommends that: "...reporting on the actions to achieve the cycling target be included by local councils in their State of the Environment reports (s428A, NSW Local Government Act)."¹⁵

⁹ Ibid.

¹⁰ Submission 41, MCC, p. 12.

¹¹ Submission 48, NRMA Motoring & Services, p. 2.

¹² Submission 38, STRA, p. 16.

¹³ Submission 22, International Federation of Bicycle Messenger Associations, p. 5.

¹⁴ Submission 49, Bicycle NSW, p. 2.

¹⁵ Ibid, p. 12.

- 5.20 The submission from Council on the Ageing NSW (COTA), also recommends a package of measures to improve cycling safety to be integrated into the strategic planning of local councils.¹⁶ This recommendation raises the issue of policy integration between the State and local government tiers. A welcome development in this regard is the Memorandum of Understanding (MOU) between the NSW Government and the City of Sydney, detailed in Chapter Four.
- 5.21 The City of Sydney has as part of its key objectives in its Sustainable Sydney 2030 Plan: "...giving greater priority to pedestrian and cycle movements and amenity in the City of Sydney by integrating cycling and pedestrian movement into transport planning, managing the road space to encourage cycling, walking and the use of public transport and reducing speed limits in central Sydney and residential areas to improve safety and amenity for vulnerable road users."¹⁷
- 5.22 The cycleway network, described in Chapter Four, constitutes a major component of the City of Sydney's response to safer bicycle infrastructure. As outlined in their submission: "...the key objectives are to provide an integrated and connected network of bicycle routes that supports the on-going increase in bicycle use and to further encourage people of all ages to use bicycles as a preferred mode of travel."¹⁸
- 5.23 Different types of cycleways, previously described, conform to the RTA's Bicycle Guidelines and are constructed after consultation with user groups such as Bicycle NSW.
- 5.24 As previously discussed in Chapter Four, speed is a major risk factor for cyclists. Part of the strategy of the City of Sydney is to increase the number of cyclists on all roads, thus identifying the City as a low speed environment. According to the City of Sydney submission: "...Lowering speed limits to 40 km/h, or preferably to 30 km/h, in central Sydney will contribute to cyclist safety where separated bicycle lanes cannot be provided, as well as enhance pedestrian safety."¹⁹
- 5.25 The setting of speed limits, for planning purposes, can have a dramatic impact on safety for all road users and is an integral part of a Safe Systems approach. Injury rates at differential impact speed was a key issue addressed in Staysafe's 2009 report on Pedestrian Safety. Many roads in Australia are zoned at higher speed limits than comparable roads in other OECD countries.²⁰ As part of the recently adopted MOU, the speed limit in Central Sydney will be reduced to 40km/h, subject to standard RTA procedure and acceptable designs.²¹
- 5.26 The reduction in speed limits aims to create a greater sense of safety for vulnerable road users and to encourage more people to adopt alternative, more environmentally friendly modes of transport, such as cycling. The increase in the number of cyclists also contributes to the notion of safety in numbers, referred to in several submissions.
- 5.27 According to BIKESydney, there is good evidence to support the idea that cycling gets safer when more people ride. The submission refers to international research demonstrating that the number of motorists colliding with walkers or cyclists does not correlate with the size of the population walking or bicycling. "A community that

¹⁶ Submission 50, COTA, p. 12.

¹⁷ Submission 53, City of Sydney, p. 5.

¹⁸ Ibid, p. 17.

¹⁹ Ibid, p. 18.

²⁰ Ibid, p. 19.

²¹ Transforming Sydney: A City/State Partnership, Administrative Arrangements, 2010-2015.

doubles its cycling numbers can expect a one third drop in the per cyclist frequency of a crash with a motor vehicle."²²

- 5.28 BIKESydney claims that the safety in numbers effect may exist for a number of reasons including: drivers becoming more aware and acculturated to cyclists and their riding behaviour; drivers more likely to be cyclists themselves; and greater political will to improve conditions for cyclists.²³

The Road Hierarchy

- 5.29 There has been discussion throughout the Inquiry of the notion of a hierarchy of the road. This reinforces the view that the road system is predominantly designed for the movement of motor vehicles and not people. The Council on the Ageing, NSW (COTA), in its appearance before the Committee, considered the hierarchy model outmoded. The policy officer elaborated on this:

I think that hierarchy served a purpose up to a point in time. I think we well and truly should be moving beyond that. That is why a difference in wording is very meaningful. The Dutch refer to the categorisation of the functions of the road. I was impressed by the British approach entitled "Link and Place." Late last year, Professor Peter Jones from the Centre for Transport Studies in London addressed Engineers Australia on this concept to better appreciate that the concept of hierarchy and the language of hierarchy refer only to the movement on the network. You have different types of roads from motorways down to local roads. That is a network model.²⁴

- 5.30 COTA further explained that roads perform multiple functions and that, as well as providing mobility, they also provide access and that they are more than a measure of motor vehicle throughput.
- 5.31 A representative of Bicycle NSW makes reference to the Dutch policy, which treats roads as inherently risky environments and focuses on how to reduce those risks. In evidence to the Committee, Bicycle NSW made the following point:²⁵

What the Dutch have done is the categorisation of roads. It is not what we would call the road hierarchy. We might hear the RTA and councils talk about hierarchy, but they are all about the use of the roads for people. It is not about moving vehicles. It is not about this obsession that the RTA has with moving vehicles. It is about moving people, and it is: What do people do?

Road User Integration

- 5.32 Another consistent issue raised by all contributors to the Inquiry is the discourtesy and lack of consideration displayed by road user groups towards one another. In a road network designed primarily to accommodate motor vehicles, it is inevitable that conflict will arise when other non-motor vehicle users assert their rights on the road. This is not to say that any blame attaches to one particular group, as many instances were provided of a lack of consideration and non-adherence to the Road Rules by all groups.

²² Submission 42, BIKESydney, p. 24.

²³ Ibid, p. 25.

²⁴ Transcript of Evidence, 12 October 2010, p. 43.

²⁵ Ibid, p. 31.

- 5.33 It does, however, highlight the increasing use of the road network by a greater variety of users and the need for a shift in historical approaches to roads management. This is in the process of being addressed in policy and planning but is still very much in a transitional phase.
- 5.34 One way to assist this transition is to reinforce the rights and obligations of all road users by emphasising the importance of the Road Rules. As well as making all road users more aware of the Rules, as they exist, this will also serve to increase awareness by all groups of one other. This applies particularly to motor vehicle driver awareness of vulnerable groups and also to stress the importance of adherence to the Rules by pedal cycle riders.
- 5.35 Adherence also raises the issue of enforcement, which was addressed at the public hearing by Bicycle NSW:
- We also say that, given the fact that road rules and the provision of road pavement need to be changed to make it safer for people, what we also need to do is to be careful before using just narrow technical enforcement...That is saying that before we have remedial enforcement, we need a coordinated public awareness campaign to understand the use of bicycle facilities. That also relates to driver education.
- 5.36 As previously discussed in Chapter 4, the current lack of knowledge of the Road Rules, combined with a need to revise the Rules to reflect the new road environment, indicates an urgent need to embark on an education and information campaign to reinforce safety messages in order to reduce conflicts and risk.
- 5.37 Increasing diversity in the number of road users and a realignment of the overall mix of user groups creates its own set of planning and policy challenges and requires the goodwill and cooperation of all those who need access to roads for work and recreation. In Chapter 6, the Committee makes a series of recommendations to address significant issues and concerns raised in the course of the Inquiry.

Chapter Six - Conclusions and Recommendations

- 6.1 This Inquiry was established to investigate the strengths and deficiencies in the current policy framework for motorcycle and pedal cycle rider safety. The term "vulnerable road users" was employed as short hand for these groups, even though the Committee acknowledges that pedestrians are also encompassed by this label.
- 6.2 The Committee is also aware that there is some debate about the appropriateness of the term "vulnerable" and that a more accurate term may be "unprotected", to better reflect the source of vulnerability, namely the relative lack of protection provided by the road system.
- 6.3 The Committee completed a comprehensive review of pedestrian safety in 2009 and the results of that inquiry were published in Staysafe Report 3/54, tabled in December 2009. Many of the recommendations made in the Pedestrian Safety Report are also applicable to this current Inquiry into Vulnerable Road Users and the Committee suggests that the reports be read together for completeness in terms of their recommendations and conclusions.

Data Collection

- 6.4 In its previous inquiries, Staysafe has repeatedly called for improvements in road safety data base accuracy, consistency and availability. Vulnerable road user groups are particularly disadvantaged by the current system, which does not have accurate figures for the number of motorcycles on the roads or the number or extent of injuries suffered by pedal cyclists.
- 6.5 The inability to collect consistent data is compounded by the difficulty in capturing off-road activity, but the absence of comprehensive information about levels and patterns of use of both these modes of transport makes policy formulation and planning decisions for safe road use difficult to achieve. NSW Health identified the lack of a centralised collection of data for off-road injuries and fatalities as a major concern.
- 6.6 As already discussed in its response to earlier Staysafe report recommendations, the RTA has indicated that an interagency group, comprising the RTA, NSW Health, Police, Ambulance, the Motor Accidents Authority and other relevant agencies would be established. The focus of this group was stated to be the setting of appropriate terms of reference and highlighting key issues to be addressed.

RECOMMENDATION 1:

The Committee supports the establishment by the RTA of an interagency crash data working group and recommends that, as one of its priorities, the working group should address the current lack of centralised data collection for off-road injuries and fatalities.

- 6.7 Chapter 3 discusses the range of categories of motorcycle and pedal cycle riders, who use the road for a variety of recreational, commuting and/or commercial purposes. As the underlying reason for riding also influences behaviour, a

refinement of data collection categories should improve the design of appropriate safety infrastructure and education programs and result in better targeted strategies to improve safety outcomes.

RECOMMENDATION 2:

The Committee recommends that, in order to provide data of higher quality and utility and to complement the Austroads initiative to enhance the provision of raw data by road agencies, the interagency crash data working group devise means by which data can be collected to differentiate between rider typologies.

RECOMMENDATION 3:

The Committee also recommends that the interagency crash data working group develop a strategy to better document the incidence of bicycle injuries on the roads in order to target appropriate interventions more effectively.

Countermeasures and Safety Strategies

- 6.8 As described in Chapter 4, the Australian Transport Council is developing a set of national priorities for the specific needs of motorcyclists and pedal cyclists. This includes: greater emphasis on improvements in road infrastructure design and maintenance; community and public education programs to highlight risks and promote preventive strategies; minimum standards and a safety rating system for helmet and protective clothing use; and improved safety information.
- 6.9 Within this framework, the NSW Government is examining its own set of measures to complement this work and to reflect the priorities identified for NSW vulnerable road users. Particular NSW targets include: improvements to road infrastructure; increased information provision; and targeted road user and driver education campaigns.
- 6.10 A key initiative in this process is the development by the RTA of a Motorcycle Safety Strategy and the establishment of a Motorcycle Ministerial Advisory Council, comprising major industry representatives such as the NSW Police Force, the Motor Accidents Authority, the Motorcycle Council of NSW and NRMA Motoring & Services.
- 6.11 The Committee supports these actions and considers that the prioritisation of motorcycle safety within the broader road safety agenda is a welcome development. In view of evidence received about the importance of the establishment of these mechanisms and the need for user support, Staysafe stresses the need to ensure that the Ministerial Advisory Council represents the interests of all stakeholders and is seen to be independent.

RECOMMENDATION 4:

The Committee recommends that the composition and membership of the Motorcycle Ministerial Advisory Council reflect the interests of all stakeholders and that it adopts the practice of the Victorian Motorcycle Advisory Council of appointing an independent Chair to oversee its operations and to provide effective leadership.

Road Engineering

6.12 The road system is designed for motor vehicles and therefore does not currently provide sufficient tolerance and sensitivity to the needs of vulnerable users. Motorcyclist and pedal cyclist groups highlighted the previous lack of attention to road surface conditions, which predispose riders to increased risk of casualty. The Committee was told that road surfacing is now given greater emphasis in maintenance and design programs, but bicycle user groups still felt that this is insufficient.

RECOMMENDATION 5:

The Committee recommends that the RTA strengthen its monitoring of road surface conditions to improve safety for vulnerable road users and implement a direct reporting system to alert the appropriate engineering and maintenance areas of the agency and local councils to potential hazards, for immediate remediation as problems arise.

6.13 An issue of great concern to cyclists is the treatment of intersections and roundabouts. Staysafe was told that more effective intersection treatments designed to improve bicycle access and safety should be adopted, based on evidence of successful treatments in other jurisdictions.

RECOMMENDATION 6:

The Committee recommends that the RTA trial a system of bike boxes, also known as advanced stop lines (ASL), that allow bicyclists to move in front of vehicles when stopped at a signalised intersection in order to reduce the potential for conflicts with vehicle turning movements on the green signal.

RECOMMENDATION 7:

The Committee also recommends that separate signal phases for bicyclists at intersections, which stop all vehicular traffic while permitting cyclists to proceed through the intersection in designated directions, should be trialled where appropriate.

6.14 The provision of an integrated cycle network which aims to provide cyclists with more space and reduce potential conflict between cyclists and other road users is

welcomed by the Committee. Bicycle groups have, however, made some criticisms of the potential hazards on shared paths. The Committee notes that in the MOU between the NSW Government and the City of Sydney, the identification of further areas for shared zones is one of the items on the action list. This provides an opportunity to examine the identified concerns and risks expressed by the users of such shared spaces.

RECOMMENDATION 8:

The Committee recommends that the RTA conduct a comprehensive review and safety audit of shared paths and zones and undertake appropriate engineering modifications and other necessary measures to reduce potential risks to users of these facilities.

Education and Training

- 6.15 A neglected area of research and targeted intervention identified as part of the Inquiry is that of motorcycle rider fatigue. The physical demands of riding, combined with the need for heightened levels of vigilance necessary on long rides, suggests that this is an area which should receive greater attention in awareness campaigns and as part of motorcycle training.

RECOMMENDATION 9:

The Committee recommends that the RTA sponsor research into the impact of rider fatigue in motorcycle crashes. If found to be a significant risk factor, this should form the basis of an education awareness campaign and also be incorporated into awareness training for novice riders.

- 6.16 A further area of concern addressed in submissions is that of post-licence tuition and continuing education. Motorcycle group representatives expressed the view that advanced skills such as cornering and braking are not sufficiently imparted under the current licensing arrangements. The RTA, in a further response to this issue, has told Staysafe that it does not support post-licence courses and finds them counter-productive as they may lead to over-confidence and optimism bias. Mentoring programs are supported by the RTA as being more effective and current research is being carried out to determine its success.

RECOMMENDATION 10:

The Committee recommends that the RTA report on the results of its current trial of post-licence mentoring activities and implement appropriate strategies to improve the skills of novice riders on the basis of the findings of this research.

- 6.17 In the area of bicycle safety, the Committee was informed about the support for and usefulness of the Community and Road Education Scheme (CARES), an educational program conducted jointly by the NSW Police Force, RTA and local government. The level of support for this program is not, however, matched by its funding

commitment and Staysafe was told by NSW Police that it needs more capacity for wider expansion.

RECOMMENDATION 11:

The Committee recommends that the RTA and the NSW Police Force evaluate the effectiveness of the CARES program with a view to increasing its funding for wider expansion.

- 6.18 The existence of six different categories of cycleways in the bicycle network has the potential to create confusion and conflict, particularly on shared paths. As previously noted, the Committee has recommended that the RTA conduct a review of the current operation of shared paths, with a view to reducing crash risk. It is also essential that all road users be made more aware of the location of and rules applying to shared paths.
- 6.19 The Committee notes that the City of Sydney has commissioned research to identify and address conflicts between cyclists and other road users and looks forward to development of new interventions designed to encourage bicycle riding and improve the on-road and on-path relationship between bike riders and other road users.

RECOMMENDATION 12:

The Committee recommends that the RTA and local councils conduct further educational campaigns to make road users aware of the location, operation and potential risks associated with the use of shared paths and cycleways.

Enforcement

- 6.20 Existing measures to enforce safe riding are delivered by the NSW Police Force, using police data to target areas of high risk, such as drink riding and antisocial behaviour. The Committee has grave concerns about the consumption of alcohol by motorcycle riders and its consequential impact on individual riders and other road users.
- 6.21 As previously stated, motorcycle riding requires concentration and great vigilance. When questioned about the current legal blood alcohol concentration level applying to motorcycle riders, the NSW Police Force Commander of Traffic Services supported a reduction in the current level to 0.02. This was also supported in other submissions to the Inquiry, including the NSW Injury Risk Management Research Centre's Chair of Road Safety.

RECOMMENDATION 13:

In the interests of public safety and in recognition of the high degree of motor coordination and vigilance required to ride a motorcycle in a safe manner, the Committee recommends that the *Road Transport (Safety and Management Act) 1999* be amended to reduce the legally prescribed blood alcohol concentration level applying to motorcycle riders to 0.02.

- 6.22 The prosecution of bicycle riders for road rule infractions is more problematic than that of motorcycle riders, in part due to the lack of licensing and registration of pedal cycles. For practical and operational reasons, the Committee does not, however, support a licensing and registration regime for bicycles.
- 6.23 An area of bicycle safety more stringently enforced by police is the compulsory wearing of bicycle helmets. Although the Committee has received evidence from a range of groups and individuals opposing the mandatory nature of helmet wearing, Staysafe supports the current legal regime and use of such helmets.
- 6.24 The Committee is also strongly supportive of increased adherence to the Road Rules by all road users. Based on the evidence received by the Committee, there is overwhelming support for a renewed focus on the rights and obligations of all who share the road. Submissions and witnesses appearing before Staysafe all refer to the lack of knowledge of the rules applying to those who use the road in different categories from themselves.
- 6.25 This is an issue which needs to be addressed at all stages of the education and training system. It is also essential that public messages reinforce the view that roads are to be shared and that there is a commitment at all levels of government to provide more opportunities for commercial, recreational and collaborative uses of the road network.

RECOMMENDATION 14:

The Committee recommends that the RTA initiate a new broadly based campaign to promote the Road Rules. This includes an emphasis on the different rules applying to all road users and highlighting areas of potential conflict. Included in this campaign strategy should be a strong focus on educational resources for schools, the inclusion of more detailed information about vulnerable road users in licensing test arrangements and targeted media and public information material delivered in a variety of print and electronic formats.

Safety Technology and Protective Equipment

- 6.26 High visibility clothing and the wearing of helmets affords greater protection to motorcycle and pedal cycle riders alike. As previously stated, the Committee supports the compulsory wearing of helmets for both groups of riders and has received overwhelming evidence supporting the benefits of protective clothing and headwear for motorcycle riders, in particular.
- 6.27 As part of the development of the NSW Motorcycle Safety Strategy, the RTA is also investigating further possible regulatory and non-regulatory measures to better ensure that motorcyclists wear appropriate clothing and protective equipment for riding. This involves two separate studies conducted by The George Institute for Global Health, who will release their findings upon completion.
- 6.28 In order to overcome concerns about the lack of appropriate standards for available motorcycle clothing and footwear, suggestions have been made that an independent star rating system be established to test available products and to inform the public. Staysafe was informed that the Motor Accidents Authority has formed a working group on protective clothing and will consider a business model to develop a future rating system.

RECOMMENDATION 15:

The Committee recommends that the RTA closely monitor the results of the Motor Accidents Authority review of protective motorcycle clothing and ensure that any implementation of such a system includes the effective public promotion of suitable clothing to consumers.

RECOMMENDATION 16:

In view of the increasing popularity and use of mobility scooters, the Committee also recommends that the RTA investigate this category of motorcycle use as part of the Motorcycle Safety Strategy, including the increasing prevalence of smaller motorcycles, such as Vespas, and the implications for safety of the lack of requirement to wear protective clothing.

6.29 Retro-reflective materials, in the form of reflectors, reflective tape, and reflective clothing, are useful in making a cyclist more visible to other road users. Reflective materials can be applied to the bike, the rider and their luggage. According to The George Institute, a systematic review of visibility aids for pedestrians and cyclists found that fluorescent materials in yellow, red and orange have been found to improve driver detection during the day whereas lamps, flashing lights and retro-reflective materials in red and yellow, improved recognition at night.

RECOMMENDATION 17:

The Committee recommends that the RTA review The George Institute for Global Health's research findings regarding retro-reflective materials and visibility aids for cyclists and promote the safety benefits of these aids as part of its education and promotional activities.

6.30 In the area of vehicle safety technology, the Committee has previously made reference to the benefits of anti-lock braking systems (ABS) and traction control systems (TCS) to enhance motorcycle rider safety. Evidence received has highlighted the safety gains to be made by the adoption of such technology.

RECOMMENDATION 18:

The Committee recommends that the RTA promote the adoption of Australian Design Rules for anti-lock braking systems and traction control systems for motorcycles as soon as practicable.

Transport Planning and the Road System

- 6.31 For a viable and comprehensive road safety framework it is imperative that all road users are taken into account as part of the transport planning system. This Report stresses the need for greater recognition that roads must accommodate multiple users and provide optimal levels of safety for all. There are widely held differences in perception about the extent to which this has been achieved and how best to improve current deficiencies.
- 6.32 The recent announcement of the development of the RTA's Motorcycle Safety Strategy addresses concerns expressed by motorcycle groups that their interests have been neglected in the road planning process. It is claimed that this has resulted in a lack of attention by transport agencies in the State to their needs and a consequential disproportionate level of funding for infrastructure and specific safety measures. The Committee trusts that the yet to be developed Strategy and the establishment of the Ministerial Advisory Committee will go some way to meet these concerns.
- 6.33 A significant planning issue for pedal cyclists is the setting of speed limits on roads. As previously stated, the setting of speed limits, for planning purposes, can have a dramatic impact on safety for all road users and is an integral part of a Safe Systems approach. The reduction in speed limits aims to create a greater sense of safety for vulnerable road users and to encourage more people to adopt alternative, more environmentally friendly modes of transport, such as cycling.
- 6.34 The recently entered into Memorandum of Understanding between the NSW Government and the City of Sydney contains a commitment to reduce speed limits in the CBD and the Committee will await the results of this development with interest. Encouragement of cycling as a safe and viable transport alternative has a range of physical, environmental, economic and social benefits which must be supported.

RECOMMENDATION 19:

There are obvious benefits in closer collaboration between the NSW Government and local councils in the setting and implementation of road safety priorities. Therefore, the Committee recommends that the NSW Government examine the feasibility of extending the current provisions applying in the Memorandum of Understanding with the City of Sydney and negotiate similar arrangements with other local councils, in order to assist with road safety transport planning and implementation at the local level.

- 6.35 The need for integrated planning at the national, State and local government levels is obvious for the successful realisation of sound and effective outcomes. Staysafe reiterates the importance of effective consultative and collaborative arrangements to ensure that policies are adopted, supported and integrated throughout the planning system.

Appendix One – List of Submissions

Submission No.	Author and/or Organisation
No. 1	Mr Noel O'Kell (Private Citizen)
No. 2	Mr Christopher Spangro (Private Citizen)
No. 3	Mr Grant Byrne (Private Citizen)
No. 4	Mr Mark McInnes (Private Citizen)
No. 5	Mr Richard King (Private Citizen)
No. 6	Mr Dmitri Ishchenko (Private Citizen)
No. 7	Mr Geoff Neville (Private Citizen)
No. 8	Mr Ken Anderson (Private Citizen)
No. 9	Cr Robert Stutsel (Private Citizen)
No. 10	Mr Michael Richardson MP (Member for Castle Hill)
No. 11	Mr Timothy Maguire (Private Citizen)
No. 12	Mr Peter Matthews (Private Citizen)
No. 13	Mr Daniel Endicott (Private Citizen)
No. 14	Mr Jack Miller AM (Bermagui Institute Bicycle Division)
No. 15	Mr Phillip Edwards (Private Citizen)
No. 16	Cr Charles Matthews (Private Citizen)
No. 17	Mr Adam Sebire (Private Citizen)
No. 18	Mr N. J. Smith (Private Citizen)
No. 19	Mr Ben Triefus (Private Citizen)
No. 20	Mr Andrew Cox (Private Citizen)
No. 21	Mr Grant Shatford (Private Citizen)
No. 22	Mr Michael Dodd (International Federation of Bicycle Messenger Associations)
No. 23	Associate Professor Chris Rissel (Private Citizen)
No. 24	Mr Terry Lloyd (Private Citizen)
No. 25	Mr Kevin Eadie (Private Citizen)
No. 26	Dr Michael Dinh (Royal Prince Alfred Hospital)
No. 27	Dr Richard Matthews AM (NSW Health)
No. 28	Mr Andy Hart (Private Citizen)

No. 29	Mr Martin Géliot (Private Citizen)
No. 30	Name withheld (Private Citizen)
No. 31	Mr John Holstein (Private Citizen)
No. 32	Mr Mark Worthington (BIKEast Incorporated)
No. 33	Mrs Sue Abbott (Private Citizen)
No. 34	Mrs Barbara Khalifa (Private Citizen)
No. 35	Ms Beverley Maunsell (Private Citizen)
No. 36	Mr Peter van den Berg (Private Citizen)
No. 37	Ms Anne Deans (Youthsafe)
No. 38	Mr David Tynan (Survive The Ride Association (NSW))
No. 39	Mr Darren Moy (Transurban)
No. 40	Mr Greg Stephenson (Private Citizen)
No. 41	Mr Rob Colligan (Motorcycle Council of NSW)
No. 42	Ms Elaena Gardner (BIKESydney)
No. 43	Mr and Mrs Walter & Margaret Lamond (Private Citizens)
No. 44	Mr Mike Mrdak (Department of Infrastructure, Transport, Regional Development and Local Government)
No. 45	Associate Professor Rebecca Ivers (The George Institute for Global Health)
No. 46	Ms Nola Watson (NRMA Insurance)
No. 47	The Hon David Borger MP (Minister for Roads)
No. 48	Mr Chris Siorokos (NRMA Motoring & Services)
No. 49	Mr Omar Khalifa (Bicycle NSW)
No. 50	Ms Anne-Marie Elias (Council on the Ageing (NSW))
No. 51	Mr Jeff McDougall (Australian Driver Trainers Association (NSW))
No. 52	The Hon Michael Daley MP (Minister for Finance)
No. 53	Mr Terry Lee-Williams (City of Sydney)
No. 54	Professor Raphael Grzebieta (NSW Injury Risk Management Research Centre (IRMRC))
No. 55	Commissioner AP Scipione AM (NSW Police Force)
No. 56	Mr Colin Clark (Private Citizen)
No. 57	Mr Tim Churches (Private Citizen)

Appendix Two – List of Witnesses

Tuesday 12 October 2010

Jubilee Room, Parliament House

TIME	WITNESS
9.30am	Ms Margaret Prendergast, General Manager, Business Strategy & Strategic Projects Mr Michael de Roos, General Manager, Safer Roads Roads & Traffic Authority
11.00am	Morning Tea
11.15am	Associate Professor Chris Rissel Private Citizen
11.45am	Ms Anne Deans, Chief Executive Youthsafe
12.15pm	Lunch
1.30pm	Mr Omar Khalifa, Chief Executive Officer Dr Chloe Mason, Consultant Mr Warren Salomon, Consultant Bicycle NSW
2.00pm	Ms Elaena Gardner, President Mr David Borella, Vice President BIKESydney
2.30pm	Afternoon Tea
2.45pm	Dr Chloe Mason, Policy Officer Council on the Ageing (NSW)
3.15pm	Ms Dimitra Vlahomitros, Senior Policy Adviser, Road Safety Mr Jack Haley, Senior Policy Adviser, Vehicles & Environment Mr Mark Wolstenholme, Senior Policy Advisor, Traffic & Roads NRMA Motoring & Services
3.45pm	Mr Michael Dodd, Council Member International Federation of Bicycle Messenger Associations

Wednesday 13 October 2010

Jubilee Room, Parliament House

TIME	WITNESS
9.30am	Mr Michael Richardson MP Member for Castle Hill
10.00am	Mr Guy Stanford, Past Chairman of the MCC of NSW Mr Brian Wood, Chair of the MCC of NSW Road Safety Committee Motorcycle Council of NSW
10.30am	Morning Tea
10.45am	Mr David Tynan, Secretary Ms Jenny Paton, Pillion Member Survive The Ride Association (NSW)
11.15am	Assistant Commissioner John Hartley APM, Commander, Traffic Services NSW Police Force
11.45am	Dr John Wiggers, Acting Director, Centre for Health Advancement NSW Health
12.15pm	Lunch
1.30pm	Professor Raphael Grzebieta, Chair, Road Safety Dr Julie Hatfield, Senior Research Fellow Dr Shanley Chong, Research Fellow Dr Mike Bambach, Research Fellow Ms Rena Friswell, Research Fellow NSW Injury Risk Management Research Centre
2.00pm	Dr Soufiane Boufous, Senior Research Fellow, Injury Division Ms Liz de Rome, Research Scholar The George Institute for Global Health
2.30pm	Mr Terry Lee-Williams, Transport Strategy Mrs Fiona Campbell, Manager – Cycling Strategy Mr Len Woodman, Road Safety Project Coordinator City of Sydney

Appendix Three – Extract of Minutes

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 34)

Monday 17 May 2010 at 12:40pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Mrs Dawn Fardell MP

Mr David Harris MP

Ms Noreen Hay MP

Mr Daryl Maguire MP

Dr Andrew McDonald MP

Hon George Souris MP

Hon Ian West MLC

Apologies

Hon Robert Brown MLC

Hon Richard Colless MLC

Vulnerable Road Users Inquiry

Resolved on the motion of Mr West:

“That the Committee inquire into and report on vulnerable road users, specifically motorcycle and bicycle safety, with particular reference to:

- a) patterns of motorcycle and bicycle usage in New South Wales;
- b) short and long term trends in motorcycle and bicycle injuries and fatalities across a range of settings, including on-road and off-road uses;
- c) underlying factors in motorcycle and bicycle injuries and fatalities;
- d) current measures and future strategies to address motorcycle and bicycle safety, including education, training and assessment programs;
- e) the integration of motorcyclists and bicyclists in the planning and management of the road system in NSW;
- f) motorcycle and bicycle safety issues and strategies in other jurisdictions; and
- g) any other related matters.”

Next Meeting

The Committee adjourned at 12:50pm until 1:30pm to resume the public hearing on the Inquiry into Heavy Vehicle Safety Safety.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 36)

Wednesday 23 June 2010 at 1:00pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Mrs Dawn Fardell MP

Mr David Harris MP

Mr Daryl Maguire MP

Dr Andrew McDonald MP

Hon George Souris MP

Apologies

Hon Richard Colless MLC

Ms Noreen Hay MP

Hon Ian West MLC

Vulnerable Road Users Inquiry - Commencement**Resolved** on the motion of Dr McDonald:

“That the Committee announces the commencement of the Inquiry by: issuing a media release and newspaper advertisement publicising the terms of reference and seeking submissions; contacting relevant stakeholder groups to alert their membership to the Inquiry; writing to appropriate organisations and individuals requesting submissions; and publishing submission requirements on the Committee’s Parliamentary website.”

Next Meeting

The Committee adjourned at 1:20pm until 1.00pm on Wednesday, 1 September 2010.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 37)

Wednesday 1 September 2010 at 1:00pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Dr Andrew McDonald MP

Hon George Souris MP

Hon Ian West MLC

Apologies

Hon Richard Colless MLC

Mrs Dawn Fardell MP

Mr David Harris MP

Ms Noreen Hay MP

Mr Daryl Maguire MP

Vulnerable Road Users Inquiry – Publication of Submission**Resolved** on the motion of Dr McDonald:

“That the Committee receives and authorises the publication of submissions at Attachment A and orders that they be placed on the Committee’s Parliamentary website.”

Next Meeting

The Committee adjourned at 1:15pm until 1.00pm on Wednesday, 8 September 2010.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 38)

Wednesday 8 September 2010 at 1:00pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Mr David Harris MP

Mr Daryl Maguire MP

Dr Andrew McDonald MP

Hon George Souris MP

Hon Ian West MLC

Apologies

Hon Richard Colless MLC

Mrs Dawn Fardell MP

Ms Noreen Hay MP

Vulnerable Road Users Inquiry – Public Hearings

Resolved on the motion of Mr Souris:

“That the Committee agrees to the proposed witness list and authorises arrangements to be made for public hearings to be conducted in Sydney on 12 and 13 October 2010.”

Next Meeting

The Committee adjourned at 1:20pm until 1.00pm on Wednesday, 22 September 2010.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 40)

Tuesday 12 October 2010 at 9.30am

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Hon Richard Colless MLC

Mrs Dawn Fardell MP

Mr Daryl Maguire MP

Dr Andrew McDonald MP

Hon George Souris MP

Hon Ian West MLC

Apologies

Mr David Harris MP

Ms Noreen Hay MP

Inquiry into Vulnerable Road Users

The Committee commenced its hearing at 9.30am. The public was admitted.

NSW Roads and Traffic Authority

Ms Margaret Prendergast, General Manager, Business Strategy and Strategic Projects and Mr Michael Philip de Roos, General Manager, Safe Roads Branch, were affirmed and examined.

Evidence completed, the witnesses withdrew.

Associate Professor Chris Rissel was sworn and examined.

Evidence completed, the witness withdrew.

Youthsafe

Ms Anne Lesley Deans, Chief Executive and Ms Maureen Ellen, Assistant Chief Executive, were sworn and examined.

Evidence completed, the witnesses withdrew.

Bicycle NSW

Mr Omar Khalifa, Chief Executive Officer, Dr Chloe Mason, Adviser and Mr Warren Ross Salomon, Adviser, Manufacturing, were affirmed and examined.

Evidence completed, the witnesses withdrew.

BIKESydney

Ms Elaena Gardner, President and Mr David Borella, Vice President, were sworn and examined.

Evidence completed, the witnesses withdrew.

Council on the Ageing (NSW)

Dr Chloe Mason, Policy Officer, previously affirmed, was examined.

Evidence completed, the witness withdrew.

NRMA Motoring and Services

Mr Mark Wolstenholme, Senior Policy Adviser, Traffic and Roads and Ms Dimitra Vlahomitros, Senior Policy Adviser, Road Safety, were sworn and examined.

Mr Jack Haley, Senior Policy Adviser, Vehicles and Environment was affirmed and examined.

Evidence completed, the witnesses withdrew.

International Federation of Bicycle Messenger Associations

Mr Michael Dodd, Council Member, was affirmed and examined.

Evidence completed, the witness withdrew.

Adjournment

The Committee adjourned at 4.05pm until 9.30am, Wednesday 13 October 2010, at Sydney.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 41)

Wednesday 13 October 2010 at 9.30am

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Mrs Dawn Fardell MP

Mr David Harris MP

Dr Andrew McDonald MP

Hon George Souris MP

Hon Ian West MLC

Apologies

Hon Richard Colless MLC

Ms Noreen Hay MP

Mr Daryl Maguire MP

Inquiry into Vulnerable Road Users

The Committee commenced its hearing at 9.30am. The public was admitted.

Mr Michael Richardson MP, Member for Castle Hill, was examined.

Evidence completed, the witness withdrew.

Motorcycle Council of NSW

Mr Guy John Stanford, Chair, Road Safety Committee, was affirmed and examined.

Mr Brian Wood, Past Chairman, was sworn and examined.

Evidence completed, the witnesses withdrew.

SurviveThe Ride Association (NSW)

Mr David Tynan, Secretary, was affirmed and examined.

Evidence completed, the witness withdrew.

NSW Police Force

Assistant Commissioner John Douglas Hartley, Commander Traffic Services, was sworn and examined.

Resolved on the motion of Mr West:

“That the Committee take part of the evidence of Assistant Commissioner Hartley *in camera*.”

Evidence completed, the witness withdrew.

NSW Health

Dr John Henry Wiggers, Acting Director, Centre for Health Advancement, was affirmed and examined.

Evidence completed, the witness withdrew.

The Committee adjourned the hearing at 12.35pm for a deliberative meeting.

Resolved on the motion of Mrs Fardell:

“That the Committee authorises the publication of the submission from Mr Colin Clarke received on 27 September 2010 and orders that it be placed on the Committee’s Parliamentary website.”

The Committee adjourned the deliberative meeting at 12.40pm and recommenced the public hearing at 1.30pm. The public was admitted.

NSW Injury Risk Management Research Centre

Professor Raphael Hilary Grzebieta, Chair, Road Safety, Dr Julie Hatfield, Senior Research Fellow, Dr Michael Bambach, Research Fellow and Ms Rena Friswell, Research Fellow, were affirmed and examined.

Dr Shanley Chong, Research Fellow, was sworn and examined.

Evidence completed, the witnesses withdrew.

The George Institute for Global Health

Dr Soufiane Boufous, Senior Research Fellow, Injury Division and Ms Elizabeth Anne de Rome, Research Scholar, were affirmed and examined.

Evidence completed, the witnesses withdrew.

City of Sydney

Mr Terry Lee-Williams, Transport Strategy was affirmed and examined.

Mr Leonard Paul Thomas Woodman, Road Safety Project Coordinator and Mrs Fiona Maria Campbell, Manager, Cycling Strategy, were sworn and examined.

Evidence completed, the witnesses withdrew.

Adjournment

The Committee adjourned at 3.05pm until a date to be determined.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 42)

Wednesday 11 November 2010 at 1:00pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Hon Richard Colless MLC

Mrs Dawn Fardell MP

Mr David Harris MP

Ms Noreen Hay MP

Dr Andrew McDonald MP

Hon Ian West MLC

Apologies

Mr Daryl Maguire MP

Hon George Souris MP

Vulnerable Road Users Inquiry – Publication of Submission and Evidence

Resolved on the motion of Mr Harris:

“That the Committee receives and authorises the publication of the submission from Mr Tim Churches dated 20 October 2010 and orders that it be placed on the Committee's Parliamentary website.”

Resolved on the motion of Mr West:

“That the Committee authorises the publication of evidence taken at public hearings conducted on 12 and 13 October 2010 and orders that it be placed on the Committee's Parliamentary website.”

Resolved on the motion of Dr McDonald:

“That the Committee receives the documents from Mr Harold Scruby circulated to Committee Members and listed at Attachment A but does not authorise their publication.”

Next Meeting

The Committee adjourned at 1:20pm until 1.00pm on Wednesday, 1 December 2010.

Minutes of Proceedings of the Joint Standing Committee on Road Safety (no 43)

Wednesday 1 December 2010 at 1:00pm

Parliament House

Members Present

Mr Geoff Corrigan MP (Chair)

Hon Robert Brown MLC

Dr Andrew McDonald MP

Mrs Dawn Fardell MP

Hon Ian West MLC

Hon Richard Colless MLC

Mr David Harris MP

Apologies

Mr Daryl Maguire MP

Hon George Souris MP

Ms Noreen Hay MP

Confirmation of Minutes

Minutes of the meeting held on Wednesday 10 November 2010 were adopted on the motion of Mr Brown.

Vulnerable Road Users Inquiry – Consideration of Chair's Draft Report

The Committee considered the report and recommendations in detail.

Resolved on the motion of Dr McDonald:

“That the Committee adopts the Chair's draft report into Vulnerable Road Users, as amended, and authorises the Secretariat to make appropriate final editing and stylistic changes, as appropriate.”

Next Meeting

The Committee adjourned at 1:20pm sine die.