# ACT Safer Cycling Strategy

transportation planning, design and delivery

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GTAconsultants

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# Executive Summary

Bike riding in the ACT is an increasingly popular activity, both for recreation and as a viable mode of commuting to work. Recreational cycling increased 25% over the last census period (2001 to 2006) and the ACT also maintains one of the highest rates of cycling to work of all Australian capital cities at 2.7% – the ACT Government aims to increase this to 7% by 2026. It appears that this is a realistic target - weekday cycling counts undertaken by Roads ACT between 2005 and 2009 showed an increase of almost 100% at both on-road and off-road locations. Unfortunately, crash statistics show that cyclists continue to represent a disproportionate number of crash casualties – in the ACT, approximately 7% of all road user casualties are cyclists. As the number of people cycling continues to increase, there is concern that more cycling casualties will occur. Improvements to cycling safety are needed in the ACT.

The purpose of this project is to identify a strategy to promote safer cycling and safer interaction between cyclists and other road and path users throughout the ACT, to help achieve the government's goals to reduce road trauma rates. This report summarises each stage of the project, and ultimately makes recommendations for the progression of the strategy. These recommendations are not made on behalf of government - each recommendation requires further evaluation by government prior to implementation.

## Stage 1 – Identifying the Key Issues

Stage 1, involving a review of relevant literature and an analysis of crash data, was undertaken to identify key issues related to cycling safety in the ACT.

There is a large pool of research available on cycling safety. One reason for this may be that the proportion of accidents involving cyclists tends to outweigh the proportion of people that are cycling – particularly in cities with low levels of cycling compared with other transport modes, such as Canberra. A range of studies have looked at the characteristics of bicycle crashes to try to understand risks associated with cycling and how they can be reduced. These include the overtaking behaviours of drivers, crash characteristics at intersections, levels of road rule knowledge and compliance, perceived levels of safety of cycle lanes, and cyclist visibility, among many others - a common theme being the interaction between motor vehicles and cyclists. A number of recommendations based on infrastructure, education and safety campaigns have arisen from such studies. These include improving cycling skills, speed management, improving clothing and visibility, increasing knowledge of bicycle maintenance, education through line-marking, regulation and enforcement, awareness campaigns, and improving police reporting.

With this background in mind, GTA Consultants sourced bicycle crash data for the last available five-year period from ACT Police and The Canberra Hospital. Five consecutive years of Police data (2005 to 2009) and hospital data from 2001 to 2003 and 2006 to 2007 was obtained. The data was sorted, double checked for accuracy and assessed by a data analyst. Due to discrepancies in the data, no attempt was made to link police and hospital data in this study – a total of 728 crashes involving a bicycle as recorded in Police data and 505 bicycle crashes as recorded in hospital data were isolated for detailed analysis of crash patterns. This analysis revealed a number of findings, including:

- An overall increasing trend in the number of cycling crashes in the ACT.
- Crashes are more likely to occur mid-week than on weekends.

- Poor light or road surface conditions were not found to be a major factor in cycle crashes.
- Police data indicates that most collisions are between a bike and motor vehicle (94%) whilst hospital data indicates that single bicycle crashes are just as common.
- Police data shows that 53% of crashes involving cyclists occur within intersections with an additional 19% occurring on approach to an intersection.
- Police data recorded bicycle crashes in 83 different suburbs, but all of the top 10 suburbs were within close proximity of Civic and other major employment centres.

## Stage 2 – Consultation

Stage 2, involving local community and stakeholder engagement, was undertaken to further explore the issues identified in Stage 1.

Three moderated workshops were conducted with community representatives, followed by a workshop with relevant stakeholders. A structured discussion format was used in all groups to allow for comparison between views, with the information obtained used to guide the development of initiatives in Stage 3. Key themes included awareness, education and cyclist competency, law enforcement, mutual respect between all road and path users, and inadequacies in cycling infrastructure.

## Stage 3 – Strategy Development

During Stage 3, nine hard infrastructure and 7 soft infrastructure initiatives were identified and prioritised via qualitative assessment, guided by expert opinion and key project stakeholder input. These initiatives are summarised below.

| Hard Infrastructure Initiatives | Soft Infrastructure Initiatives |
|---|---|
| **i1** – Upgrade bicycle infrastructure at intersections (separate requirements for major and minor intersections) | **e1** – Develop an effective advertising campaign to promote safer cycling |
| **i2** – Provide more dedicated bicycle infrastructure | **e2** – Develop an information guide for bike riders in the ACT |
| **i3** – Complete key missing links in the bicycle network | **e3** – Provide subsidised training courses for bike riders |
| **i4** – Increase separation between bike riders (in bicycle lanes), and cars | **e4** – Road rule review and amendment |
| **i5** – Audit, review and implement consistent signage and linemarking guidelines | **e5** – Increase road rule compliance |
| **i6** – Implement traffic calming and reduce vehicle speed limits | **e6** – Develop and promote a shared path code-of-conduct |
| **i7** – Implement low speed zones on shared paths | **e7** – Improve cycling data collection in the ACT |
| **i8** – Adopt a regular path maintenance program | |
| **i9** – Report-a-hazard smart phone application | |

## Conclusion and Next Steps

The next steps involve the further development of the preliminary initiatives developed in Stage 3 of the study - these initiatives are not made on behalf of government and each recommendation requires further evaluation prior to implementation.

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# 1. Introduction

## 1.1 Background

In the ACT, the number of people cycling continues to increase. Cycling, and in particular cycling safety, is regarded as an important issue for the local community. A review of articles published during 2010 highlighted this interest, with key topics including the (supposed) increasing friction between motorists and cyclists, and dangers relating to the inadequacy of road infrastructure in Canberra to safely accommodate all road users. Together with crash statistics, which show that cyclists represent a disproportionate number of crash casualties, it became evident that improvements to cyclist safety were needed in the ACT.

It is in this context that GTA Consultants obtained a research grant from the NRMA-ACT Road Safety Trust and the ACT Government, represented by the Justice and Community Safety Directorate and the Environment and Sustainable Development Directorate, to investigate cycling safety in the ACT. The main purpose of the study being to develop a strategy to promote safer cycling and safer interaction between cyclists and other road and path users throughout the ACT, helping to achieve the government's goals to reduce road trauma rates.

The project was comprised of three stages. Stage 1 identified key issues, through data analysis and a literature review, while Stage 2 involved local community and stakeholder engagement to further explore the issues. Key themes included awareness, education and cyclist competency, law enforcement, mutual respect between all road and path users, and inadequacies in cycling infrastructure, among others. During Stage 3, issue-specific strategies were identified, guided by best practice, cost-benefit and feasibility analysis.

## 1.2 Purpose of this Report

This report summarises each stage of the project – a literature review, data analysis, community and stakeholder consultation, and the development of a range of initiatives to form a strategy to promote safer cycling and safer interaction between cyclists and other road and path users throughout the ACT.

These strategies form the principal outcome of the research project. The recommendations are not made on behalf of government - each recommendation requires further evaluation by government prior to implementation.

# 2. Stage 1

The first stage of the project sought to identify the factors that contribute to the severity and cause of crashes involving cyclists. This was achieved by undertaking a review of literature and analysing available hospital and police data.

## 2.1 Literature Review

Cycling has numerous health, environmental and social benefits, not only for individuals but for the community as a whole. As a mode of transport in Australian cities, cycling is becoming increasingly popular (De Rome et al, 2011; Johnson et al, 2010a). In the ACT, comparatively high cycling participation rates are experienced, and appear to be growing, reflected by the following:

- Canberra has one of the highest rates of cycling to work of all Australian capital cities; trips to work by bicycle increased from 2.4% to 2.7% between 2001 and 2006 (Austroads, 2011). The ACT Government's Sustainable Transport Plan (2004) seeks to further increase cycling to work to 7% by 2026.
- ABS data shows that the ACT has a high proportion of female cyclists; 26% of bicycle commuters are female, compared to an Australia-wide average of 20%.
- Recreational cycling in the ACT increased 25% between 2001 and 2006 (Austroads, 2011).
- Weekday on-road cycling volumes increased by an average of 92% between 2005 and 2009 at 38 locations, whilst on cycle paths, a 91% average increase was recorded between 2006 and 2008 at another 38 different locations (Roads ACT, 2009 data).
- On average, 22% of ACT residents ride in a typical week (ABC, 2011).
- Two thirds of households have access to a bicycle; the highest level of access in Australia (ABC, 2011).

Unfortunately, cycling injuries in the ACT appear to have increased alongside cycling volumes – fortunately statistics indicate that the rate of cycling uptake is higher than the rate of cycling injuries recorded. This supports the theory of 'safety in numbers', which argues that as the number of pedestrians and cyclists increases, so too does the relative safety of those activities (Jacobsen, 2003; Robinson, 2005) – more people cycling means that drivers are more likely to be cyclists themselves, and thus give greater consideration to cyclists on the road. Bhatia and Weir (2011) disagree with Jacobsen (2003) but do conclude that increased rates of walking and cycling are likely to lead to stronger political support for environmental safety, which in turn helps to achieve safer environments for active transport.

Either way, it remains true that the number of injuries to cyclists is significantly greater than cycling rates (Heesch et al, 2010; De Rome et al, 2011). In the US, crash risks associated with cycling have been estimated at double that of travelling by passenger vehicle (Bhatia and Weir, 2011; Beck et al, 2007). In Australia, land transport accidents accounted for 11% of all hospitalisations due to injury in 2006–07. Of these, 35% were car occupants, 26% were motor cyclists, 7% were pedestrians and 18% were cyclists (Henley and Harrison, 2009). These figures include both traffic and non-traffic accidents and a range of crash types, from on-road collisions with motor vehicles to a child falling off their bike in the backyard.

As shown in Table A1, collisions between cyclists and motor vehicles account for only 13% of all cycling accidents resulting in serious injuries; 53% of accidents are single vehicle accidents. It is important to

note that these percentages are skewed by the large number of cycling crashes classified as 'other and unspecified transport accidents'. If eliminated, crashes with motor vehicles account for 17% of all cycling accidents.

In total, 32,777 traffic (on-road) accidents and 13,639 non-traffic (of-road) accidents resulting in serious injury were recorded in 2006-07 – 15% of the traffic accidents involved cyclists. It is unlikely that cyclists represent 15% of all road users, hence the concern with cycling safety and the disproportionate chance of a cyclist being injured.

**Table 2.1: On and off-road cycling collisions resulting in serious injury in Australia in 2006-07**

| Counterpart in Collision | Traffic (on-road) | Non-traffic (off-road) | Combined |
|---|---|---|---|
| Motor vehicle (including car, van, 2 or 3 wheeled motor vehicle, heavy vehicle, bus) | 1,121 (23%) | 37 (<1%) | 13% |
| Pedal cycle | 132 (3%) | 87 (2%) | 2% |
| Pedestrian or animal | 27 (<1%) | 29 (<1%)1 | 1% |
| *Total collisions with non-stationary objects* | *1,280 (27%)* | *153 (4%)* | *16%* |
| Fixed or stationary object | 199 (4%) | 271 (8%) | 5% |
| Non-collision transport accident | 1,605 (34%) | 3177 (88%) | 53% |
| Other and unspecified transport accidents | 1,700 (35%) | 579 (14%) | 25% |
| ***Total*** | ***4,784 (53%)*** | ***4,180 (47%)*** | ***8,964*** |

(source: Henley and Harrison, 2009)

A range of studies have looked at the characteristics of bicycle crashes to try to understand risks associated with cycling and how they can be reduced:

Drivers overtaking cyclists - Walker (2007) investigated overtaking behaviours of drivers and what factors may cause a driver to give a cyclist more or less space. The 'A Metre Matters' campaign responds to the issue of adequate overtaking distances, and is designed to raise drivers' awareness of cyclists (AGF, 2011).

Crashes at intersections - ARRB (2002) researched the safety of cyclists at intersections in Sydney and Melbourne, finding that crashes between cyclists and motor vehicles were more common at intersections (56%) than at other on-road locations; 18% of all collisions occurred in cross traffic, 15% occurred with a right-through intersection movement and 11% occurred following a movement from a footpath. This finding was supported by De Rome et al (2011) which found that crashes involving motor vehicles were more likely to occur at intersections in the ACT.

Compliance of cyclists and drivers - Intersection crashes are often attributed to a lack of compliance amongst cyclists; fewer studies look at compliance issues amongst drivers. A study by Johnson et al (2010b) reviewed intersection treatments for cyclists and compliance levels by both road user groups. The study found lower levels of driver compliance was associated with infrastructure that displaces drivers, such as bike boxes at traffic signal.). For cyclists, non-compliant behaviour was related to lack of knowledge about facilities, perceptions of safety and habit. Cyclists' riding through red lights is often quoted as causing collisions and, above all, annoying drivers, leading to perceptions that it is a typical behaviour. However Johnson et al (2010c) found that only 7% of cyclists were non-compliant at red lights, questioning the validity of such perceptions.

[1] Includes 'other – non motor vehicle'

Safety of cycle lanes - Parkin and Meyers (2010) question the safety of cycle lanes, providing evidence that motor vehicles often pass closer to cyclists when a cycle lane is present, particularly on high speed roads. On the contrary, De Rome et al (2011) found that crashes occurring in bicycle lanes were less severe than those which occurred in other riding environments.

Cyclist visibility - Wood et al (2009) investigated cyclist visibility and in particular, how beliefs and attitudes differed amongst cyclists and drivers in terms of the distance at which cyclists would be first recognised by drivers. The findings suggest that interventions are required to re-educate road users about visibility discrepancies, and encourage greater use of cycling visibility aids.

A common theme in these studies is the interaction between motor vehicles and cyclists. Despite their frequency, crashes not involving motor vehicles appear to be rarely researched, possibly due to higher severity rates attributed to on-road versus off-road accidents. As shown in Table A1, more off-road (non-traffic) than on-road (traffic) cycling accidents are attributed to serious injury.

A recent study by De Rome et al (2011) investigated the characteristics of bicycle crashes in different cycling environments in the ACT, based on a survey of adults who were injured in cycling crashes and presented to hospital emergency departments in the ACT over a six month period. The study separated riding environments according to off-road (mountain bike trails, skate parks) and transport-related environments (on-road in traffic, in bicycle lanes, on shared paths, on footpaths), with the latter being the primary focus of the study. The highest injury severity was attributed to cyclists who crashed on shared paths; an environment not accessible to motor vehicles.

The study also found that only 10% of all crashes were reported to police, most of which involved a motor vehicle. This is consistent with the finding that the majority of cycling crashes reported to police involve a motor vehicle. Of cycle crashes reported to police, none involved pedestrians and only 3% were single-vehicle accidents, despite single-vehicle accidents accounting for 60% of all crashes in transport-related environments and the higher injury severities associated with shared path crashes (De Rome et al, 2011).

Other studies in the ACT have highlighted the inconsistencies which exist between hospital and police data, finding that bicycle-related road trauma is 'grossly under-reported' to police, even after considering the high number of off-road accidents (Richardson, 2008). In NSW, Boufous (2008) found that cyclists typically have the lowest 'linkage rates' between police and hospital data, whilst an international study by Jeffrey et al (2009) concluded that cyclists were most likely to be missed by police reporting. This raises significant issues; police records tend to miss the majority of cycle crashes whilst hospital data is limited in terms of information related to the circumstances and characteristics of crashes, which informs infrastructure, behavioural and educational responses.

These data issues are reflected in the large number of 'other and unspecified transport accidents' recorded in Henley and Harrison's study (2009). Of the 4,789 traffic accidents involving cyclists, 35% were grouped as other or unspecified (compared with only 7% of accidents involving car occupants). Johnson et al (2010a) conclude that research based on police-reported or hospital injury crashes alone are inconclusive, as the separate data sets are unlikely to be representative of all cyclist crash types (Johnson et al, 2010a).

A number of recommendations based on infrastructure, education and safety campaigns have arisen from the various cycling studies undertaken in the ACT, nationally and internationally. These include improving cycling skills (Heesch et al, 2010), managing bicycle speeds (De Rome et al, 2011), improving

clothing and visibility (Wood et al, 2009), increasing bicycle maintenance knowledge (Heesch et al, 2010; De Rome et al, 2011), education through line-marking, regulation and enforcement (Jordan and Leso, 2000), awareness campaigns (Johnson et al, 2010b), and improving police reporting (Richardson, 2008), among many others.

## 2.2 Analysis of Police Crash Data

GTA Consultants sourced bicycle crash data from police records as well as hospital admission records across the ACT for the last available five-year period. This section discusses the analysis of the police crash database.

### 2.2.1 Data Management

Police data was provided in five separate excel files by the ACT Government (TAMS). These included:

i Vehicle details - 2005 to 2007
ii Vehicle details -2008 to 2009
iii Casualty details -2005 to 2009
iv All crashes at mid-blocks 2005 to2009
v All crashes at intersections 2005 to 2009.

GTA Consultants combined the 5 separate files ensuring exact cross matching between vehicle, casualty and locational details and allocated fields for multi-vehicle crashes. Following detailed cross checking for data matching accuracy, crashes that involved a bicycle were isolated to allow detailed analysis.

A total of 728 crashes involving bicycles occurred between 2005 and 2009. The information recorded by the police for each crash was analysed in detail to determine crash patterns across the analysis period.

### 2.2.2 Overall Crash Trends

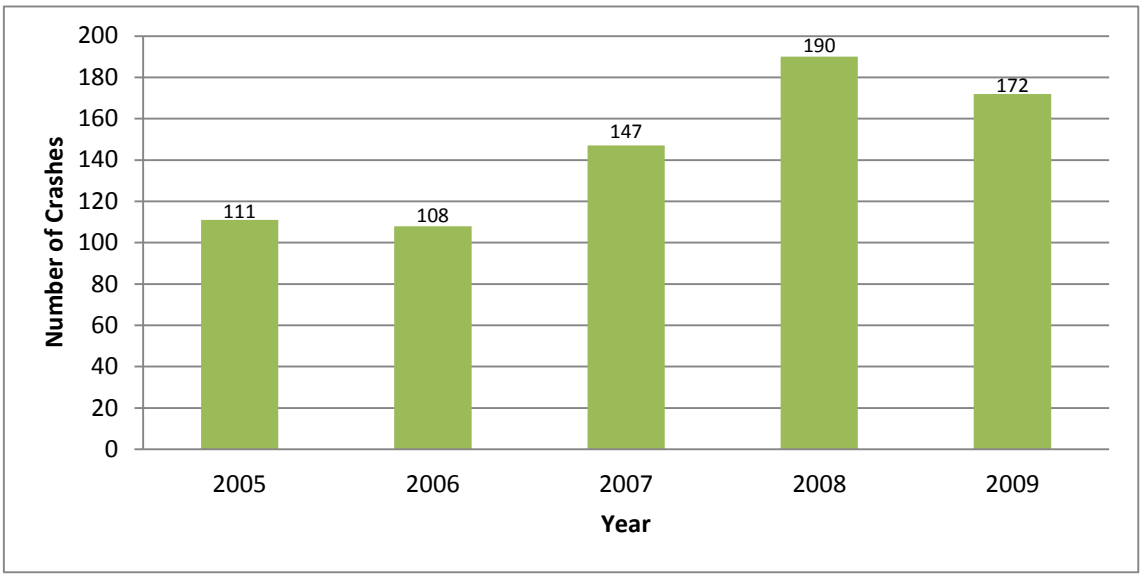
#### Total number of crashes by year

Figure 2.1 presents the number of crashes in the ACT that involved a bicycle for each year between 2005 and 2009.

Figure 2.1 indicates an increasing trend in crashes involving cyclists. In total there were 728 crashes involving bicycles in the period of 2005 to 2009. After a 3% reduction in crashes between 2005 and 2006, bicycle related crashes increased by 76% between 2006 and 2008, the year crashes peaked. In 2009 there was a 10% reduction in crashes compared to 2008.

Cycling counts taken over the same period by Roads ACT (refer to Appendix B) show an increase in on-road cycling of 92%. This indicates that the rate of crashes involving cyclists is increasing at a slower rate than the growth of cycling itself or, that as more people cycle, cycling effectively becomes safer. This supports the 'safety in numbers' theory that has been identified in a number of previous cycling studies (e.g. Jacobsen, 2003), as discussed in section 2 of this report.

Figure 2.1: Total number of crashes by year




## Number of crashes by month

Figure 2.2 shows the number of crashes involving bicycles by the month the incident occurred, between 2005 and 2009.

Figure 2.2: Total number of crashes by month

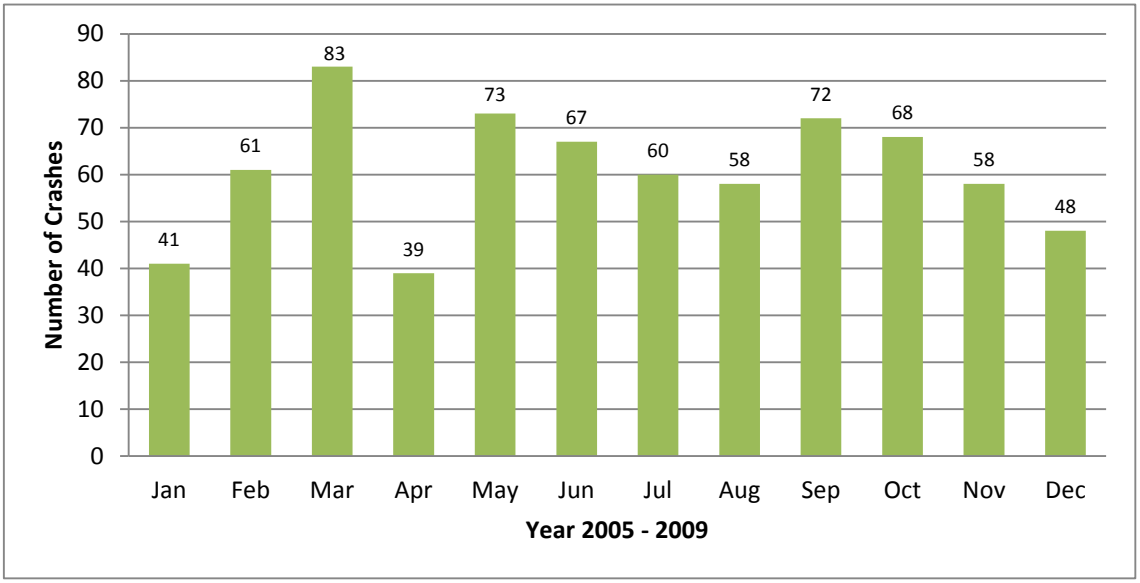



Figure 2.2 illustrates that:

- The highest number of crashes occurred in March with 83 crashes over the 5 year period, or an average of 16 crashes during each March.
- The lowest number crash occurred in April with 39 crashes over the 5 year period, or an average of 8 crashes during each April.

Over the 5 year period there was an average of 12 crashes per month.

The monthly totals grouped into quarters results in the following:

- January to March - 185 crashes (25%)
- April to June – 179 crashes (25%)
- July to September – 190 crashes (26%)
- October to December – 174 crashes (24%).

No specific patterns could be determined relating the time of year and the likelihood of a crash.

## Number of crashes by day

Figure 2.3 presents the number of crashes involving a bicycle between 2005 and 2009 by the day of the week they occurred.

**Figure 2.3: Total number of crashes by day**

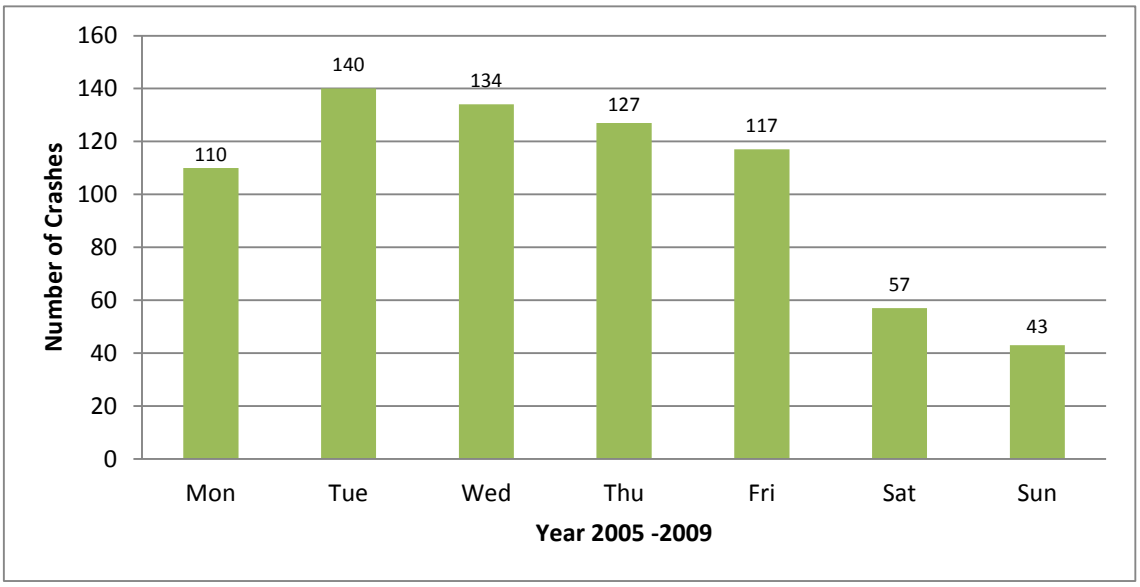



Figure 2.3 illustrates that:

- Crashes occurred most often on Tuesdays, with an average of 140 bicycle related crashes (19%) occurring on Tuesdays over the 5 year period, or an average of 28 per year.
- Crashes occurred least on Sundays, with 43 bicycle related crashes (6%) occurring on Sundays over the 5 year period, or an average of 9 per year.
- Crashes occur more frequently on weekdays (86%), with an average of 126 bicycle related crashes per year occurring on each weekday.
- Crashes occur less often on weekends (14%), with an average of 20 bicycle related crashes per year occurring on weekends.

This pattern may reflect the use of bicycles for commuting on weekdays; these trips are more likely to involve on-road cycling and hence, crashes are more likely to be represented in the TAMS database. Other studies have also shown an increase in crashes on weekdays, particularly Tuesdays (for example, De Rome et al, 2011). On weekends, recreational cycling is more likely; off-road cycling crashes are not accounted for in the TAMS database.

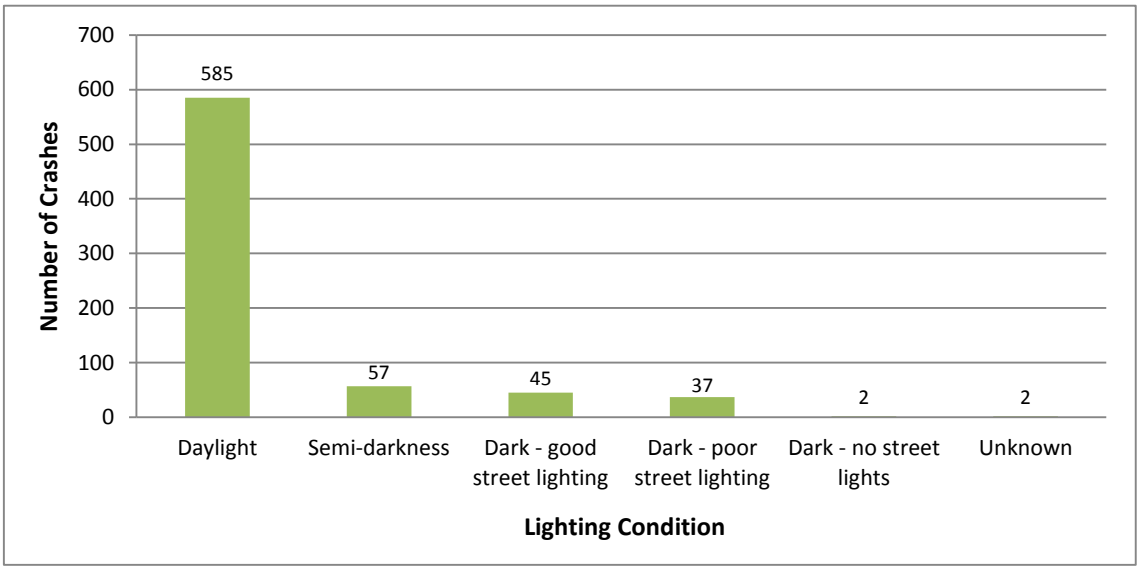
## Number of crashes by light conditions

Figure 2.4 shows the lighting conditions when bicycle crashes occurred.

A total of 585 crashes (80%) occurred during daylight, suggesting that poor light conditions are not a major factor in cycle crashes. However no data is available in relation to the percentage of cyclists that ride during the day compared to at night, or in poor light conditions. It is feasible that cyclists take more care when riding at night.

Many current bicycle lights are extremely bright, making cyclists highly visible. However there is also an argument that some newer bicycle lights are far too bright or dazzling. There are no standards for bike lights in this regard.

**Figure 2.4: Number of crashes by light condition**




## Number of crashes by road conditions

Figure 2.5 presents the road conditions at the location of the bicycle related crashes.

**Figure 2.5: Number of crashes by road conditions**

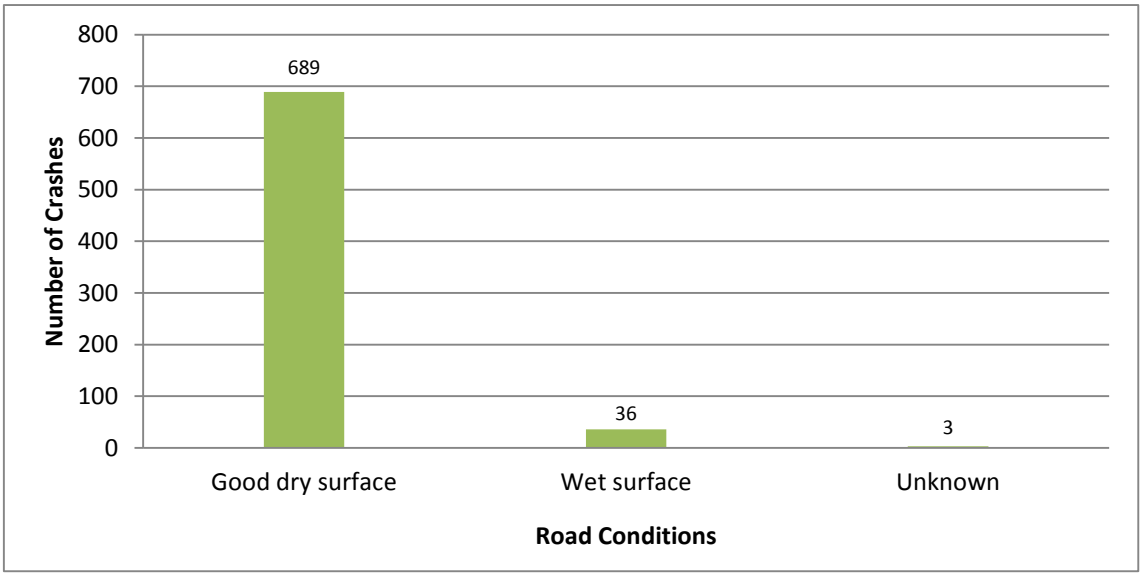


Figure 2.5 indicates that road conditions did not play a factor in a majority of crashes with 689 crashes (95%) occurring on dry surfaces compared with 36 (5%) on wet surfaces. Consideration should be given to the fact that cycling is more common in dry weather than in wet weather conditions.

### 2.2.3 Detailed crash data analysis

#### Number of injuries to cyclists by age group and gender

Figure 2.6 shows the age group and gender of cyclists injured in a bicycle related crashes.

**Figure 2.6: Number of injuries to cyclists by age group and gender**

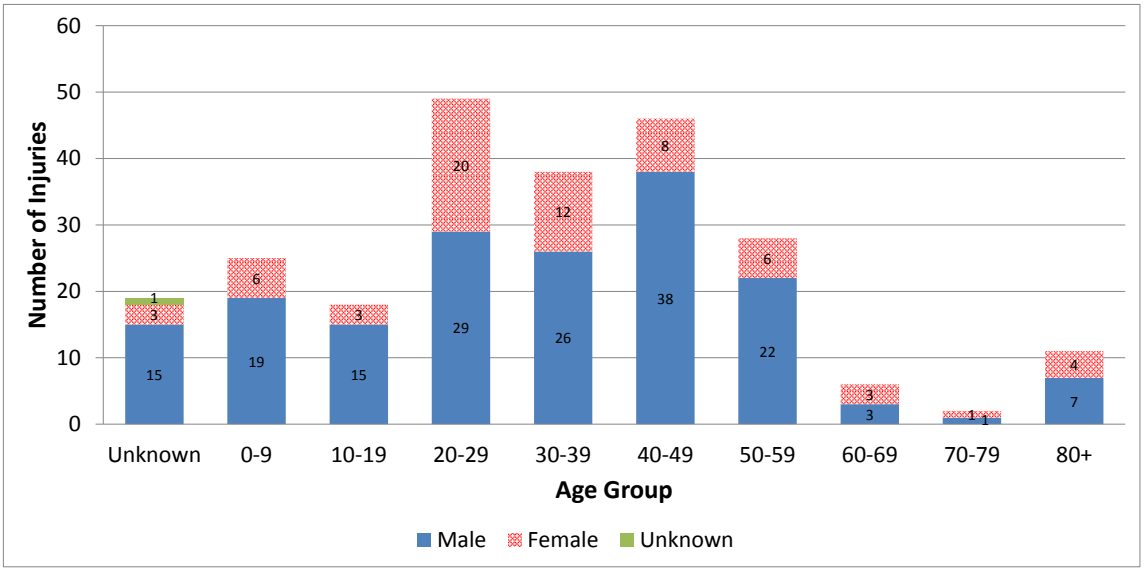



Figure 2.6 indicates that:

- More males (73%) were injured than females (27%)
- The 20-29 age group had the highest number of injuries at 49 (20%)
- Males in the 40-49 age group had the highest number of all injuries and of all males injuries at 38 (16% of all crashes; 22% of all male crashes)
- Females in the 20-29 age group had the highest number of all female injuries at 20, equivalent to 30% of all female crashes.

The male to female ratio of cyclists injured in cycling crashes is generally consistent with the gender ratio of cyclists identified in ABS data (refer to section 2), indicating that no one gender is more prone to cycling injuries than the other in the ACT.

Of those accidents that did not result in injury, the age of the cyclist was rarely recorded. For all collisions, 74% involved male cyclists and 26% involved female cyclists; this does not include the 27 collisions in which the gender of cyclist was unknown.

#### Number of crashes by year and injury type

Table 2.2 shows the severity of injuries sustained in bicycle related crashes between 2005 and 2009.

Of the 728 crashes, 486 (67%) resulted in no injury, 185 (25%) required medical treatment and 53 cyclists (7%) were admitted to hospital. Two fatalities were recorded in the data.

In 2006, the number of crashes with no injuries increased to 81% from 64% in 2005. In 2005, the highest proportion of crashes resulting in medical treatment (30%) was recorded. In 2007 and 2009, 10% of crashes resulted in the cyclist being admitted to hospital, 3% above average over the 5 year period.

**Table 2.2: Number of crashes by year and injury type**

| | 2005 | 2006 | 2007 | 2008 | 2009 | Total |
|---|---|---|---|---|---|---|
| No injury | 71 (64%) | 88 (81%) | 93 (63%) | 122 (64%) | 112 (65%) | 486 (67%) |
| Received medical treatment | 33 (30%) | 18 (17%) | 40 (27%) | 54 (28%) | 42 (24%) | 187 (26%) |
| Admitted to hospital | 6 (5%) | 1(1%) | 14 (10%) | 14 (7%) | 18 (10%) | 53 (7%) |
| Fatal | 1 (1%) | 1(1%) | 0 | 0 | 0 | 2 (<1%) |
| Total | 111 | 108 | 147 | 190 | 172 | **728** |

## Number of crashes by vehicles types involved

Figure 2.7 shows the number of bicycle crashes by the number of vehicles involved.

**Figure 2.7: Number of crashes by vehicles involved**

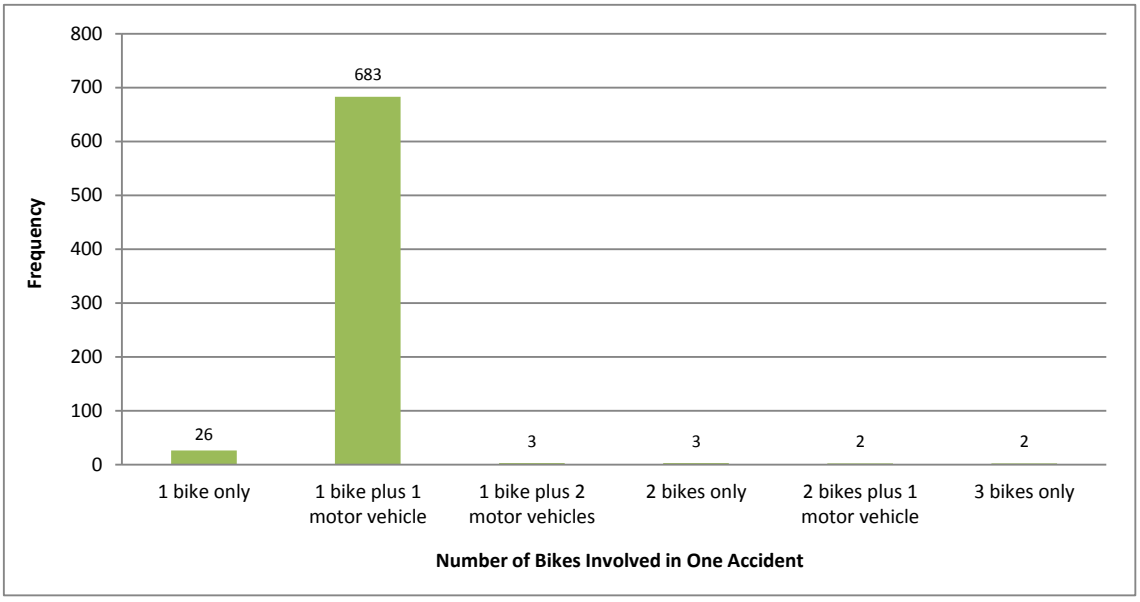
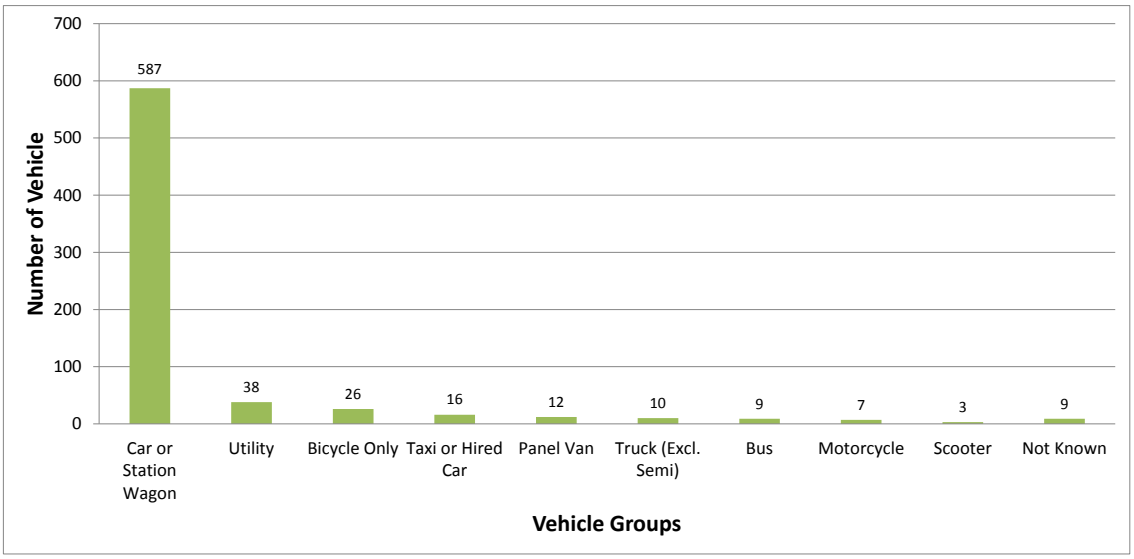



Figure 2.7 shows that 94% of all crashes involved 1 bike and 1 motor vehicle, indicating that the major factor in on-road crashes is the conflict between bicycles and motor vehicles. This is expected given the nature of the TAMS database being focussed on motor vehicle crashes. Typically, off-road crashes are rarely reported to police.

Figure 2.8 illustrates the type of vehicles involved in bicycle related crashes, showing that the most common vehicle was a car or station wagon, involved in 587 cycling collisions (84%).

Only 4% of all crashes recorded in the police data were single (or multiple) bicycle crashes.

**Figure 2.8: Number of crashes by vehicle types involved**




## Number of crashes by lane type

Figure 2.9 illustrates the lane type in which the crash occurred.

**Figure 2.9: Number of crashes by lane type**

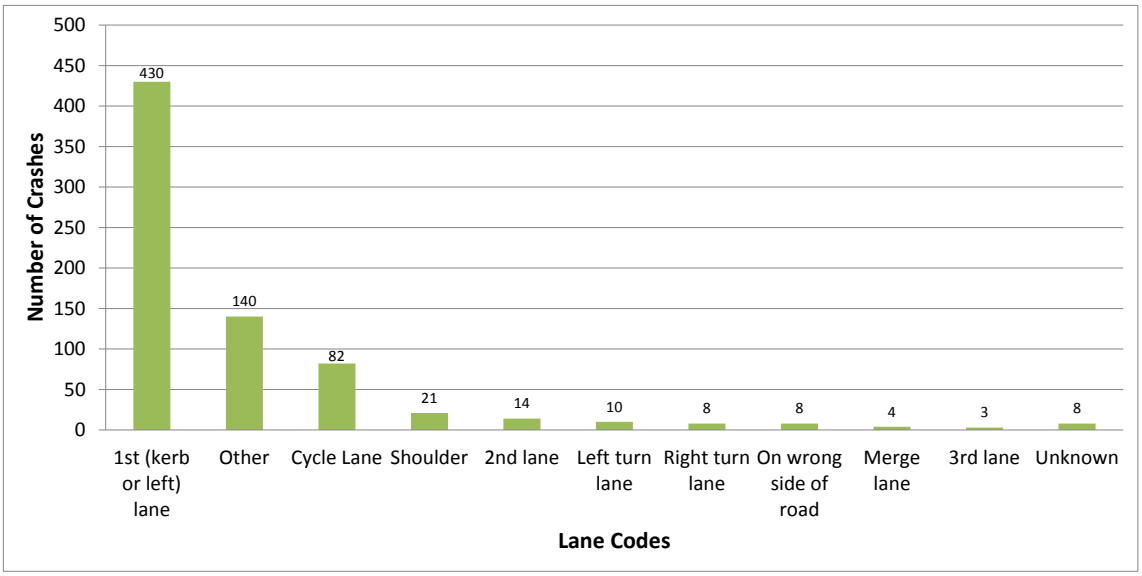


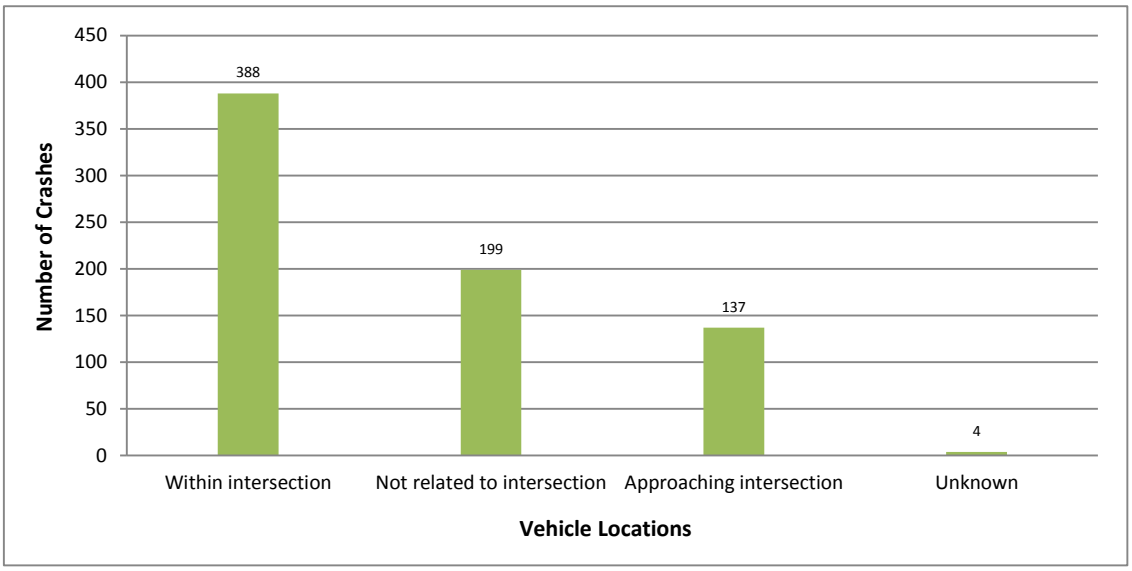

Figure 2.9 shows that the kerb lane is the most common lane for cycling crashes (59%). Whilst this is expected, given that cyclists riding on the road in Australian tend to cycle as close to the left as possible, it also highlights the need for additional research on the circumstances of these collisions (e.g. how much room is afforded to cyclists in motor vehicle overtaking movements).

## Number of crashes by intersection location

Figure 2.10 shows the number of crashes by location in relation to an intersection, highlighting that 53% of all crashes involving cyclists occurred within intersections, with a further 137 (19%) occurring on the approach to an intersection. A total of 199 crashes (27%) were not related to an intersection. This is

consistent with other studies which indicate that the majority of collisions between cyclists and motor vehicles occur at intersections.

**Figure 2.10: Number of crashes by location in intersection**




## Number of crashes by traffic control type

Figure 2.11 presents the traffic control type at the location of the crash.

**Figure 2.11: Number of crashes by traffic control type**

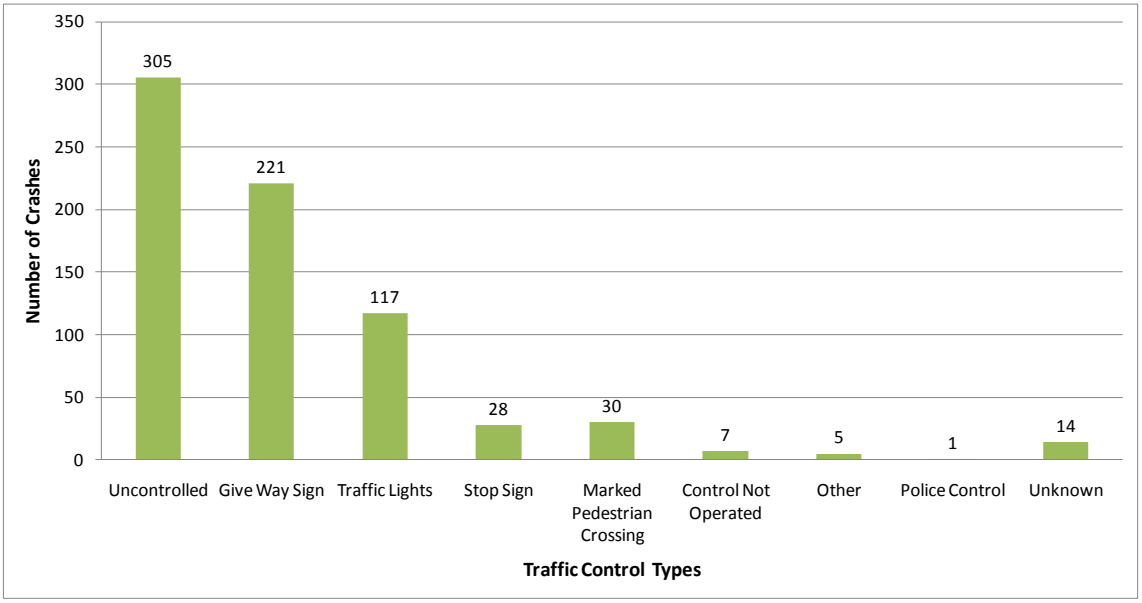


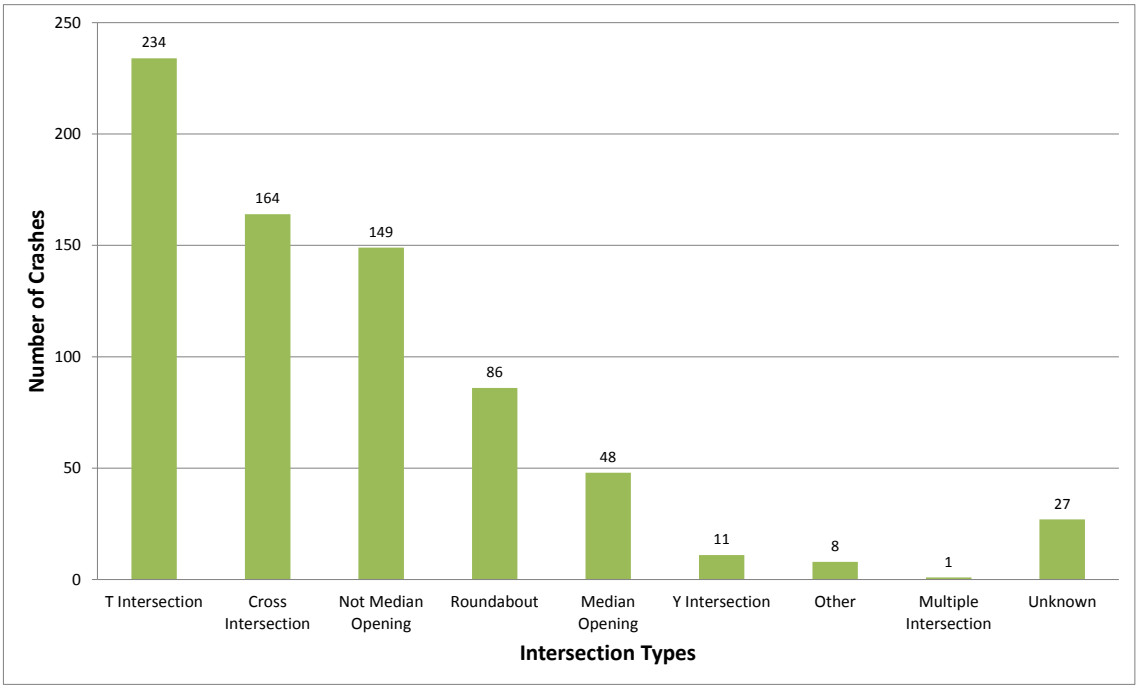

Figure 2.11 indicates that uncontrolled traffic scenarios were the most common locations for bicycle related crashes to occur (42%), followed by give way signs (30%) and at traffic lights (16%).

A total of 30 bicycle crashes (4% of all crashes) occurred at marked pedestrian crossings[2] . It is not known whether the cyclists were on the road near the crossing at the time of the collision or if they were riding over the crossing, however it is assumed that in most cases it would be the latter. Although a small fraction in comparison to other traffic control types, it indicates that there may be some misunderstanding of the road rules. In the ACT, cyclists are allowed to ride on footpaths but must dismount to use pedestrian crossings. This has the potential to cause confusion for cyclists and motorists alike.

## Number of crashes by intersection type

Figure 2.12 illustrates the number of crashes by intersection type. The data includes all crashes, whether within an intersection, on approach to an intersection or not related to an intersection[3].

**Figure 2.12: Number of crashes by intersection type**




## Intersection location by intersection type and control type

Table 2.3 shows a breakdown of intersection type by approximate numbers in the ACT, as provided by Roads ACT.

[2] The Australian Road Rules define three formal types of crossing facilities for pedestrians, including "Marked Foot Crossing" (a crossing at traffic lights), "Pedestrian Crossing" (a zebra) and "Children's Crossing". Advice from Roads ACT is that "marked pedestrian crossing" encompasses the first two of these terms.

[3] All crashes are classified by police according to intersection type, whether classified as within, on approach to or not related to an intersection. A 'not median opening' most commonly relates to accidents occurring at mid-block locations.

Table 2.3: Intersection type by approximate number in the ACT

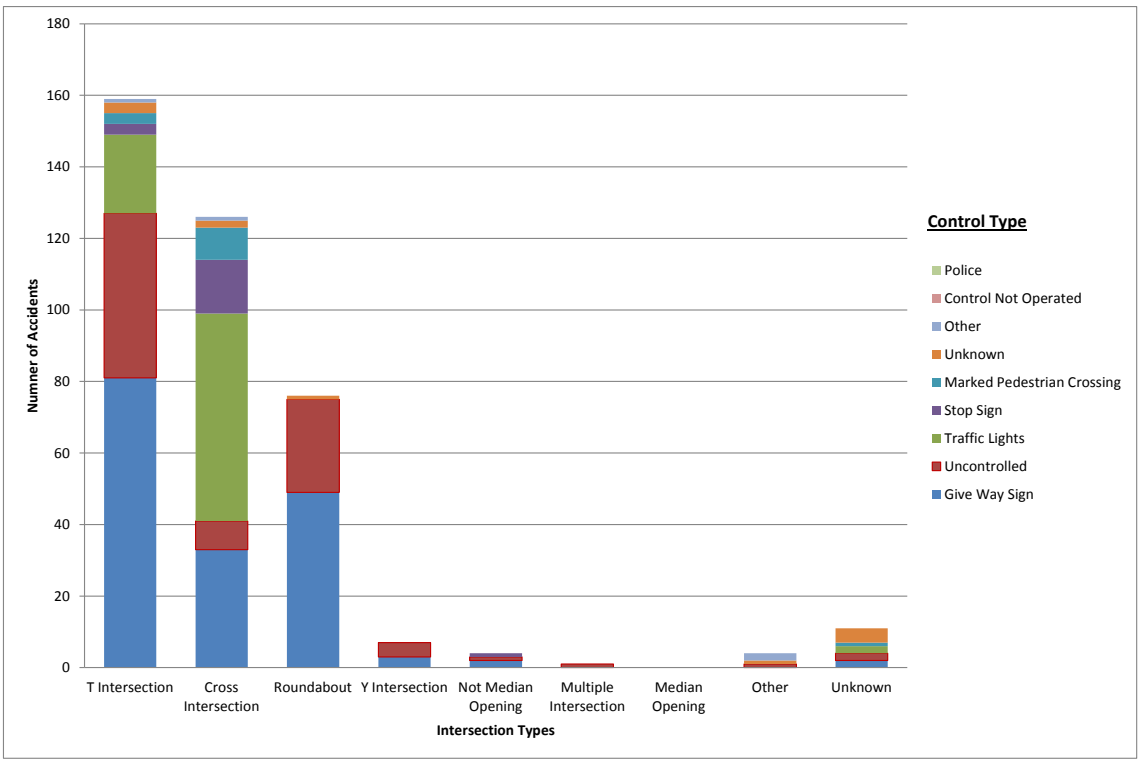
| Intersection Type (by control type) | Approximate Number | Percentage |
|---|---|---|
| Signalised | 241 | 2.3% |
| Roundabout | 330 | 3.1% |
| Stop sign | 716 | 6.8% |
| Give way sign | 2817 | 26.6% |
| Uncontrolled | 6488 | 61.3% |

**WITHIN INTERSECTION**

Figure 2.13 shows the intersection type by control type of all crashes occurring within an intersection.

The graphic shows that 41% (159) of intersection crashes occurred at T-intersections (22% of all crashes), 32% (126) occurred at X-intersections (17% of all crashes) and 20% (76) occurred at roundabouts (10% of all crashes).

Figure 2.13: Intersection type by control type of all crashes occurring within an intersection




**T-intersections**

At T-intersections, 51% (81) of accidents occurred at give way signs and 14% (22) occurred at traffic lights, whilst 29% (46) occurred at uncontrolled locations. Few intersection accidents (2%) occurred at T-intersections controlled by stop signs, which is likely to be an issue of exposure (i.e. few T-intersections in Canberra are controlled by stop signs. This suggests a possible infrastructure change, to use stop signs instead of give way signs at intersections with high bicycle flows.

In Australia, uncontrolled intersections are typically confined to T-intersections which are subject to priority arrangements; i.e. the terminating approach must give way despite a lack of signposting. A misunderstanding or lack of compliance with this road rule may explain the relatively high number of

accidents at uncontrolled T-intersections. Meanwhile, the high proportion of T-intersection crashes at give way signs is likely to be related to exposure; give way signs are the most common control type at intersections in the ACT (see Table 2.3).

**X-intersections**

At X-intersections, 46% (58) of accidents occurred at traffic lights, 26% (33) occurred at give way signs and 12% (15) occurred at stop signs.

Canberra's carefully planned road network is virtually devoid of grid-patterns and has relatively few X-intersections. As such, crashes at these locations appear to be over-represented. This is consistent with research by SWOV (2010) in The Netherlands, which emphasises the need for traffic calming at X-intersections.

At X-intersections, statutory controls exist requiring vehicles to give way to the right but the vast majority of these intersections are now controlled through either traffic lights, give way signs or stop signs. This may explain the relatively low proportion of crashes at uncontrolled X-intersections (8 crashes, or 6% of X-intersection crashes). On the other hand, given the low exposure to this traffic scenario it could be argued that the number of crashes here are disproportionate.

Similarly, traffic lights are a relatively infrequently used intersection section control (see Table 2.3). With 21% (81) of bicycle crashes within intersections occurring at traffic lights, over-representation is indicated. These intersection types are typically complex with high traffic volumes, and thus a need for increased quality of cycling facilities at these locations exists.

**Roundabouts**

At roundabouts, 64% (49) of accidents occurred at give way signs and 34% (26) occurred at uncontrolled[4] locations. In total, 12% of all accidents occurred at roundabouts. This is high considering the proportion of roundabouts in use at intersections in the ACT (refer to Table 2.3).

The high number of crashes at roundabouts with give way signs at is likely to be related to exposure considering the give way requirements at roundabouts[5].

**APPROACHING INTERSECTION**

Figure 2.14 shows the intersection type by control type of all crashes occurring on approach to an intersection.

Approaching T-intersections, 48% (30) of accidents occurred approaching give way signs and 41% (26) occurred approaching uncontrolled locations.

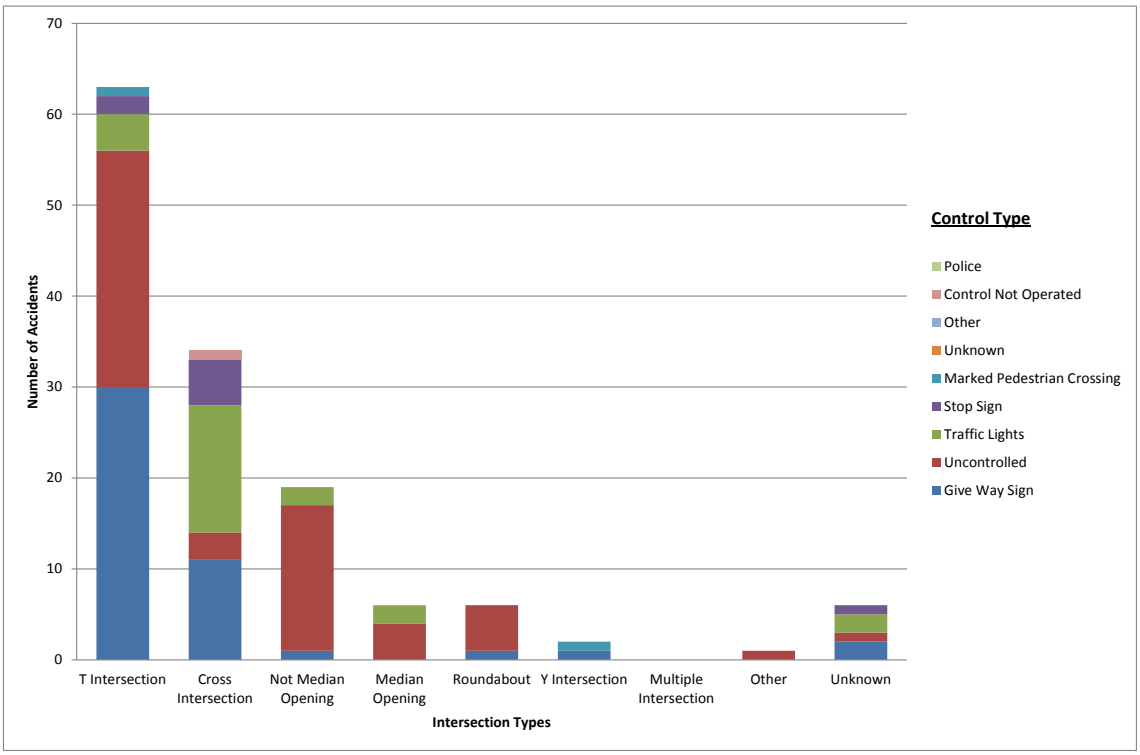
The graphic shows that 46% (63) of approach crashes occurred on approach to T-intersections (9% of all crashes), 25% (34) occurred on approach to X-intersections (5% of all crashes) and 14% (19) were classified as occurring on approach to a non-median opening, i.e. approaches to multi-lane divided road without an opening in the median, thus allowing left-in-left-out traffic only (3% of all crashes).

[4] Roundabouts are generally controlled. The high number of accidents recorded at 'uncontrolled locations' at roundabouts may be attributable to data issues.

[5] Roundabout signs are different to give way signs however both require drivers to give way. At roundabouts a driver must give way to any vehicle in the roundabout.

Approaching T-intersections, 48% (30) of accidents occurred approaching give way signs and 41% (26) occurred approaching uncontrolled locations.

**Figure 2.14: Intersection type by control type of all crashes occurring on approach to an intersection**




**ADDITIONAL INFORMATION**

Additional research should compare the frequency of intersection types in Canberra to the proportion of accidents occurring at different intersection types and control types. Consideration would also need to be given to traffic volumes and numbers of cyclists. This would help to understand the relationship between the intersection and control type and the likelihood of a collision.

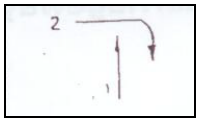
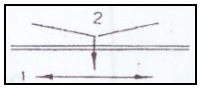
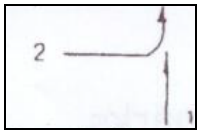
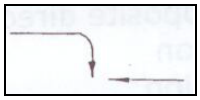
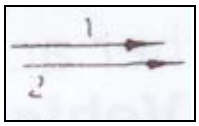
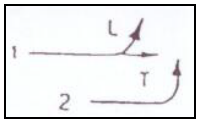
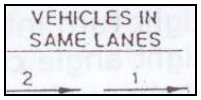
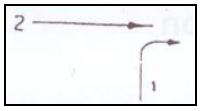
## Crashes by RUM codes

Road User Movement (RUM) codes describe the first impact that occurred during a crash. The 'key' vehicle is generally that vehicle considered to have played the major role in the crash and is generally labelled as vehicle 1. Vehicle 1 is not necessarily the "at fault vehicle" as is the case in NSW.

Table 2.4 provides a summary of the ten most common RUM codes for crashes involving bicycles in the ACT.

Table 2.4 indicates that RUM code 101 and code 104 are the most common group of bicycle crashes, indicating that there is either a lack of understanding of or compliance with basic right-of-way between cyclists, motorists and others involved in bicycle crashes. This may reflect the inability of both cyclists and motorists to accurately judge the speed of other vehicles and whether or not there is adequate time for their desired movement as well as visibility issues. As noted previously, this finding is commensurate with research by SWOV (2010) in The Netherlands, who emphasise the need to control cross traffic speeds through traffic calming measures.

**Table 2.4: Top 10 crashes types by RUM code**

| RUM Code | Number of Crashes | Indicative diagram |
|---|---|---|
| 101 (Intersection: thru-thru) | 166 |  |
| 104 (Intersection: thru-right) | 83 |  |
| 408 (Manoeuvring: from footway) | 79 |  |
| 107 (Intersection: thru-left) | 60 |  |
| 202 (Vehicles from opposing directions: thru-right) | 52 |  |
| 305 (Vehicles from one direction: vehicles in parallel lanes, lanes side sweep) | 43 |  |
| 309 (Vehicles from one direction: left turn side sweep) | 39 |  |
| 301 (Vehicles from one direction: rear end) | 38 |   |
| 406 (Manoeuvring: leaving driveway) | 21 |  |
| 102 (Intersection: right-thru) | 19 |  |

Another common group of bicycle crashes involved manoeuvring from a footway (RUM code 408), and leaving driveways (RUM code 406)[6]. In the ACT cyclists are legally allowed to ride on footpaths, however their movement between the footpath and the road may not be expected by motorists or may be misjudged by cyclists, the key concern being that drivers do not expect cyclists to leave the footpath and enter the road at an informal location without due warning. Cyclists undertake such manoeuvres for several reasons. For example, the footpath is discontinuous or inadequate, there are obstructions or they have a need to cross the road further afield. This finding is commensurate with GTA's research on motorised mobility scooters, another wheeled vehicle that utilises both the road[7] and the footpath (GTA Consultants, 2011).

[6] RUM code 202 is also used to classify collisions which occur when entering driveways

[7] Mobility scooters are treated as pedestrians under the Road Rules and should not generally be on the road however their reasoning for entering the roadway may at times be similar to the reasons why cyclists enter the roadway from the footpath (e.g. when the footpath is discontinuous or inadequate).

RUM codes 305 and 309 account for 82 crashes. The frequency of these crash types suggests that vehicles passing cyclists may not be paying attention or leaving sufficient room for cyclists.

Out of the top 10 RUM codes 5 involved crashes at intersections which is consistent with other crash data.

### Top 10 suburbs by crashes

Table 2.5 shows the top 20 suburbs for bicycle crashes in the ACT.

**Table 2.5: Top 10 suburbs for crashes involving bicycles**

| Suburb | Number of crashes | Percentage of all crashes |
|---|---|---|
| Braddon | 80 | 11% |
| City | 47 | 6% |
| Dickson | 37 | 5% |
| Ainslie | 31 | 4% |
| Turner | 29 | 4% |
| Lyneham | 24 | 3% |
| Yarralumla | 24 | 3% |
| Barton | 22 | 3% |
| Belconnen | 21 | 3% |
| Deakin | 19 | 3% |

Table 2.5 indicates that Braddon had the most crashes with 80 (11%), followed by the City (6%) and Dickson (5%).

Bicycle crashes occurred in 83 different suburbs, with all of the top 10 suburbs within close proximity of the City and other major employment centres. This appears to be a matter of exposure (i.e. more people riding to and from the areas with high employment densities). Pending further investigation, this could justify greater investment in high level cycling facilities in these suburbs.

The highest proportion of crashes occurs in Braddon, with nearly double the crashes of the next 5 suburbs, all of which are immediately adjoining. The unexpected omissions from the top 10 list would be Acton, Reid and Parkes.

The accident numbers are likely to relate to both exposure and road / traffic conditions. Braddon is a trade and commercial area and is on several major routes to the city from the northern suburbs where there is a high level of motor vehicle traffic and a number of roundabouts. For example, 74 accidents (10%) were recorded on Northbourne Avenue. In comparison, Acton, Reid and Parkes are more destinations than through routes, with relatively low traffic volumes and generally low population numbers.

## 2.3 Analysis of Hospital Crash Data

GTA Consultants sourced bicycle crash data from police records as well as hospital admission records across the ACT for the last available five-year period. This section discusses the analysis of the hospital crash database.

### 2.3.1 Data Management

This data was provided by Professor Drew Richardson and represents people presenting at the emergency department at Canberra Hospital as a result of a cycling accident. Although not the only hospital in the ACT, it is the main public hospital and the most likely facility that people would attend in the event of an injury.

The data was provided for two separate periods of three and two years respectively, including 2001, 2002, 2003, 2006 and 2007. No data was available for 2004 and 2005. A total of 2,102 crashes were reported.

Unfortunately, the database provided had many cases where there was insufficient information on the type of crash including where and how it occurred - this made it difficult to determine whether or not the collision occurred in a transport related environment. All data with insufficient information was removed from the database along with crashes that occurred in parks or as a result of races. This left a total of 505 (24%) bicycle crashes in the database for further analysis.

Professor Richardson matched hospital data for 2001 – 2003 with police data for that period (Richardson 2008) however the match rate for cyclist crashes, due to a very low rate of police reports, was very low. Hence the current study analysed hospital data as a separate data set.

### 2.3.2 Overall Crash Trends

#### Total number of crashes by year

Figure 2.15 shows the number of cycling crashes that resulted in people presenting at Canberra Hospital from 2001 to 2003, and 2006 to 2007.

**Figure 2.15: Number of crashes in by year**

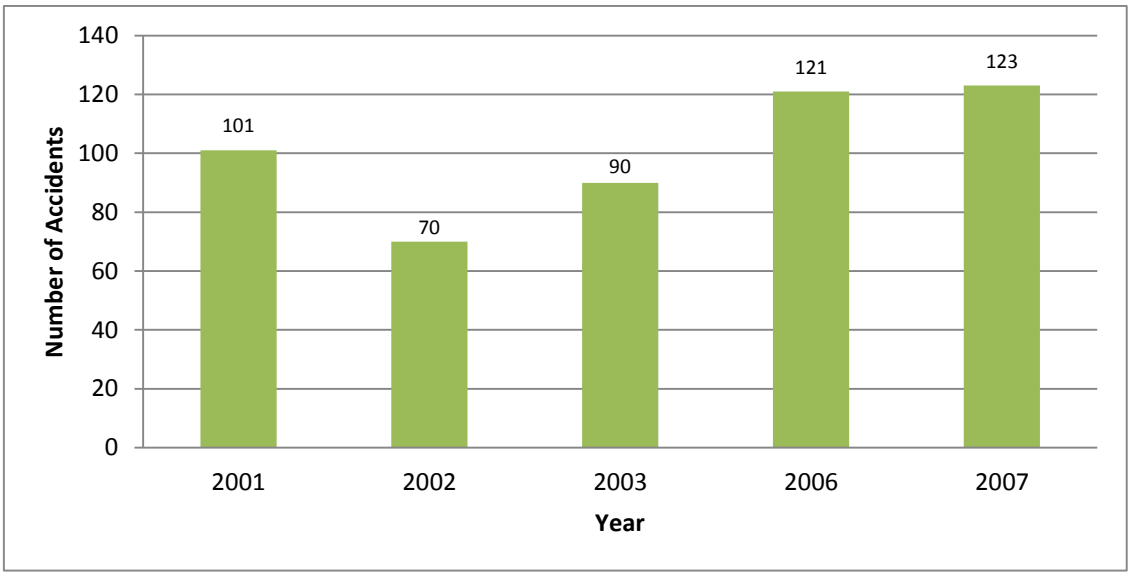



Figure 2.15 indicates that there were 505 crashes involving bicycles, equating to an average of 101 crashes a year. The lowest number of crashes was in 2002 (70) and the highest in 2007 (123). From 2001 to 2007 there was a 22% increase, or an average increase of 4% per annum.

## Total number of crashes by month

Figure 2.16 shows the number of crashes resulting in hospital admission that involved a bicycle between 2001 and 2007 in three month periods.

**Figure 2.16: Total number of crashes by month**

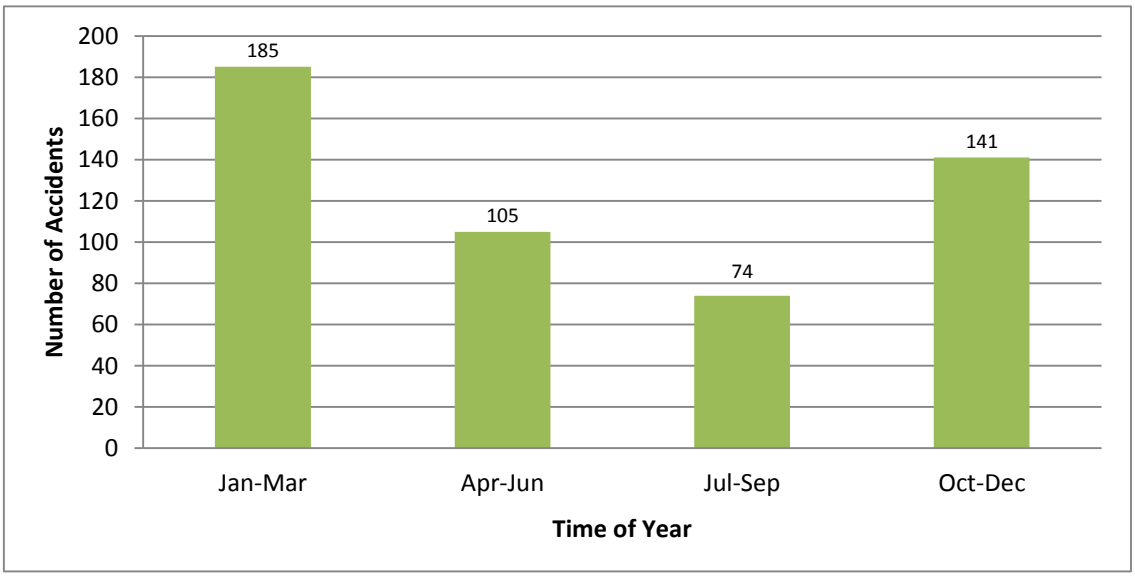



Figure 2.16 indicates that 65% of crashes occurred from January to March (37%) and October to December (28%). This trend may coincide with larger numbers of people cycling in the warmer months of the year.

## Total number of crashes by location

Figure 2.17 shows the number of crashes by location.

**Figure 2.17: Number of crashes by location**

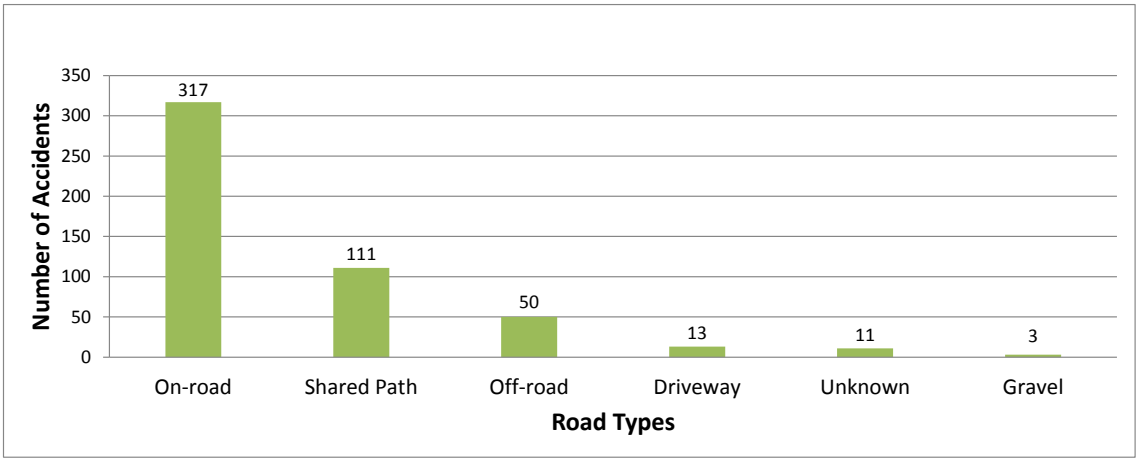



Figure 2.17 indicates that the majority of crashes occurred on-road (63%), whilst 22% occurred on shared paths and 10% occurred off-road.

As detailed in section 4.1, a significant proportion of off-road crashes were eliminated from further analysis due to insufficient information being recorded in the hospital database. As such, although

indicative, these numbers should not be relied upon for an analysis of the proportion of on-road versus off-road bicycle crashes that result in attendance at hospital.

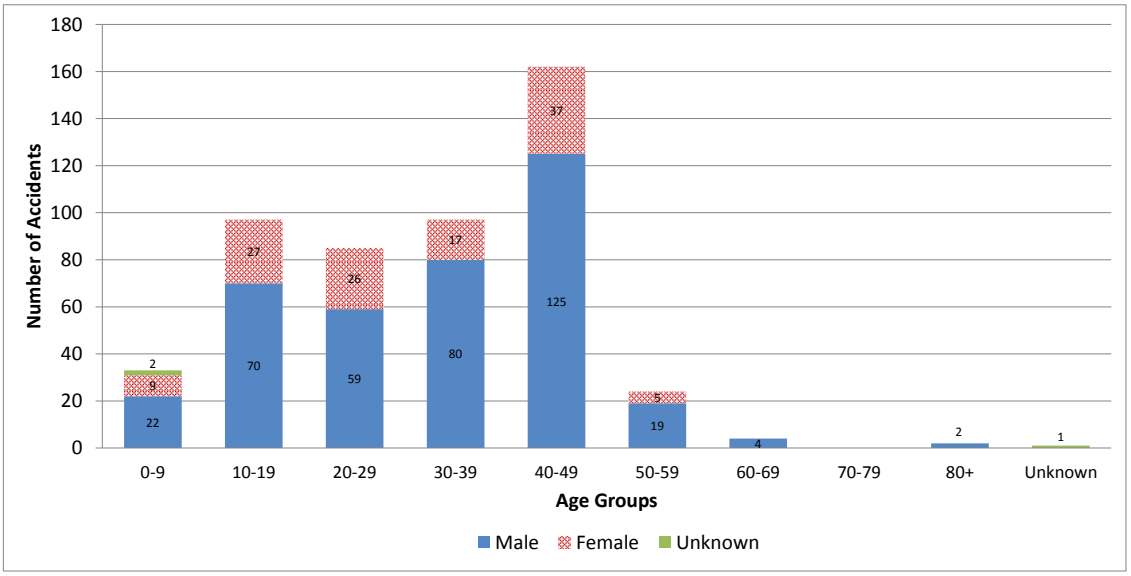
### 2.3.3 Detailed Crash Data Analysis

#### Number of crashes by age and gender

Figure 2.18 shows the number of crashes by age and gender, illustrating that:

- The 40-49 age group had the highest number of crashes at 162 (32%).
- Male cyclists (75%) were involved in more crashes than female cyclists (24%). In three crashes the gender was unknown.
- This ratio reflects the average proportion of male and female cyclists in the ACT discussed previously, indicating that no particular sex has a significantly greater risk of having a cycling crash than the other sex.

**Figure 2.18: Number of crashes by age and gender**




#### Number of crashes by vehicles involved

Figure 2.19 shows the number of crashes by vehicles involved.

Figure 2.19 indicates that the most common crash type was that between a car and a bicycle (40% of all crashes), followed by single bicycle crashes (38% of all crashes).

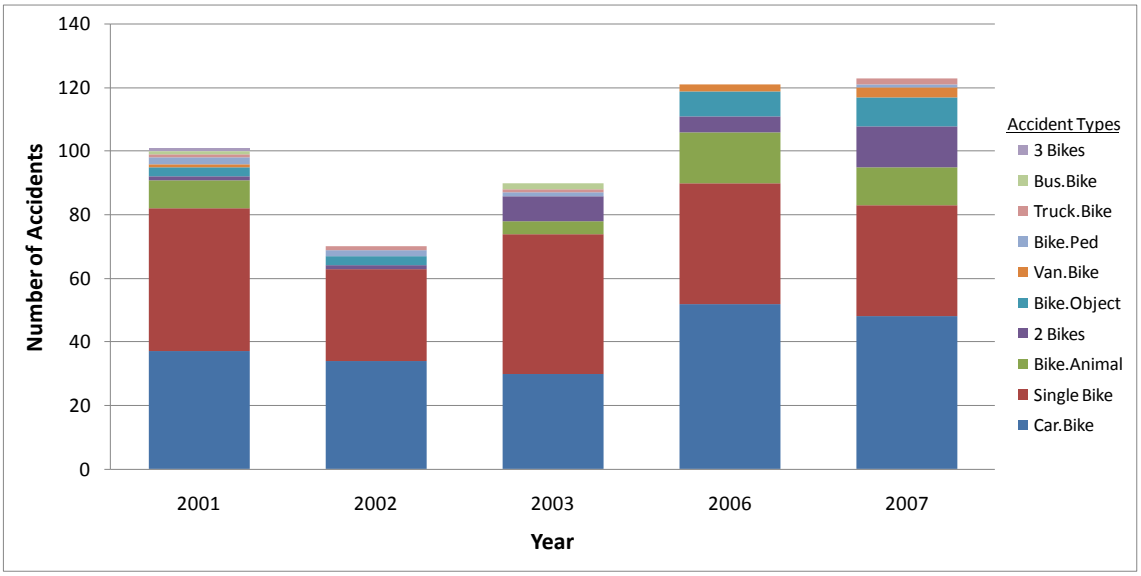
Between 2001 and 2007, the following trends are identified:

- Crashes between cars and bicycles increased by 30%, compared to an average of 22% for all crashes.
- Crashes involving a single bike decreased by 22%.
- Crashes involving animals, 2 or 3 bikes and objects represent a total of 8%, 6% and 5% respectively.

Pedestrian-bike crashes accounted for just 1% of the total, which is commensurate with the research by the George Institute (De Rome et al, 2011) and discredits the urban myth about conflicts between

bicycles and pedestrians. Although there may still be conflict between these two path users, collisions appear to be limited, possibly due to relatively low speeds and greater manoeuvrability.

**Figure 2.19: Number of crashes by vehicles involved**




## 2.4 Comparisons between Police and Hospital Data

### 2.4.1 Trends in the Data

#### Number of crashes involving cyclists

There is an increasing trend in crashes involving cyclists both in the police and hospital data over the respective five year periods. This appears to be reflective of a sustained growth in cycling. The growth in cycling appears to be stronger than the growth in crashes, resulting in a reduced crash rate with cycling becoming relatively safer, possibly due to the "safety in numbers" effect and/or increased investment in safe cycling infrastructure.

#### Proportions of male and female cyclists

In both data sets, injuries to male cyclists were more common than to female cyclists; police data shows a 73% to 27% split whilst hospital data shows a 75% to 25% split. This ratio is consistent with ABS data regarding the number of males and females cycling to work, as well as other research on bicycle crashes in the ACT; a recent study by the George Institute found that 75% of crash victims were male (De Rome et al, 2011). This pattern may indicate that cycling continues to be perceived as a relatively high risk activity.

### 2.4.2 Variations in the Data

#### Number of cyclists admitted to hospital

There are significant inconsistencies in the number of cyclists presenting at hospital emergency departments and those reported by police to have gone to hospital, or at least, received medical treatment. For example, in 2006 and 2007 the hospital data shows that 121 and 123 cyclists respectively presented at the emergency department of Canberra Hospital as a result of a cycling accident. The

TAMS database has 1 and 14 crashes where a cyclist was admitted to hospital and a further 18 and 40 crashes where cyclists received medical treatment, for these years respectively. This may indicate either a lack of reporting by police following a crash, or that crashes resulting in a visit to hospital are under-reported to police[8].

### Time of year

The hospital data shows significant differences in the number of cyclists admitted to hospital at different times of year (i.e. more cycling crashes occur during the warmer months). No such patterns can be identified in the police data set. This may indicate that more confident cyclists ride all year, regardless of the season/weather conditions and are more likely to ride on-road where crashes with motor vehicles are more likely and are therefore more likely to be recorded on the TAMS database.

### Types of bike crashes

In the police data, 26 crashes (4%) were reported to involve one bike only whilst the hospital data attributed 191 crashes (38%) single bicycle incidents. This suggests that single bicycle crashes are less likely to be reported to police.

Similarly, the proportion of crashes involving motor vehicles was significantly higher for police data (95%) than for hospital data (40%). This reflects the increased likelihood of police being called to crashes involving both cyclists and motorists.

## 2.5 Conclusion – Stage 1 to Stage 2

Based on the analysis and discussions detailed above, a number of concerns and opportunities were identified for further exploration in stage 2 of the study - local community engagement to understand cycling safety issues and related factors which discourage people from cycling.

[8] Police currently report accidents as "received medical treatment" (ie treatment at site) or "transported to hospital by ambulance". GTA Consultants is lead to believe that work is currently underway to redefine "serious injury" as "admitted to hospital". In other words, injuries treated at site or in the emergency department would equate to a "minor injury" and injuries which require the person to be admitted to hospital would equate to a "serious injury". These changes should assist in data matching police and hospital records in future years.

# 3. Stage Two

Stage 2 involved local community and stakeholder engagement to further explore the issues identified in Stage 1. Consultation was led by Jane Seaborn of Landscape Research and Communications on behalf of GTA Consultants. The complete consultation report is provided at Appendix C.

## 3.1 Consultation Methodology

Three moderated focus groups of ten people each (total of 30 participants) were conducted in November, 2011. The groups were defined by bicycle use; non-cyclists, occasional cyclists, and regular cyclists. Each group was comprised of men and women from all parts of Canberra, aged between 18 and 65. The workshops were based around a structured discussion to allow for comparability between groups.

The stakeholder workshop was conducted post-community consultation and involved representatives from Roads ACT, Justice and Community Safety Directorate (JACS), Pedal Power, Heart Foundation, Transport Planning and the cycling education industry, among others. As with the community workshops, a structured discussion format was used to allow for comparisons between stakeholder and community views.

Consultation in this format does not intend to quantitatively define the marketplace but rather seeks to scope the range of views amongst the community.

## 3.2 Key Findings

The key findings of the consultation are provided at Appendix C. In summary, these include:

- Cycling safety is not seen as a priority – it is not a top-of-mind issue of importance compared to other issues. However, participants felt that cycling safety should be important when prompted.
- A perceived lack of safety was seen as a key barrier to greater uptake of cycling – infrastructure improvements and confidence about safety would be likely to increase uptake.
- Certain behaviours are seen to cause, or avoid, accidents – changes to bad behaviours would reduce the risk of accidents.
- Younger cyclists are seen to take more risks whilst older cyclists are more risk averse.
- Intersections were seen as a logical place for accidents to occur.
- Hotspots for crashes were related to higher volumes of traffic, greater interaction between different modes, more distractions, high levels of stress, narrower streets and fewer bike paths.
- Single bike crashes were related to lapses in concentration, risk-taking, insufficient lighting and poor path maintenance.
- Participants demonstrated different understandings of the road rules and believed that many drivers and cyclists did not know the rules. There was general consensus that cyclists break the road rules to suit their own needs.
- Inadequate data on cycling was seen as problematic and a barrier to improving cycling safety.

- Promoting cycling safety was seen to be the responsibility of a number of different agencies and organisations.
- Frequent cyclists are more likely than less regular cyclists or non-cyclists to respond to safety messages through television advertising.
- The attitudes of non-cyclists toward cyclists shifted noticeable after concentrated discussion and exposure to campaign materials about cycling safety.
- Print material worked best when offering 'new' information.
- The key message to cyclists was to obey the road rules, be visible, predictable and prepared.
- The key message to drivers was to be aware and leave room for cyclists, or face the consequences.

## 3.3 Recommendations

Stage 3 of this project aims to deliver evidence-based solutions and initiatives to address the issues which affect cycling safety, and cause friction between cyclists and other road/path users in the ACT. Recommendations for the development of the strategy include the following:

*Strategy Development*

- Have a multi-faceted approach, addressing both infrastructure and behavioural issues.
- Create awareness as well as drive behavioural change – detail why the issue is important and how it can be addressed.
- Review other domestic and international initiatives.
- Identify and prioritise what can be achieved within an allocated budget – not just a 'wish list'.
- Guide and justify proposed initiatives via cost benefit analysis.
- Cut through communication clutter and provide a new/ innovative/ highly creative approach.
- Workshop participants became more tolerant of the idea of bike riding as they became more aware of the consequences for bike riders in a crash.

*Programme Administration*

- Identify how the strategy will be rolled-out.
- Attach feasibility to each strategy by undertaking cost benefit analysis.
- What is success? How will it be measured?
- Establish joint funding initiatives.
- Develop a better measure for exposure.
- Whole of government approach – reduce duplication/ maximise effectiveness.
- The ACT like many other Australian jurisdictions has a poor level of reporting and data collection of cycling accidents and cycling numbers - improved data collection and database storage techniques are required.
- Data sharing between agencies need to be improved, possibly via central database management.

*Regulation*

- Improve communication between agencies.
- Enforce legal requirements to report accidents.
- Improve data collection and database storage techniques.

*Marketing / Communications*

- Cycling safety is not seen as a priority issue in the ACT.
- The term 'bike rider' was considered to be a more neutral term than 'cyclist' and is likely to appeal to the broader community.
- Any advertising campaign needs to create an impact in order to be effective. How do you make non-bike riders more interested in bicycle safety?
- Any advertising campaign needs to have a simple, uncomplicated approach / message and has to be interesting and focused with a clear target audience.
- Key messages: be prepared, be alert, be considerate.
- Target audiences with the right messages and personal relevance.

A summary of the findings and recommendations from Stage 2 are provided at Appendix C.

# 4. Stage 3

Stage 3 brings together Stages 1 and 2 of the project to identify issue-specific strategies guided by best practice, cost-benefit and feasibility analysis. These strategies form the principal outcome of the research project. The recommendations are not made on behalf of government - each recommendation requires further evaluation by government prior to implementation.

## 4.1 Assessment Methodology

In the current political and budgetary environment, there is increasing pressure on funding for transport-related projects. At the same time, while there may be an assortment of ideas and potential initiatives which aim to address issues in the transport environment, such as cycling safety, there is inadequate funding available to pursue each one. As such, it is important to establish an assessment framework which is applicable, both:

- Across transport projects – e.g. comparing a cycling project to a major highway upgrade.
- Across key transport themes – e.g. comparing an advertising campaign for safer cycling to infrastructure upgrades which aim to improve bicycle safety at specific locations.

Such an approach allows the relative merits of different transport projects and/ or initiatives to be compared.

In the past, the prioritisation of cycling projects has been restricted to an assessment of costs (absolute or distance based), ease of funding and/ or perceived feasibility - often a measure of political or community resistance. These considerations place a heightened importance on cost factors without fully considering the varying benefits that different initiatives can offer.

The overall aim of this strategy is to improve the interaction between bike riders and other road/path users, resulting in safer cycling, and safer roads and paths for all users. Initiatives to improve bicycle safety typically fall in to two categories:

- Infrastructure – e.g. providing new bicycle facilities, improving existing facilities
- Soft initiatives -– e.g. education, advertising, enforcement, training courses.

It should be noted that there are no 'silver bullets' - a combination of both infrastructure and soft initiatives will be required to increase cycling safety.

### 4.1.1 Priority Evaluation

To help determine which initiatives will best facilitate a safer cycling environment in the ACT, GTA Consultants has developed a method for prioritising project initiatives.

Without progressing each initiative to a detailed development stage, it is difficult to identify definitive costs and outline all potential safety benefits. Our approach is broad-based and qualitative, but guided by expert opinion and key project stakeholder input to ensure that appropriate priorities are assigned to potential projects and that these projects can be measured against others.

The priority evaluation matrix (Table 4.1) allows equal standing to be given to infrastructure and non-infrastructure safety projects. If required, the matrix can also be applied across different transport types.

**Table 4.1: Priority evaluation matrix**

| Cost Estimate (Infrastructure) | | Potential Safety Benefits | | | Cost Estimate (Soft Initiatives) | |
|---|---|---|---|---|---|---|
| | | **High** | **Medium** | **Low** | | |
| < $200,000 | **Low** | Priority 1 | Priority 1 | Priority 2 | **Low** | < $100,000 |
| $200,000 - $1,000,000 | **Medium** | Priority 1 | Priority 2 | Priority 3 | **Medium** | $100,000 - $500,000 |
| > $1,000,000 | **High** | Priority 2 | Priority 3 | Priority 3 | **High** | > $500,000 |

Note: Infrastructure projects generally have additional benefits apart from safety

It is important to note that, at this stage of the project, undertaking an accurate cost-benefit-analysis (CBA) would be difficult without knowing the finer details of each initiative. This is beyond the project scope and should be carried out at a later stage.

### Cost Estimates

Cost is an essential consideration in assessing project priorities - but high cost should not be an impediment to initiatives with high potential safety benefits.

As infrastructure projects are typically more expensive to undertake than soft initiatives, GTA Consultants has assigned different cost levels to the project types in order to ascertain comparable priorities.

The cost estimate values provided in Table 4.1 are indicative only and should be adjusted to reflect the scope of works being considered, or to suit the needs of different government agencies.

### Potential Safety Benefits

In rating potential safety benefits as high, medium or low, projects should be considered relative to each other. Each project should be considered in terms of:

- Who is likely to be affected by the initiative?
- How big is the target audience?
- Is the initiative site-specific or will it impact a large area?
- Could the project be used as a prototype for other areas, thus increasing the scope of potential safety benefits?
- How likely is it that the initiative will not improve bicycle safety?
- Is it possible that the initiative could have a negative impact?

It is important not to confuse potential safety benefits with other potential benefits, such as increasing cycling numbers, environmental and community benefits and so on. Although these may be a consequence of improving bicycle safety, they are not the motive behind implementing the initiatives discussed in this strategy.

## 4.1.2 Action Evaluation

Once the relative priorities have been established, the overall feasibility of each initiative needs to be considered. The action evaluation matrix (Table 4.2), translates the priorities from Table 4.1 into short, medium and long term actions through consideration of project feasibility.

**Table 4.2: Action evaluation matrix**

| Priority | Project Feasibility | | |
|---|---|---|---|
| | **High** | **Medium** | **Low** |
| **Priority 1** | Short term | Short term | Medium Term |
| **Priority 2** | Short term | Medium term | Long Term |
| **Priority 3** | Medium term | Long Term | Long Term |

### Project Feasibility

In rating project feasibility as high, medium or low, projects should be considered relative to one another, remembering that feasibility may be affected by different factors, dependant on the project type. Considerations may include:

- Engineering feasibility
- Political feasibility
- Stakeholder consultation, opinion and support
- Community consultation, opinion and support
- Conflicting priorities and needs.

Project feasibility, or the degree of difficulty for implementation, should avoid overlap with cost considerations where possible.

Project feasibility for each strategy initiative has been established in line with the opinions of an expert team and key project stakeholders.

### Time Frame

As a guide, the time frames in Table 4.2 are identified as follows:

- Short term – within 1-2 years
- Medium term – within 5 years
- Long term – within 10 years.

These time frames are indicative only and should be used relative to each other.

## 4.2 Key Issues

Table 4.3 summarises the key issues which arose from Stage 1 and the potential strategies and responses which were identified to respond to the issues.

**Table 4.3: Key issues from Stage 1**

| Issue | Potential strategies/ response |
|---|---|
| *Cycling crashes are most common at intersections* | • Upgrade/ provide bicycle infrastructure at intersections<br>• Education programs<br>• Upgrade/ provide signage/ linemarking<br>• Speed reduction/ traffic calming<br>• Additional research specific to high crash concentration locations to isolate site specific issues |
| *Bike riders aged 20-29 years old are most likely to be injured in bicycle crashes* | • Education campaign with a specific target audience<br>• Subsidised training courses |

| Issue | Potential strategies/ response |
|---|---|
| *Crash concentrations are apparent in certain locations (eg. Braddon)* | • Improve infrastructure at locations with high crash concentrations<br>• Site specific educational campaigns<br>• Upgrade/ provide signage/ linemarking<br>• Speed reduction / traffic calming<br>• Site specific research at locations with high crash concentrations to identify key issues |
| *High numbers of single bike accidents (off-road)* | • Improve path conditions<br>• Implement an effective pathway maintenance program<br>• Develop / enhance 'report a hazard' programs<br>• Education campaign<br>• Information guides for shared path behaviour<br>• Provide maintenance/ basic skills courses<br>• Speed management on shared paths<br>• Shared path code of conduct |
| *Bike riders are provided with insufficient space when drivers overtake* | • Provide/ increase visual and/ or physical separation between bike riders and motorists<br>• Increase bicycle lane widths<br>• Education/ advertising – 'a metre matters'<br>• Create greater awareness |
| *Knowledge of road rules and rights / obligations* | • Education campaign which shows consequences<br>• Undertake a review of existing road rules applicable to bike riders and amend as appropriate<br>• Increase/enhance enforcement penalties & likelihood<br>• Increase road rule compliance |

Table 4.4 summarises the key issues which arose from Stage 2 and the potential strategies / responses which were identified to respond to the issues.

**Table 4.4: Key issues from Stage 2**

| Issue | Potential strategies/ response |
|---|---|
| *Infrastructure in the ACT is inadequate. Improvements to existing infrastructure are required.* | • Improve/ increase infrastructure provision<br>• Complete missing links/ connectivity/ network cohesion<br>• Improve route awareness/ wayfinding<br>• Improve lighting |
| *Shared paths in the ACT are incomplete / insufficiently maintained* | • Path maintenance programs<br>• Improve lighting<br>• Revise/ implement 'report a hazard'<br>• Upgrade substandard pathway sections<br>• Provide connections between pathways and public streets |
| *There is a lack of mutual respect between different road and path users* | • Education campaign which: i) shows consequences, ii) humanises bike riders, iii) legitimises the rights of all road/path users, and iv)encourages respect/ courtesy/ responsibility<br>• Develop a shared path and on-road code of conduct |
| *There is a lack of road rule compliance and law enforcement for bike riders* | • Increase awareness of cycling rules<br>• Increase compliance with cycling rules<br>• Increase enforcement of cycling rules |
| *Lack of awareness and tolerance of bike riders by motorists* | • Education campaign which increases awareness and shows consequences/ increases personal relevance<br>• Develop a shared path and on-road code of conduct |
| *Visibility & predictability of bike riders* | • Develop guidelines for bike riders<br>• Enforce requirements for lights, clothing etc |

| Issue | Potential strategies/ response |
|---|---|
| *Competency levels of bike riders* | • Education campaign<br>• Subsidies for training courses – AustCycle<br>• Education in schools |

## 4.3 Infrastructure Strategy

### 4.3.1 Overview

Combined, the background review and the community and stakeholder workshops enabled a range of infrastructure-based initiatives to be identified to improve cycling safety in the ACT.

It is important to note that a combination of initiatives is generally required to improve safety - an infrastructure project backed by an appropriate educational campaign is likely to have a greater impact than an infrastructure project implemented without any educational, awareness or promotional support.

Many of the initiatives discussed in this section, and in Section 5, contain components which tie into each other. A short summary of each initiative, including the key issues addressed, is provided below.

#### i1 – Upgrade bicycle infrastructure at intersections

This initiative is about improving bicycle infrastructure at intersections with high crash histories. The project would focus on those suburbs with the highest incidence of cycling crashes, identified through crash data analysis (Stage 1). Pilot projects would be undertaken, with vehicle behaviour and crash rates monitored to gauge success. Infrastructure requirements differ significantly between intersection types and as such, this initiative would be divided into two sub-categories; major and minor intersections.

Key issues addressed:

- Cycling crashes are most common at intersections
- Crash concentrations are apparent in certain locations
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required.

Next steps:

- Develop project methodology and monitoring procedures
- Identify and justify locations for pilot projects and intersection types to be investigated.

#### i2 – Provide more dedicated bicycle infrastructure

The ACT has an existing network of on and off-road bicycle facilities which is relatively extensive, comparative to other Australian cities. Despite this, the need remains to expand the network and provide more dedicated infrastructure, particularly if non-riders are to perceive bike riding as a safe, viable transport option and be encouraged to take it up.

In the ACT, off-road facilities are typically provided as shared paths. However, in certain locations the separation of bicycles from both cars and pedestrians may be the most appropriate infrastructure solution.

This has been recognised by Government – for example, the National Road Safety Strategy (2011) and the ACT Road Safety Action Plan 2011-2013 (2011) identify the need to "*consider implementation of infrastructure measures to physically separate bicyclists and motor vehicles on higher-speed roads with significant bicycle usage*".

Initiative i2 would be carried out as a pilot project in an area with high crash concentrations, with a view to expanding dedicated bicycle infrastructure provision ACT-wide. It is noted that the ACT Government has recently accepted tenders for the development of an ACT Strategic Cycle Network Plan. It is envisaged that the works comprised in initiative i2 would form part of the broader network plan.

Key issues addressed:

- Crash concentrations are apparent in certain locations
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required
- Bike riders are provided with insufficient space when drivers overtake.

Next steps:

- Develop project methodology and monitoring procedures
- Identify and justify locations for pilot projects.

### i3 – Complete key missing links in the bicycle network

This initiative seeks to complete key missing links in the bicycle network, focusing on locations with high crash rate histories. A pilot project would be carried out in Braddon where 11% of all crashes in the ACT were recorded[9]. It is noted that the ACT Government has recently accepted tenders for the development of an ACT Strategic Cycle Network Plan. This plan should identify future projects in addition to the existing Cardno plan.

Key issues addressed:

- Crash concentrations are apparent in certain locations
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required.

Next steps:

- Develop project methodology
- Identify key missing links in Braddon for a pilot project.

### i4 – Increase separation between bike riders in bicycle lanes and cars

Initiative i4 would be undertaken in site-specific areas in the ACT where there are existing bicycle lanes, with the objective of increasing separation between bike riders in bicycle lanes and cars in adjacent car lanes. A review of separation techniques would be undertaken to determine what type would be most suitable for bike lanes in the ACT. Some examples of separation are shown in Figure 4.1.

[9] Based on Police crash data sourced from the ACT Government (TAMS) for bicycle crashes between 2005-2009.

**Figure 4.1: Examples of separation between bicycle lanes and car lanes**

Key issues addressed:

- Crash concentrations are apparent in certain locations
- Bike riders are provided with insufficient space when drivers overtake
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required.

Next steps:

- Review separation techniques
- Develop project methodology and monitoring procedures
- Identify and justify sites for pilot projects.

### i5 – Audit, review, and implement consistent signage and linemarking guidelines

The ACT Government follows national guidelines and standards for signage and linemarking for cyclists. Despite this, it is evident from community feedback and local experience that signage and linemarking have not been implemented on a consistent basis throughout the ACT, or that appropriate signage and/or linemarking is missing from certain sections of the network.

Initiative i5 involves an audit and review of the existing network, in line with national guidelines and standards, to identify existing wayfinding issues. A program of works would be developed to implement a consistent wayfinding program across the ACT on existing and new facilities.

Key issues addressed:

- Cycling crashes are most common at intersections
- Crash concentrations are apparent in certain locations.

Next steps:

- Review existing guidelines
- Develop audit methodology.

### i6 – Implement traffic calming and reduce motor vehicle speed limits

Initiative i6 focuses on reducing vehicle speed limits in areas with high bicycle crash concentrations. A review of speed limits in these areas would be undertaken, followed by a feasibility assessment of reducing motor vehicle speed limits.

Roads ACT has investigated, and recently implemented a number of 40km/h speed limit zones in ACT town centres on a permanent basis. These projects would be reviewed as part of initiative i6 –

recommendations may include extending existing 40km/h speed zones, or reducing speeds to less than 40km/h in certain locations.

Key issues addressed:

- Crash concentrations are apparent in certain locations.

Next steps:

- Identify and justify locations for speed limit reductions
- Develop speed limit review methodology.

### i7 – Implement low speed zones on shared paths

The aim of initiative i7 is to reduce cycling speeds on shared paths, particularly in locations with high pedestrian activity. A review of speed management techniques (e.g. speed advisory signage, electronic speed signage, infrastructure treatments etc) in other cities would be undertaken to determine the most effective way of controlling speeds on shared paths.

Low speed zones on sections of paths with high actual or potential conflict would be implemented on a pilot basis and, following a period of review and refinement, extended to other locations where deemed necessary. This initiative would inevitably include an educational component.

Key issues addressed:

- High numbers of single bike accidents occur off-road
- Infrastructure in the ACT is inadequate. Improvements to existing infrastructure are required
- There is a lack of mutual respect between different road and path users.

Next steps:

- Review speed management techniques
- Develop project methodology and monitoring procedures
- Identify and justify pilot project locations.

### i8 – Adopt a regular path maintenance program

This initiative involves a review of existing maintenance policies for shared paths and off-road cycleways in the ACT, as well as in other cities in Australia. A consistent and regular maintenance program would be developed.

Key issues addressed:

- High numbers of single bike accidents occur off-road
- Infrastructure in the ACT is inadequate. Improvements to existing infrastructure are required
- Shared paths in the ACT are incomplete and insufficiently maintained.

Next steps:

- Review existing maintenance policies.

### i9 – Report-a-hazard smart phone application

Initiative i9 aims to develop a user-friendly report-a-hazard tool for bike riders (and pedestrians where applicable) which encourages people to report hazards to the appropriate government body.

The current reporting program, *Fix My Street*, is available via Canberra Connect – a website which aims to help / advise residents on a range of different issues. This system would be reviewed under the initiative.

A smart phone version is not currently available, meaning that hazards are rarely reported as they are seen or experienced. A simple and easily-accessible smart phone tool would be developed which uses the GPS capabilities of the phone to provide location details to a central maintenance database.

'Snap, send, solve' (Figure 4.2) is an example of an i-Phone application developed to make it quick and easy to report issues and provide feedback to local councils throughout Australia. A similar application could be developed to enhance report-a-hazard in the ACT.

**Figure 4.2: Snap, send, solve**


Source: http://snapsendsolve.com/Snap_Send_Solve_-_Report_to_Council_with_your_iPhone_or_Android_smartphone_by_Outware_Mobile.html

Key issues addressed:

- High numbers of single bike accidents occur off-road
- Infrastructure in the ACT is inadequate. Improvements to existing infrastructure are required
- Shared paths in the ACT are incomplete and insufficiently maintained.

Next steps:

- Review existing reporting programs in the ACT and other areas
- Liaise with web developers to explore opportunities for application.

### 4.3.2 Evaluation

Table 4.5 provides an overview of the above initiatives, evaluated in accordance with the assessment framework outlined in Section 2 of this report. Appendix D provides an example of how an infrastructure initiative could be progressed.

**Table 4.5: Overview of infrastructure initiatives**

| Initiative | Potential Benefits | Cost Estimate | Priority | Project Feasibility | Action Time Frame |
|---|---|---|---|---|---|
| **i1a** – Upgrade bicycle infrastructure at major intersections | High | High | 2 | Medium | Medium Term |
| **i1b** – Upgrade bicycle infrastructure at minor intersections | High | Medium | 1 | High | Short Term |
| **i2** – Provide more dedicated bicycle infrastructure | High | High | 2 | Medium | Medium Term |
| **i3** – Complete key missing links in the bicycle network | High | High | 2 | Medium | Medium Term |
| **i4** – Increase separation between bike riders in bicycle lanes and cars in car lanes | Medium | Medium | 2 | Medium | Medium Term |
| **i5** – Review, develop and implement a set of consistent signage and linemarking guidelines | Medium | Medium | 2 | Medium | Medium Term |
| **i6** – Implement traffic calming and reduce vehicle speed limits | High | Medium | 1 | Medium | Short Term |
| **i7** – Implement low speed zones on shared paths | Medium | Low | 1 | Medium | Short Term |
| **i8** – Adopt a regular path maintenance program | Medium | Low | 1 | Medium | Short Term |
| **i9** – Report-a-hazard smart phone application | Medium | Low | 1 | High | Short Term |

## 4.4 Strategy for Implementing Soft Initiatives

### 4.4.1 Overview

The background review and the community and stakeholder workshops have enabled the identification of a range of education, awareness and promotion-based initiatives to improve cycling safety in the ACT.

It is important to note that a combination of initiatives is generally required to improve cycling safety. For example, education, awareness and promotional campaigns often go hand-in-hand with the implementation of new bicycle infrastructure.

Many of the initiatives discussed in this section, and section 4, contain components which tie into each other. A short summary of each initiative, including the key issues addressed, is provided below.

#### e1 – Develop an effective advertising campaign to promote safer cycling

Initiative e1 is to develop an advertising campaign which improves bicycle safety in the ACT. During the consultation process, it was established that any new advertising campaign needs to:

- Create an impact in order to be effective
- Make non-bike riders interested in bicycle safety
- Have personal relevance
- Have a simple, uncomplicated approach
- Have a simple, uncomplicated message
- Be interesting and focused
- Have a clear target audience

- Cut through communication clutter and provide a new/ innovative/ highly creative approach.

An abundance of road safety campaigns have been developed to address road safety in general, and bicycle safety more specifically, both in Australia and overseas. There are some examples of campaigns that have been successful – and more which have been unsuccessful. Both provide valuable lessons for the development of initiative e1. It is important that any advertising campaign does not categorise issues as 'bike riders' versus 'motorists' (e.g. "we are one" campaign).

Key issues addressed:

- Bike riders aged 20-29 years old are most likely to be injured in cycling crashes
- Bike riders are provided with insufficient space when drivers overtake
- There is a lack of mutual respect between different road and path users
- Lack of awareness and tolerance of bike riders by motorists.

Next steps:

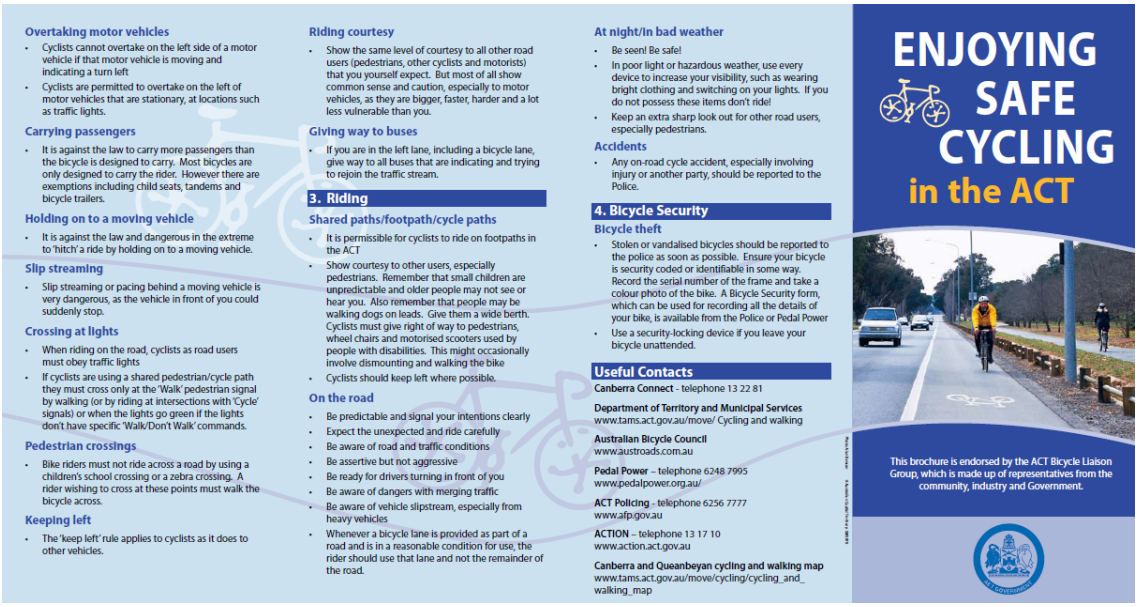
- Review existing and past road safety campaigns and literature.
- Identify and justify target audience.

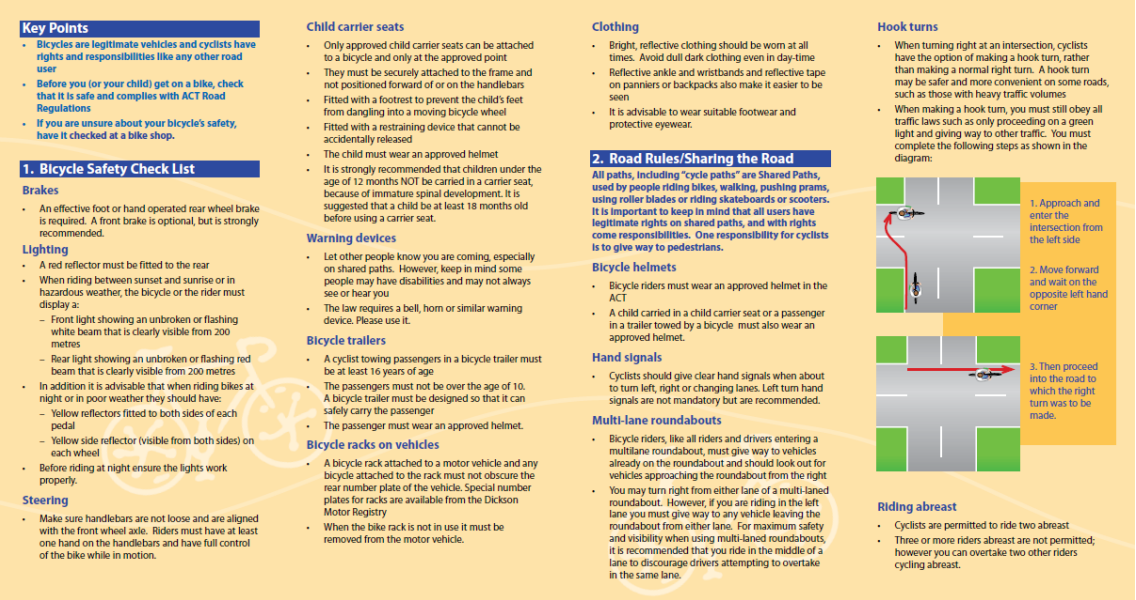
## e2 – Develop an information guide for bike riders in the ACT

This initiative aims to develop an informative guide for bike riders in the ACT. During consultation it became apparent that bike riders felt there was inadequate information currently available, or that it was difficult to obtain. Key information would include cycling road rules and bicycle routes.

The ACT Government has developed cycling brochures in the past, such as *'Enjoying Safe Cycling'* shown in Figure 4.3. These will be reviewed, and potentially updated, as part of initiative e2.

**Figure 4.3: Enjoying Safe Cycling in the ACT**





**Key Points**

- **Bicycles are legitimate vehicles and cyclists have rights and responsibilities like any other road user**
- **Before you (or your child) get on a bike, check that it is safe and complies with ACT Road Regulations**
- **If you are unsure about your bicycle's safety, have it checked at a bike shop.**

**1. Bicycle Safety Check List**

**Brakes**

- An effective foot or hand operated rear wheel brake is required. A front brake is optional, but is strongly recommended.

**Lighting**

- A red reflector must be fitted to the rear
- When riding between sunset and sunrise or in hazardous weather, the bicycle or the rider must display a:
  - Front light showing an unbroken or flashing white beam that is clearly visible from 200 metres
  - Rear light showing an unbroken or flashing red beam that is clearly visible from 200 metres
- In addition it is advisable that when riding bikes at night or in poor weather they should have:
  - Yellow reflectors fitted to both sides of each pedal
  - Yellow side reflector (visible from both sides) on each wheel
- Before riding at night ensure the lights work properly.

**Steering**

- Make sure handlebars are not loose and are aligned with the front wheel axle. Riders must have at least one hand on the handlebars and have full control of the bike while in motion.

**Child carrier seats**

- Only approved child carrier seats can be attached to a bicycle and only at the approved point
- They must be securely attached to the frame and not positioned forward of or on the handlebars
- Fitted with a footrest to prevent the child's feet from dangling into a moving bicycle wheel
- Fitted with a restraining device that cannot be accidentally released
- The child must wear an approved helmet
- It is strongly recommended that children under the age of 12 months NOT be carried in a carrier seat, because of immature spinal development. It is suggested that a child be at least 18 months old before using a carrier seat.

**Warning devices**

- Let other people know you are coming, especially on shared paths. However, keep in mind some people may have disabilities and may not always see or hear you
- The law requires a bell, horn or similar warning device. Please use it.

**Bicycle trailers**

- A cyclist towing passengers in a bicycle trailer must be at least 16 years of age
- The passengers must not be over the age of 10. A bicycle trailer must be designed so that it can safely carry the passenger
- The passenger must wear an approved helmet.

**Bicycle racks on vehicles**

- A bicycle rack attached to a motor vehicle and any bicycle attached to the rack must not obscure the rear number plate of the vehicle. Special number plates for racks are available from the Dickson Motor Registry
- When the bike rack is not in use it must be removed from the motor vehicle.

**Clothing**

- Bright, reflective clothing should be worn at all times. Avoid dull dark clothing even in day-time
- Reflective ankle and wristbands and reflective tape on panniers or backpacks also make it easier to be seen
- It is advisable to wear suitable footwear and protective eyewear.

**2. Road Rules/Sharing the Road**

**All paths, including "cycle paths" are Shared Paths, used by people riding bikes, walking, pushing prams, using roller blades or riding skateboards or scooters. It is important to keep in mind that all users have legitimate rights on shared paths, and with rights come responsibilities. One responsibility for cyclists is to give way to pedestrians.**

**Bicycle helmets**

- Bicycle riders must wear an approved helmet in the ACT
- A child carried in a child carrier seat or a passenger in a trailer towed by a bicycle must also wear an approved helmet.

**Hand signals**

- Cyclists should give clear hand signals when about to turn left, right or changing lanes. Left turn hand signals are not mandatory but are recommended.

**Multi-lane roundabouts**

- Bicycle riders, like all riders and drivers entering a multilane roundabout, must give way to vehicles already on the roundabout and should look out for vehicles approaching the roundabout from the right
- You may turn right from either lane of a multi-laned roundabout. However, if you are riding in the left lane you must give way to any vehicle leaving the roundabout from either lane. For maximum safety and visibility when using multi-laned roundabouts, it is recommended that you ride in the middle of a lane to discourage drivers attempting to overtake in the same lane.

**Hook turns**

- When turning right at an intersection, cyclists have the option of making a hook turn, rather than making a normal right turn. A hook turn may be safer and more convenient on some roads, such as those with heavy traffic volumes
- When making a hook turn, you must still obey all traffic laws such as only proceeding on a green light and giving way to other traffic. You must complete the following steps as shown in the diagram:



**Riding abreast**

- Cyclists are permitted to ride two abreast
- Three or more riders abreast are not permitted; however you can overtake two other riders cycling abreast.

Source: http://www.tams.act.gov.au/__data/assets/pdf_file/0003/13989/Enjoying_Safe_Cycling_in_the_ACT_May_2009.pdf

A simple, yet informative website, smartphone app or brochure-style guide would be developed. The guide would be:

- Available on all relevant ACT Government websites
- Promoted through Pedal Power, Cycling ACT, Cycling Australia, Bicycles Network Australia and local BUGs
- Available at bike shops and supplied when a new bike is purchased
- Provided to learner drivers and incorporated into learner driver education
- Distributed to new drivers.

The tool would include information relevant to both bike riders and drivers.

Key issues addressed:

- There is a lack of mutual respect between some road and path users
- Competency levels of bicycle riders
- Knowledge of road rules and rights/ obligations.

Next steps:

- Review existing and past guides and brochures
- Identify and justify target audience and determine information to be included.

### e3 – Provide subsidised training courses for bike riders

Initiative e3 aims to improve levels of cycling competency in the community by re-introducing cycling competence and safety to the school curriculum and offering subsidised training courses to adults – for example, courses aimed at university students would address the high number of cyclists aged 20-29, as recorded in police data, identified during Stage 1 of this study.

In NSW, free cycling courses have been made available through the City of Sydney (and previously by the NSW Department of the Environment). The courses focus on increasing cycling confidence and

teaching basic bicycle maintenance skills – both of which enable a safer cycling experience. Similar courses are already available in the ACT, at a cost - for example, AustCycle offers accredited training to adults, children and families. Unfortunately, the costs involved can discourage people from participating.

It is noted that stringent cost-benefit analysis would be required to support a proposal for the provision of cycle education subsidies. The initiative would need to be developed in conjunction with the Education and Training Directorate, particularly regarding potential links to the school curriculum.

Key issues addressed:

- Competency levels of bicycle riders
- Knowledge of road rules and rights/ obligations.

Next steps:

- Review current and previous courses, both in the ACT and other areas
- Develop cost-benefit-analysis.

### e4 – Road rule review and amendment

Bike riders are often perceived as regularly non-complying with road rules. Whilst non-compliance often occurs because of a lack of enforcement, or for increased convenience, there is also an argument that non-compliance occurs because the road rules are not always appropriate for bicycles, or they inadequately respond to the needs of bike riders on the road.

In Denmark in 2010, a change to the road rules was introduced allowing bike riders to turn right at red lights[10] and continue straight through at T-intersections as both were considered to better respond to the needs of bike riders, without impacting normal traffic flows.

Initiative e4 reviews existing cycling road rules in order to identify how they may be amended to better suit to realities of on-road and off-road cycling in the ACT, and Australia-wide. It is understood that this initiative would need to be progressed via the national road rule development processes.

Key issues addressed:

- There is a lack of road rule compliance and law enforcement for bike riders
- Knowledge of road rules and rights/ obligations.

Next steps:

- Review cycling road rules in the ACT (and Australia-wide)
- Review cycling road rules in other locations (internationally)
- Identify road rule changes, if any, to be targeted.

[10] Equivalent to allowing cyclists to turn left at red lights in Australia

## e5 – Increase road rule compliance

Initiative e5 focuses on increasing compliance with road rules, and in particular, the compliance of bike riders with red lights at intersections – 'riding through red lights is frequently cited as the cyclist behaviour that most annoys drivers and is perceived as typical behaviour'[11].

This initiative aims to increase compliance with traffic lights by increasing bike rider awareness of, and attraction to, inductive loops in the roads surface along bicycle routes e.g by markings on the road or pavement (see Figure 4.4) or reducing wait times for bike riders at red lights, especially for crossings with cycle lanterns. Small scale observation studies would be used to measure changes in compliance before and after changes are implemented at various intersections.

This initiative would review and consider current Roads ACT programs for installing or modifying loop detectors and changing signal phasings.

**Figure 4.4: Examples of bicycle inductance sensors**

Key issues addressed:

- There is a lack of road rule compliance and law enforcement for bike riders
- Knowledge of road rules and rights/ obligations
- Cycling crashes are most common at intersections
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required
- Visibility & predictability of bike riders.

Next steps:

- Review Roads ACT programs for installing or modifying loop detectors and pavement markings to indicate their presence
- Review signal phasings for crossings, especially those with cycle lanterns
- Develop project methodology and compliance monitoring procedures
- Identify and justify pilot project locations.

[11] Johnson, M., Newstead, S., Charlton, J. and Oxley, J. 2010, 'Riding through red lights: The rate, characteristics and risk factors of non-compliant urban commuter cyclists', *Accident Analysis and Prevention,* 43, pp. 323-328.

### e6 – Develop and promote a shared path code-of-conduct

Initiative i6 seeks to improve relations and increase mutual respect between bike riders, pedestrians and other path users on shared paths. A code-of-conduct provides clear and concise information relating to acceptable pedestrian and cyclist behaviour – it needs to be a simple yet effective guide to the rights and responsibilities of all shared path users.

Distribution needs to be wide to capture the largest possible audience and the widest range of users. Ideally, the code of conduct would be implemented alongside an enforcement campaign. This initiative could be developed as part of a wider education campaign.

Initiative i6 would include a review of similar existing documents in other cities, both in Australia and overseas. It should be noted that Pedal Power ACT is currently considering a Code of Conduct which could be expanded, and incorporated as part of this initiative. This should also be discussed with representatives of walking groups in the ACT.

Key issues addressed:

- High numbers of single bike accidents occur off-road
- There is a lack of mutual respect between different road and path users
- Cyclist visibility & predictability (on shared paths).

Next steps:

- Review codes of conduct implemented in other areas
- Identify target audiences and distribution methodology.

### e7 – Improve cycling data collection in the ACT

Initiative e7 aims to improve the collection and storage of data relating to cycling in the ACT. In particular, the collection and storage of data relating to cycling numbers and cycling crashes needs to be improved. Key considerations include the reliability of regular spot counts, data usage requirements and issues with centrally-accessible databases.

Although this initiative would not directly result in a safer cycling environment, it would allow for improved research capacities to help better target programs aimed at improving cycling and increasing cycling participation. Good data would also facilitate evaluation of initiatives including new infrastructure.

Key issues addressed:

- The collection and storage of cycling data is poor in the ACT
- Unavailable or inadequate data limits research capabilities and accuracy.

Next steps:

- Review existing data collection techniques in the ACT, Australia and internationally.

## 4.5 Evaluation

Table 4.6 provides an overview of the above initiatives, evaluated in accordance with the assessment framework identified in Section 2. Appendix E provides an example of how an education, awareness and promotion initiative could be progressed.

**Table 4.6: Overview of soft initiatives**

| Initiative | Potential Benefits | Cost Estimate | Priority | Project Feasibility | Action Time Frame |
|---|---|---|---|---|---|
| **e1** – Develop an effective advertising campaign to promote safer cycling | Medium | High | 3 | High | Medium Term |
| **e2** – Develop an information guide for bike riders in the ACT | Low | Low | 2 | High | Short Term |
| **e3** – Provide subsidised training courses for bike riders | High | High | 2 | Medium | Medium Term |
| **e4** – Road rule review and amendment | Medium | Low | 1 | Low | Medium Term |
| **e5** – Increase road rule compliance | Medium | Medium | 2 | High | Short Term |
| **e6** – Develop and promote a shared path code-of-conduct | Low | Low | 2 | High | Short Term |
| **e7** – Improve cycling data collection in the ACT | Low | Medium | 3 | Low | Long Term |

# 5. Conclusion and Next Steps

Cycling safety is an increasingly important issue in the ACT, and indeed Australia-wide, particularly as cycling numbers continue to increase and cyclists continue to be over-represented in transport accidents.

The purpose of this project was to develop a strategy to promote safer cycling and safer interaction between cyclists and other road and path users throughout the ACT, to help achieve the government's goals to reduce road trauma rates.

The three stage project progressed through literature review, data analysis and community and stakeholder consultation to arrive at a number of issue-specific initiatives, guided by best practice, cost-benefit and feasibility analysis. The complex nature of cycling safety means that a number of countermeasures are required.

The next step requires the further development of these initiatives. As detailed previously, the initiatives contained within Section 4 of this report are not made on behalf of government and each recommendation requires further evaluation prior to implementation. As a guide, this will include consideration of the following:

- Current conditions and planning in the ACT
- Best practice and experience
- Selection of pilot study locations and / or identification of the target audience
- Cost benefit analysis
- Development of an implementation strategy
- How to determine success factors
- Identification of supportive initiatives required

Outlines for progressing initiatives i1a and e1 are provided in Appendix D and E respectively. A modified version of this outline should be applied and expanded for each initiative to progress the project to the next stage – evaluation, and possible implementation.

# Appendix A

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# Appendix B

## Roads ACT Bicycle Counts

# BICYCLE VOLUME ON CYCLE PATHS TRENDS
# 2006 - 2008

| MAP REF No | BETWEEN LOCATION 1 | AND LOCATION 2 | SUBURB | WEEKDAY AVERAGE 2006 | WEEKDAY AVERAGE 2007 | WEEKDAY AVERAGE 2008 |
|---|---|---|---|---|---|---|
| B01 | Ginninderra Dr | Southern Cross Dr | Latham | 29 | 51 | 72 |
| B05 | Beasley St | Sulwood Dr | Farrer | 145 | 380 | 222 |
| B07 | Hindmarsh Dr | Melrose Dr | Phillip | 66 | 80 | 80 |
| B08 | Launceston St | Tuggeranong Pwy | Chifley | 110 | 181 | 175 |
| B12 | Challis St | Cowper St | Dickson | 451 | 619 | 605 |
| B14 | Adelaide Ave | Carruthers St | Deakin | 120 | 142 | 125 |
| B15 | Sailing Club | Yacht Club | Yarralumla | 281 | 592 | 570 |
| B16 | Albert St | Common. bridge | Parkes | 210 | 357 | 918 |
| B17 | Caswell Dr | Parkes Way | Aranda | 69 | 433 | 466 |
| B19 | Parkes Pl | Commonwealth Av | Parkes | 401 | 833 | 945 |
| B20 | Kings Ave | Ramp | Barton | 194 | 845 | 876 |
| B21 | Luxton St | Macdermott Pl | Belconnen | 110 | 201 | 260 |
| B22 | Ginninderra Dr | Townsend Pl | Belconnen | 237 | 311 | 351 |
| B24 | Lady Denman | Scrivener Dam | Yarralumla | 409 | 615 | 662 |
| B25 | Aikman Dr | Baldwin Dr | Bruce | 216 | 242 | 252 |
| B26 | Cotter Rd | McCulloch St | Curtin | 202 | 338 | 325 |
| B31 | Turon Pl | Tyrrell Pl | Kaleen | 90 | 213 | 175 |
| B32 | AIS | Dryandra St | Bruce | 242 | 495 | 507 |
| B34 | Marconi Cr | Sulwood Dr | Kambah | 100 | 118 | 118 |
| B35 | Longmore Cr | Sainsbury St | Wanniassa | 52 | 62 | 73 |
| B36 | Athllon Dr | O'Halloran Cct | Kambah | 151 | 234 | 173 |
| B37 | Ashley Dr | Isabella Dr | Isabella Pla | 108 | 176 | 162 |
| B38 | Benjamin Way | Eastern Valley Wy | Belconnen | 89 | 124 | 107 |
| B39 | Ratcliffe Cr | Coulter Dr | Florey | 39 | 164 | 149 |
| B40 | Belconnen Wy | Haydon Dr | Bruce | 91 | 141 | 149 |
| B41 | Bandjalong Cr | William Hovell Dr | Aranda | 64 | 101 | 82 |
| B42 | Barry Dr | Masson St | Turner | 292 | 493 | 552 |
| B43 | Cossington Sm. | Ginninderra Dr | Lyneham | 13 | 86 | 74 |
| B44 | Clinies Ross St | Garryowen Dr | Action | 678 | 727 | 743 |
| B45 | Lady Denman | Tuggeranong Pwy | Yarralumla | 231 | 223 | 369 |
| B46 | Colbeck St | Hindmarsh Dr | Mawson | 34 | 26 | 29 |
| B47 | Damala St | Hindmarsh Dr | Waramanga | 13 | 121 | 31 |
| B48 | Athllon Dr | Cowlishaw | Grrenway | 254 | 265 | 292 |
| B49 | Drakeford Dr | Newman Morris | Oxley | 63 | 63 | 94 |
| B50 | Carruthers St | Yarra Glen | Curtin | 188 | 430 | 182 |
| B51 | Coyne St | Isabella Dr under. | Fadden | 17 | 27 | 38 |
| B54 | Carruthers St | Fork to underpass | Curtin | 78 | 40 | 498 |
| B55 | Flynn Pl | Kaye St | Parkes | 115 | 424 | 468 |
| B56 | Goodwin St | De Burgh St | Lyneham | NA | 454 | 411 |
| | Sandford St | Barton Hwy | Mitchell | NA | 204 | 155 |
| Total cyclists counted | | | | 6,252 | 10,973 | 11,969 |
| Percentage increase from previous year | | | | | 75% | 9% |
| Percentage increase over whole time period | | | | | | **91%** |

Note: Highlighted data not included in totals due to an incomplete data set over the three years

# BICYCLE VOLUME ON ROADS TRENDS 2005 - 2009

| LOCATION | TOWARDS | WEEKDAY AVERAGE 2005 | WEEKDAY AVERAGE 2006 | WEEKDAY AVERAGE 2007 | WEEKDAY AVERAGE 2009 |
|---|---|---|---|---|---|
| Northbourne Ave | Antill St | 58 | 120 | 211 | 247 |
| | Morphett St | 58 | 200 | 226 | 246 |
| Northbourne Ave | Ipima St | 165 | 226 | 227 | 328 |
| | Masson St | 223 | 263 | 329 | 367 |
| Barry Dr | Belconnen Way | 59 | 60 | 40 | 72 |
| | Clunies Ross St | 48 | 52 | 59 | 71 |
| Belconnen Way | Barry Dr | 88 | 71 | 101 | 97 |
| | Caswell Dr | 68 | 64 | 66 | 96 |
| Belconnen Way | Bindubi St | 50 | 50 | 57 | 70 |
| | Haydon Dr | NA | 40 | 44 | 91 |
| Commonwealth Ave | Parkes Way | 208 | 224 | 299 | 392 |
| | Bridge | 224 | 255 | 291 | 353 |
| Commonwealth Ave | King Edward Tce | 47 | 74 | 110 | 96 |
| | Coronation Dr | 105 | 146 | 181 | 213 |
| Adelaide Ave | State Cir | 319 | 186 | 269 | 294 |
| | Hopetoun Cct | 14 | 231 | 186 | 229 |
| Yarra Glen | Adelaide Ave | 37 | 209 | 227 | 335 |
| | Melrose Dr | 21 | 115 | 115 | 122 |
| Melrose Dr | Yarra Glen | 63 | 99 | 112 | 251 |
| | Launceston | 20 | 20 | 26 | 29 |
| Barton Hwy | Federal Hwy | 46 | 35 | 131 | 140 |
| | Randwick Rd | 52 | 28 | 65 | 60 |
| Barton Hwy | Access Rd Ellenb. | 36 | 35 | 38 | 76 |
| | Gungahlin Dr | 35 | 34 | 59 | 32 |
| Gungahlin Dr | Barton Hwy | 174 | 165 | 231 | 162 |
| | Sandford St | 17 | 41 | 118 | 43 |
| Federal Hwy | Barton Hwy | 48 | 74 | 76 | 119 |
| | Phillip Ave | 36 | 57 | 61 | 114 |
| Flemington Rd | Sandford St | 17 | 59 | 122 | 56 |
| | Federal Hwy | 69 | 18 | 24 | 57 |
| Athllon Dr | Drakeford Dr | 16 | 11 | 16 | 17 |
| | Learmonth Dr | 17 | 11 | 18 | 21 |
| Athllon Dr | Melrose Dr | NA | 10 | 6 | 14 |
| | Hindmarsh Dr | NA | NA | NA | NA |
| Hindmarsh Dr | Streeton Dr | 17 | 16 | 19 | 41 |
| | Namatjira Dr | 25 | 24 | 32 | 36 |
| Hindmarsh Dr | Badimara St | 33 | 19 | 28 | 38 |
| | Launceston St | 47 | 53 | 67 | 72 |
| Hindmarsh D | Ainsworth St | 23 | 22 | 40 | 52 |
| | Yamba Dr | 34 | 10 | 18 | 24 |
| Hindmarsh Dr | Yamba Dr | 47 | 13 | 29 | 39 |
| | Palmer St | NA | NA | NA | NA |
| Flynn Dr | Flynn Pl | NA | 411 | 217 | 198 |
| | Kaye St | NA | NA | NA | NA |
| Total cyclists counted | | 2,664 | 3,390 | 4,324 | 5,107 |
| Percentage increase from previous year | | | 27% | 27% | 18% |
| Percentage increase over whole time period | | | | | **92%** |

Note: Highlighted data not included in totals due to an incomplete data set over the four years

# Appendix C

## Community and Stakeholder Consultation Report

Jane Seaborn, Landscape Research and Communication

## ACT Safer Cycling Strategy (Stage 2 - Consultation)

# Community & Stakeholder Consultation

**Client Final Report 21 Dec 2011**

Landscape.
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# Report elements

- Consultation methodology – page 3
- Key findings – page 6
- Summary – page 49
- Recommendations – page 59

Note: unless otherwise specified, “cyclist” in this report is used to denote any and all people who ride bicycles and is interchangeable with “bicycle rider” and “bike rider” – findings on issues with these different names are discussed later.

# Community consultation methodology

- 3 moderated focus groups of 10 people (30 participants total)
- Men and Women, age spread 18-65
- Geographically diverse – from all parts of Canberra
- Also drivers and shared path users
- Groups defined by bicycle use:
  - No cycling at all (“Non”)
  - Occasional cycling (weekends, shops, with children) (“Occasional”)
  - Regular cycling (commuting, primary mode of transport, long rides, training for competition or fitness) (“Frequent”)
- Structured discussion for comparability between groups
- Groups moderated by Jane Seaborn AMSRS QPMR

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# Stakeholder workshop methodology

- Conducted post community consultation
- Participants invited from:
  - Roads ACT, TAMS
  - Transport Planning, ESDD
  - Road Safety, JACSD
  - Health Directorate
  - Pedal Power
  - Heart Foundation/walking groups
  - Cycling education industry
  - ACT Veterans Cycling Club
  - ACT Policing (did not attend)
- Structured discussion comparing stakeholder and community views

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# Caution!

- The purpose of consultation is to scope the range of views amongst the community and stakeholders. It is not intended to, nor does it, quantitatively define the marketplace or attempt to measure the proportion that shares those views, or the intensity with which those views are held.

Note: Verbatims used are for illustrative purposes and may be truncated for brevity.

# Key findings

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# Cycling safety not seen as a priority on the issues landscape

- Cycling safety was not a top-of-mind issue of importance for the community in terms of things that governments should be doing something about
- Unprompted, top-of-mind issues of importance (in no particular order):

| National | ACT |
|---|---|
| Health/hospitals | Parking – building on car parks |
| Ageing | Housing affordability |
| Superannuation | Infrastructure and roads, congestion |
| Mining Tax | Public transport |
| Disability services | Childcare |
| The economy | Better planning – crowded new suburbs, narrow roads |
| Foreign investment | Health/hospital beds |
| Mental health | Preventative health |
| Carbon tax | Quality public education |
| Education/schools | Economic development – alternate industries to public service |
| Detention centres | |
| The environment | |
| Public transport | |
| Rail freight | |

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# Canberrans think cycling safety *should* be important, but only when prompted

- When prompted, all groups were able to cite reasons why cycling safety should be addressed as an issue
- Non cyclists
  - *"Consequences of accidents impact on families"*
  - *"Accidents congest traffic and cause frustration"*
  - *"Cost to health system and taxpayers"*
- Occasional cyclists
  - *"For environmental sustainability cycling needs to be a viable option to other transport"*
  - *"Popular activity in Canberra so risk increased"*
  - *"Cycling is good for health"*
  - *"Accidents and injuries give cycling a bad name"*
  - *"Cost of compensation"*
- Frequent cyclists
  - *"Cost of medical"*
  - *"Insurance – cost of third party premiums"*
  - *"So people don't die"*
  - *"Sustainability – cars won't be most dominant form of transport in the future"*
  - *"Because people are scared of riding their bikes"*

# Perceived lack of safety when cycling is one of the barriers to greater uptake

- *"[Cars are] bigger than me."*
- *"I'm afraid of getting hit."*
- *"Worried about traffic."*
- *"I feel vulnerable on a bike."*
- *"Don't want to ride home by myself at night."*
- *"Paths aren't level."*
- *"We need to encourage cycling – it's good for the environment, etc, but people don't cycle because they are too scared."*

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# Safety not the only barrier to more cycling

- Non cyclists don't currently ride for a range of reasons:
  - Medical
  - No bike
  - Time poor
  - Not preferred form of exercise
  - Long distances to travel
  - Concerned for safety
  - Age
  - Lack of infrastructure
- Occasional cyclists say they are prevented from riding more by:
  - Lack of time
  - Distance to travel (too far)
  - Lack of convenience (can't pick up the kids)
  - Weather (cold, rain)
  - Lazy
  - Need not to be tired
  - No-one to go with
  - No or poor facilities at destination (e.g. to have a shower, etc)
  - Personal security
  - Personal safety
  - Lack of knowledge of connections
  - Need my car for work
  - Family/kid commitments
  - Fear of bike getting stolen
  - Car is easier

# Better infrastructure and confidence about safety likely to increase uptake

- Non cyclists say the reasons they wouldn't ride more include:
  - *"Can't use paths the whole of your trip"*
  - *"Paths dangerous especially at night"*
  - *"Don't want to ride on the path OR the road"*
  - *"Don't want to be a wanker wearing spandex"*
- But they may consider taking up cycling with the following conditions:
  - *"Free bike"*
  - *"Safer bike paths"*
  - *"Easier connections between routes"*
  - *"Health"*
  - *"Enjoy the surrounds"*
  - *"Change work hours"*
  - *"Change my sporting emphasis"*
  - *"Away from major roads or traffic – bike paths"*
  - *"Better facilities at workplace when commuting"*
- Occasional cyclists believe they would be motivated to ride more with improved cycle paths:
  - *"well-maintained and accessible bike paths"*
  - *"Better cycle paths (cycle routes, good lighting, not having to share the road with cars)"*
  - *"better paths from suburbs to main cycleways/lanes"*
  - *"wider more well-kept cycle paths"*
  - *"more dedicated bikeways"*
  - *"If it gets harder or more expensive to drive"*
  - *"Hearing some of the things to watch out for – feeling more confident"*
  - *"living closer to work"*
  - *"more courteous drivers"*

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# Behaviours are seen to cause and potentially reduce risk of accidents

- Behaviours identified in the context of cycling safety include:
  - Alertness/awareness/vigilance as the operator of the larger vehicle
  - Level of predictability of the actions of the vulnerable
  - Level of risk taken
  - Level of fear of injury
  - Rationale for journey (e.g. important/purposeful or leisure)
  - Response to time factors (e.g. on a schedule or not)
  - Level of cycling competency
- Different cohorts respond differently to each context and individuals can belong to multiple cohorts and behave differently from cohort to cohort; i.e. it is evident that individuals are able to switch between 'cyclist', 'driver' and 'pedestrian' modes of thinking so that 'good' behaviours in one mode are not necessarily translated into good behaviours in other modes

# Better driver attitudes and behaviour also likely to increase sense of safety

- Group discussion reinforced desktop findings that driver attitudes towards cyclists vary and are not universally courteous or cautious
- The discussion also identified that cyclists could be their own worst enemy on both safety and reputational terms by behaviours that flout the law and irritate drivers
- Non cyclists
  - *"cyclists think they have another set of rules"*
  - *"don't play by the rules"*
  - *"ride across pedestrian crossings"*
  - *"hold up traffic"*
  - *"aggressive on the paths"*
  - *"arrogant"*
- Occasional
  - *"Bike riders tend to believe they own the road"*
  - *"Seem to think they're a car but they're not"*
  - *"Bike riders do things pedestrians don't do and cars don't do"*
- Frequent
  - *"Motorists get very irritated with cyclists"*
  - *"Cyclists tend to be demonised…they're seen as just something that's in the way and stopping the driver from getting to work on time, rather than realising the cyclist is someone who has a family and people who care about them"*
  - *"Drivers think 'you've got a bike path to be on, you shouldn't be on the road'"*

# References to people who ride bicycles are value-laden

- The terms “bike rider” and “cyclist” can have very different inferences for different people, and, importantly, are not necessarily interchangeable for communications purposes
- A “bike rider” was more likely to be seen as a recreational rider, fit and healthy, and relaxed, whereas a “cyclist” was defined as more professional and competitive (even aggressive), wearing lycra, on a racing bike, going fast
- “Bike rider” is the more neutral term, whereas “cyclist” draws stronger and sometimes more negative responses, particularly from Non cyclists
- Some see “bike riders” as less competent, but less aggressive than “cyclists” who are seen by some drivers as arrogant and a law unto themselves
- Some Non cyclists did not differentiate between the terms, however their unprompted views of “cyclists” were the most negative of all groups
- Frequent cyclists were least likely to differentiate between the terms “bike rider” and “cyclist” with more than half using the same descriptors for both terms
- Stakeholders familiar with cycling were also less likely to find distinct differences between “bike riders” and “cyclists”
- The following tables include summaries of descriptors for each term, by group:

# Non cyclists were spontaneously hostile towards “cyclists”

| | Bike rider | Cyclist |
|---|---|---|
| **Non cyclist** | “Bike riders encompasses the whole community”<br>“would include children”<br>“more recreational”<br>“a little more cautious” | “cyclists are the guys who wear the kit… wankers in lycra”<br>“annoyance”<br>“annoying, arrogant”<br>“pain in the arse”<br>“hazard on major roads”<br>“on roads”<br>“not using the bike paths all the time”<br>“they operate on their own rules”<br>“fit and healthy”<br>“sport”<br>“lots of them” |

# Occasional cyclists thought attitude and competition key differentiators

| | Bike rider | Cyclist |
|---|---|---|
| **Occasional** | "kids and parents riding in shorts/t-shirt/helmet taking it easy"<br>"young relatively fit, relaxed, riding at a moderate pace on a medium sized mountain bike…probably male…casually dressed"<br>"fit, lycra wearing, athletic, parent and children"<br>"lycra, older bloke"<br>"tight spandex shorts, huge thigh muscles, fluoro clothing, male, helmet"<br>"Athletic, lycra, fun, mountain bike"<br>"pedestrian"<br>"weekender, kids, family, recreation"<br>"lycra, fit, helmet"<br>"helmet, cycling gear, flash bike" | "mostly men"<br>"geared up in fluoro lycra and helmet, intent on their riding"<br>"male in cycling gear on a fancy road or racing bike, very focused, very fit, a bit self-obsessed. Don't do it for fun"<br>"Competitive, sweaty"<br>"competition"<br>"tight clothes, female, lean, social rider, sunglasses"<br>"road bike, lycra, group"<br>"Cadel Evans"<br>"professional, lycra, taking up too much space"<br>"road rider, travels"<br>"strong appearance, fit" |

# Frequent cyclists were less likely to differentiate between terms

| | Bike rider | Cyclist |
|---|---|---|
| **Frequent** | “Healthy fit and active, environmentally friendly”<br>“work commuter”<br>“fresh air, relaxation, freedom”<br>“helmet, high viz”<br>“should feel comfortable on road and path…aware”<br>“an ordinary person”<br>“not aggressive”<br>“fit, competent, healthy, full of life”<br>“fast road cyclist”<br>“children”<br>“casual rider”<br>“a person on a bike”<br>“variety – professional, casual, recreation, commuter”<br>“Safety, unaware”<br>“healthy, fit, enjoys riding” | “more lycra”<br>“speed, race”<br>“arrogance, disregard, fanatic”<br>“Competent on cycle”<br>“aware of cycling environment”<br>“fit and healthy”<br>“them and us with people who drive cars”<br>“a person cycling”<br>“Athlete, cautious, professional”<br>“maybe a person who races”<br>“Same as bike rider” x 6 people |

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# Stakeholders highlighted the many types of people who ride bicycles

| | Bike rider | Cyclist |
|---|---|---|
| **Stakeholders** | "everyone"<br>"An individual riding from point a to b"<br>"fixie hipster in tight black jeans…Copenhagen cycle chic"<br>"high speed commuter cyclist or family/children on bikes"<br>"brave, reasonably fit, not afraid of weather"<br>"different types – MTB, road, BMX, racers, recreational"<br>"young commuter riding to work in Civic"<br>"person on standard bike riding through the city" | "confident in their skills and ability"<br>"fast, lycra wearing"<br>"perhaps more towards 'regular user' end"<br>"more likely lycra…serious commuter or recreational"<br>"More emphasis on competitive element"<br>"person who won the Tour de Femme"<br>"sport bike wearing lycra"<br>"racing"<br>"cleated shoes"<br>"same as bike rider" x 4 people |



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# Responses to issues identified in Stage 1:

- *Police data indicates that 20-29 year olds are the most common age group injured in cycling collisions, however cyclists in the 40-49 year age bracket are most likely to present to emergency departments following a collision according to hospital data.*
- Perceived to be easily explained (by both community and stakeholders) by:
  - Higher risk-taking behaviours amongst younger people
  - Greater belief in ability to recover amongst younger people than older people
  - More caution about physical well-being and consequences of injury amongst older people

# Younger seen to take more risks, older more risk averse

- *"Younger people have different attitude to recovery – older people more likely to have their injuries seen to"*
- *"Younger people more likely to take risks – older more risk averse"*
- *"Younger people go faster"*
- *"More younger people riding"*
- *"Those stats would match car accidents too"*
- *"Same sort of statistics as motor bikes"*
- *"Older people don't bounce as well"*
- *"Younger people more likely to take risks"*

# Issues identified (cont.)

- *Police data shows that cycling crashes are most common within intersections.*
- Canberrans believed that data on motor vehicle accidents would probably show those accidents to also be most common amongst cars and motorbikes at intersections
- (Reduced) visibility of bicycles generally was seen to be a factor
- Cyclist behaviour at intersections was also deemed to be a factor

# Intersections are seen as a ‘logical’ place for accidents

- Non cyclists
  - *“Intersections are where vehicles come together.  It makes sense that’s where the accidents are.”*
  - *“Cyclists disobey road rules and weave in and out of traffic”*
  - *“Visibility – harder to see than cars”*
  - *“Drivers need to make quick decisions – cyclists not factored in”*
  - *“More cars have accidents there too”*
- Occasional cyclists
  - *“[lack of] visibility of bicycles”*
  - *“cyclists run red lights”*
  - *“cyclists run an orange then don’t have the speed to get through [ahead of the traffic]”*
  - *“cyclists pick the best option for them – they will go onto the pedestrian way [if it suits them better]”*
- Frequent cyclists
  - *“That’s where traffic intersects – traffic meets each other there”*

# Issues identified (cont.)

- *The location of crashes clearly identifies hot spots in the ACT, particularly Braddon including Northbourne Ave, the CBD and Dickson.*
- Several factors were seen to potentially explain this finding:
  - The sheer volume of traffic and people in those areas, and the potential for a higher level of interaction
  - More distractions for drivers/cyclists and less focus on their driving/cycling behaviour – e.g. looking for parking, hurrying to meetings, avoiding buses
  - Narrower streets and less bike paths forcing cyclists onto narrow footpaths

# ‘Hot spots’ are seen as busy areas with more traffic and driver stress

- *“Higher concentration of traffic, busier roads”*
- *“Busy locations”*
- *“Commercial concentration – more people generally”*
- *“Places where people are stressing – they’re late, there’s traffic, they’re trying to get to work”*
- *“Drivers are distracted, mind on other things – looking for parking”*
- *“Lots of major roads turn off/into the area”*
- *“People queue across lanes”*
- *“Buses, cabs stopping”*
- *“Close to unis, schools – younger drivers not as aware”*
- *“Higher concentration of bicycles in those areas (residents, lifestyles)”*
- *“Lanes narrower”*
- *“Less bike paths”*

# Issues identified (cont.)

- *Hospital data suggests that single bicycle crashes (both on-road and off-road) are common and do result in injuries.*
- Canberrans felt that:
  - The same could be said for single motor vehicle accidents
  - Statistically, accidents happen – *"Bad luck – you will crash your car too"*
  - Even a small lapse in concentration on a bicycle could result in an accident - *"The only time I've crashed by myself it was my own fault or there was something unexpected on the road" Professional cyclist*
  - Insufficient lighting and poor state of the shared paths and roads in some areas was seen as a factor - *"Condition of roads and paths"*
  - Some cyclists lack sufficient competence
  - Some cyclists ride too fast for the conditions and/or their ability – *"Risk-taking behaviour"*

# Issues identified (cont.)

- *Research has been done on overtaking behaviours of drivers. There are some indications that motor vehicles often pass closer to cyclists when a cycle lane is present, particularly on high speed roads. There also seems to be an issue with cyclists joining the traffic stream.*
- Generally, this was not seen to be a safety hazard (although there was some confusion around what was meant by “an issue with cyclists joining the traffic stream”)
- Participants felt this behaviour was explained by the perception of an invisible ‘barrier’ between cyclist and motorist, defined by the line on the road
- Motorists felt more confident that cyclists would be predictable and ride a straight line when they were in their own lane, whereas when there was no lane they were more inclined to give them a wider berth
- One third of participants cited this as the statement that stood out most for them of all the statements presented

# *Overtaking behaviours of drivers resonated with all groups*

- *"There's predictability about what a cyclist will do in their lane" Non cyclist*
- *"You assume the distance is big enough" Non cyclist*
- *"[If the line's not there], you give them half a road [width]" Non cyclist*
- *"It's all about boundaries – you expect them to be in their lane" Occasional cyclist*
- *"[I question] Having bike lanes next to high speed traffic, like on Adelaide Avenue" Occasional cyclist*
- *"The road lanes are narrower since they put in the cycle lanes" Occasional cyclist*
- *"Some cyclists go too close to the road side" Occasional cyclist*
- *"Drivers naturally tend to drift left" Occasional cyclist*
- *"As a driver I'd rather be close to the cyclist than to the other car" Occasional cyclist*
- *"Drivers still don't know exactly what to do with bike lanes" Occasional cyclist*
- *"It's the speed difference [between bicycles and cars]" Frequent cyclist*

# Issues identified (cont.)

- *There is some evidence that not all cyclists are fully aware of their legal rights and obligations. Alcohol use is an example.*
- All groups demonstrated different understandings of the road rules with respect to cycling and believed that many drivers and cyclists either did not know the rules or believed the wrong rules (cyclists allowed to ride two abreast was a frequent example) – *"Many cyclists are young and not drivers so don't know the rules"*
- All groups believed cyclists often broke the road rules to suit their own needs – *"Attitude is they don't care anyway"*
- Some admitted to breaking the rules on a bicycle, whereas they would not get away with it in a car and there was a widespread perception that lack of enforcement of the road rules with cyclists led to deliberate flouting or careless ignoring of the laws – *"Rules are not enforced [on cyclists] – there are no consequences"*

# Issues identified (cont.)

- *There is inadequate information on off-road (cycle path) crashes and cyclist/pedestrian interactions.*
- Canberrans felt this was problematic because issues were not identified for policy makers and therefore no action could/would be taken
  - *"…[Then] nobody thinks to upgrade or monitor them."*
- They suggested that crashes on paths probably were not reported because:
  - they did not have the same severity, visibility or cost as road crashes;
  - probably had less injury and were easier to clean up
  - they were not aware of any legal requirement to report path crashes.
  - *"If it's not serious, why report it?"*
- The lack of importance ascribed to cycling safety generally, by both the community and policy makers, was seen to be potentially generated by the lack of accurate information which did not reflect the extent of the problem
  - *"You can't improve safety if you don't observe what's happening."*
- This was seen to be an issue for both road and path crashes
- There is a sense amongst Frequent cyclists that the police are not interested in reporting of bicycle-related accidents/incidents/thefts unless they involve serious injury
  - *"Follow through on reports from cyclists of driver negligence, send a message."*

# More generally, data gaps are seen to hamper efforts to improve cycling safety

- Lack of data about critical influences on cycling accidents/injuries is perceived to lead to “just guessing” in approaches to addressing cycling safety
- Perceived lack of coordination between stakeholders (e.g. government departments) is seen to result in (actual and potential) duplication and fragmentation of effort, and missing out on learnings from elsewhere
- Lack of awareness/understanding of what has been tried and achieved locally and elsewhere is seen to reduce potential effectiveness of efforts
- Past and present ‘campaigns’ indicate a lack of audience segmentation which leads to a “one size fits all” approach potentially compromising effectiveness
- In the absence of quality data on cycling, other research (e.g. into traffic accidents/behaviours, motorcycle data, etc) is seen to offer potentially useful learnings
- Stakeholders were keen to see the gathering of more useful and specific data from cyclists and other sources – “*No mention of time of day of accidents”*
- Some Stakeholders also queried the veracity of some of the data cited in the pre-workshop summary of Stage 1 issued to them

# Shared paths: seen as popular facility but incomplete and insufficiently maintained

- Using Canberra's shared paths was seen as a popular activity, and as a consequence of numbers using paths the risk of accidents was increased
- All groups were critical of the level of maintenance and utility of shared paths:
  - *"Unsafe infrastructure – roots, branches, gravel"*
  - *"Paths are dangerous – especially at night"*
  - *"They're inconvenient. You can't use paths the whole way for your trip"*
  - *"Make cycle lanes and paths safe by keeping them clear of glass, gravel and debris and making them wider. Remove hazardous barriers that have been put up across paths."*
- Some felt there was a level of complacency that came with shared path usage which meant users were less alert to their surroundings – *"Not a place you'd expect anything bad to happen"*
  - It was noted that the dynamics for cyclists changed from vulnerable on the road to dominant on the path - *"A bike is the big vehicle on the path"*
- The behaviour of shared path users also warranted comment across all groups:
  - *"Cyclists won't share"*
  - *"Full of obstacles – pedestrians, dogs, prams, children wandering"*
  - *"Lack of consideration for cyclists by other users"*

# Multiple players seen to have a role in promoting cycling safety

- Participants were readily able to cite the kinds of organisations they thought would be involved in promoting cycling safety:
  - ACT Government
  - Bicycle user groups
  - Pedal Power
  - Motor Registry
  - Roads and Traffic Authority
  - Police
  - Cycle Clubs
  - Public Health bodies
  - Schools
  - Insurance companies
  - NRMA
  - Health organisations
  - Local activists
  - Parks and conservation/TAMS

# Messages largely align with previous and existing campaigns

- Unprompted, the messages the community thought ought to be promulgated included:
  - Obey the road rules
  - Get fit
  - Wear the right gear, wear a helmet
  - Lights at night
  - Be courteous
  - Report hazards
  - Tailored for children
  - Keep your bike well-maintained
  - Be alert
  - Don't expect people to see you
  - Be courteous
- However, the notions of "humanising" cyclists, and "mutual respect", were discussed strongly amongst both Occasional and Frequent cyclists, with Non cyclists also empathising more with cyclists 'as people' after the discussion and assessing promotional materials
  - *"Cyclists are real people too, with real families"*
  - *"Publicise importance of mutual respect and awareness"*
  - *"Drivers need to be aware and respectful"*
  - *"Encourage motorists and cyclists to show courtesy and respect each other"*

# Past and present advertising not widely remembered

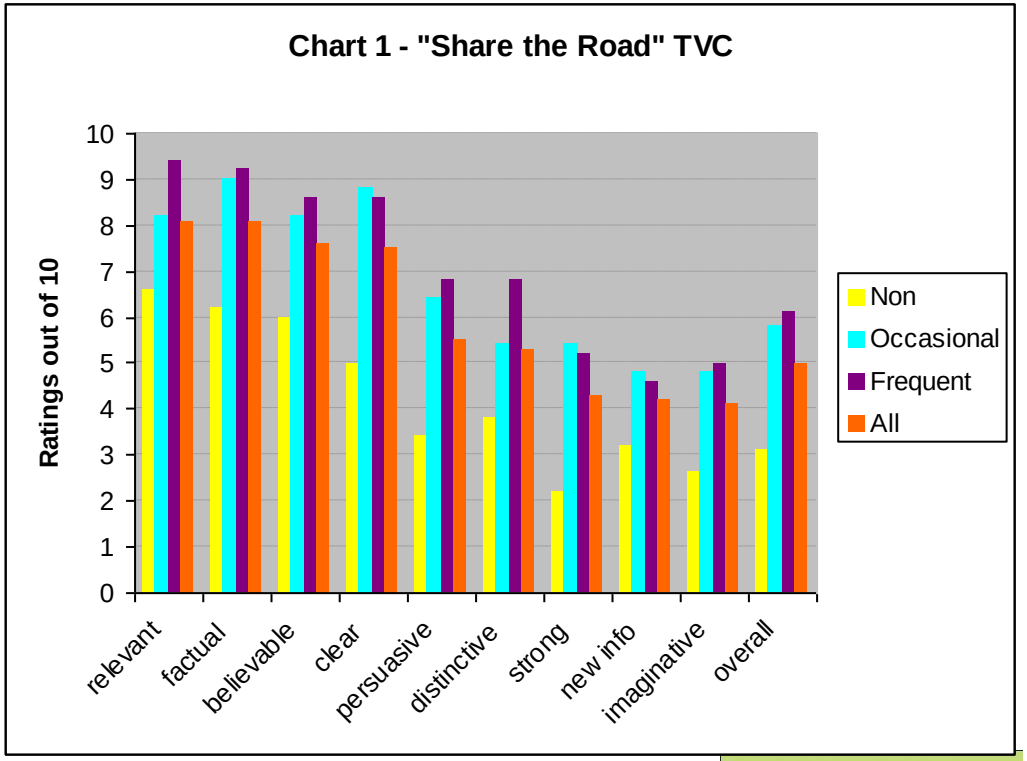
- Materials assessed amongst community groups included:
  - Poster
  - Flyer
  - Brochure
  - ACT Government TVC “Share the Road”
  - Amy Gillett Foundation TVC “A metre matters”
- Unprompted recall of advertising addressing cycling safety was low and virtually non-existent amongst Non cyclists
- Those ads recalled by a few participants included:
  - Molly Meldrum’s Stack Hat TVC
  - Michael Klim’s TVC
  - Leave a Metre TVC

# Frequent cyclists likely to rate cycling safety message more highly

- Differences emerged in the effectiveness of the assessed television advertising with non cyclists and those who ride either occasionally or frequently
- While neither “Share the road” nor “A metre matters” scored particularly highly (5 out of 10 and 6.8 out of 10 respectively), both resonated strongest overall with Frequent cyclists who were likely to score them higher than either Occasional or Non cyclists
- This is noteworthy because it suggests that advertising may be “preaching to the converted” and reaching those most likely to be already predisposed to messages about cycling/road safety rather than those who are not
- The written summaries and descriptions of the ads reinforce this with more frequent cyclists more inclined to be constructive and positive about the ads overall
- “Share the Road” scored much higher with Frequent cyclists (6.1) and Occasional cyclists (5.8) than Non cyclists (3.1)
- Generally, ratings for “A metre matters” were much more closely aligned between groups
- The following charts show ratings by group and overall for each TVC

# “Share the Road” TVC assessment

- Overall effectiveness achieved a mean 5/10 across all groups
- Overall effectiveness was higher amongst Occasional (5.8) and Frequent (6.1) cyclists than Non cyclists (3.1).
- On all attributes, “Share the Road” scored higher with cyclists than Non cyclists
- Cyclists found the TVC much more clear and persuasive than Non cyclists
- Occasional and Frequent cyclists found the TVC relevant, factual, believable and clear, but Non cyclists far less so
- Amongst all participants the TVC was not seen as strong or imaginative or offering new information

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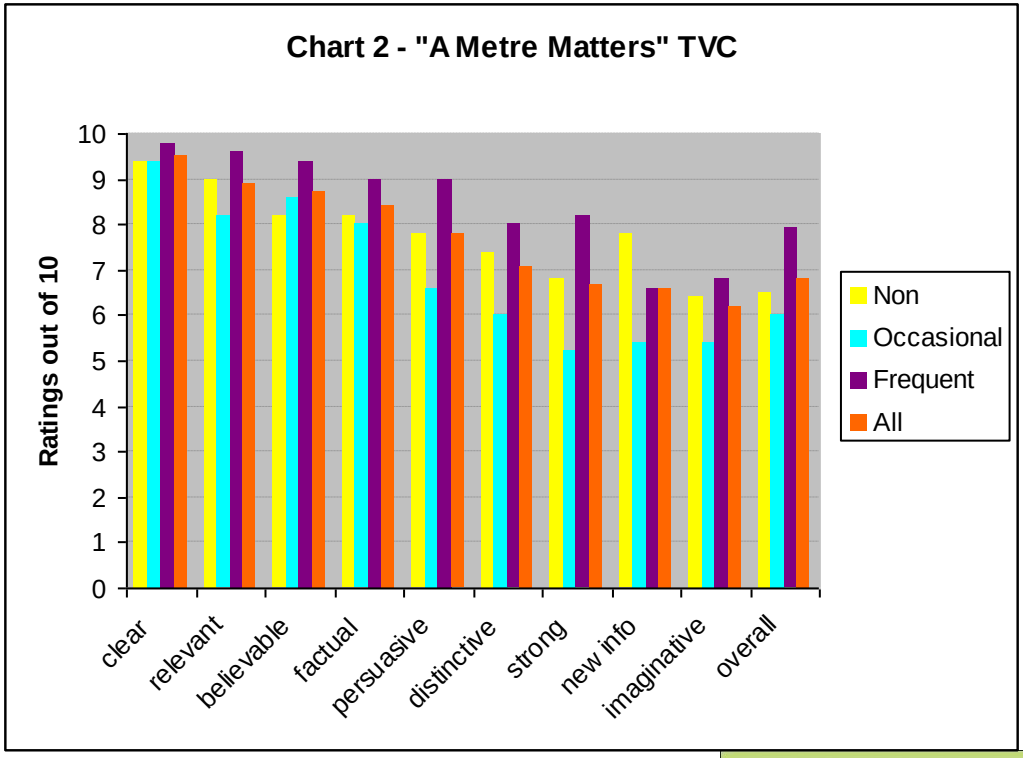
# “A Metre Matters” TVC Assessment

- Overall effectiveness achieved a mean 6.8/10 across all groups
- Overall effectiveness was much higher amongst Frequent cyclists (7.9) than Occasional (6) and Non (6.5) cyclists
- All groups found the TVC clear, relevant, believable and factual
- Frequent cyclists found the TVC much more persuasive, distinctive and strong than Occasional cyclists and somewhat more than Non cyclists
- Non cyclists most found the TVC offered new information
- No group rated the TVC as particularly imaginative

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# Effectiveness of “Share the Road” messaging mixed

- Community participants were asked to summarise in a few words what they thought was the main message of “Share the Road”
- They were also asked to describe the ad overall in one word
- There were numerous messages cited, and the more frequent the cycling the more numerous and complex the take out of messages
- While many of the single word descriptors depicted the ad as “boring” or similar, the more frequent the cycling, the more likely they were to use a constructive word to describe the ad
- The differences in message take-out between groups in the written descriptions are revealed in the table following

# “Share the road” – written descriptions, by group

| | Main Message | One Word Description |
|---|---|---|
| **Non** | “give way to cyclists”, “share the road with other users”, “motorist awareness of cyclists”, “allow cyclists plenty [of] room”, “advertising cycle lanes” | “boring”, “poor”, “dull”, “mundane”, “inconclusive”, “ineffective”, “disjointed”, “fair” |
| **Occasional** | “Give way to cyclists in green lane”, “cars don’t own the road”, “be aware of cyclists and the green paths”, “sharing of roads”, “being aware and courteous of cyclists and give way” | “effective”, “responsibility”, “boring”, “fiction”, “awareness”, “instructional” |
| **Frequent** | “give way to cyclists in green lanes”, “cyclist awareness – how to turn left”, “let cyclists have a clear run”, “be tolerant to other road users”, “be aware of bike riders on roads” “making car drivers aware of cycle lanes”, “it’s easier to wait and give way” | “boring”, “helpful”, “flawed”, “tolerance”, “informative”, “necessary”, “confusing”, “simple”, “safety” |

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# “A metre matters” messaging quite strong and consistent

- Community participants were asked to summarise in a few words what they thought was the main message of “A metre matters”
- They were also asked to describe the ad overall in one word
- Two key messages were dominant across all groups: the need to give cyclists room (a metre) and staying alert while driving
- The consequences of not staying alert also resonated more strongly than other messages with some Occasional and Frequent cyclists
- Like “Share the road”, the more frequent the cycling, the more likely they were to be constructive in their description of the ad, as can be seen in the table following:

# “A metre matters” – written descriptions, by group

| | Main Message | One Word Description |
|---|---|---|
| **Non** | “Give cyclists more room”, “leave a metre when passing bike”, “concentrate and allow sufficient space”, “driver awareness of surroundings”, “stay alert” | “effective”, “thought-provoking”, “informative”, “realistic”, “1990s”, “doco” |
| **Occasional** | “Leaving a metre between yourself and bike when driving”, “leave space between cars and bikes”, “be alert to your surroundings”, “not paying attention to what is on the road” | “Mediocre”, “accidents”, “relatable”, “effective”, “dull”, “real”, “penalties”, “awareness”, “space” |
| **Frequent** | “leave a good gap”, “a metre matters”, “drive at least a metre from bike rider”, “leave room”, “not paying attention can put you in jail” | “consequences”, “good”, “space”, “convincing”, “engaging”, “impact”, “informative” |

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# Print materials worked best when offering 'new' information

- The information contained in the ACT Government "Cyclists" flyer was well-regarded – it contains many of the messages Canberrans think should be communicated
- While there was some questioning of the appropriateness of including ACT Government actions in a road safety flyer, what the ACT Government said it was doing was regarded as the right sort of actions it should be taking, but there was some questioning of the extent and effectiveness of those actions – i.e. c*laiming* is not enough – clear *demonstration* of those actions is a vital part of the communication
- The flyer was deemed to be not strong enough in that it was trying to appeal to both cyclists and drivers, and was not as forceful as it might have been in some of its language e.g. some suggested using "must" instead of "can" and "should" to emphasise the point
- Greater emphasis needed on cyclists adhering to the road rules and not deviating to suit their own purposes
- Greater emphasis on drivers seeing cyclists as people who are legitimate road users (many of them drivers themselves) and treating them with respect as a vulnerable road user
- The notion of mutual respect and responsibility resonated strongly across groups
- Frequent cyclists thought "leave a metre" was an important message to add to give explicit instructions to drivers as to how they should treat cyclists
- Frequent cyclists were particular focussed on being legitimate road users, that drivers should be alert for cyclists and treat them with respect and that cyclists were vulnerable road users.
- Frequent cyclists also noted proactive measures cyclists could take to increase their own safety, such as wearing a helmet, wearing high visibility clothing and using a bell on shared paths
- Cyclists need to be brought to account for the actions if they transgress – police need to enforce the rules
- Better efforts by ACT Government to address bicycle facilities like paths and showers
- Careful selection of photos that reinforce rather than counteract the written messages – the photo in the flyer appeared to be a "fringe group" of cyclists, not riding within the law and not reflecting what many participants thought 'representative' cyclists should look like
- Recommend executional aspects of print materials assessed in focus groups prior to finalisation – some aspects of flyer such as font size and background colour were quite off-putting for some participants

# Detail informative in “Enjoying safe cycling in the ACT” brochure

- The proactive actions cyclists could take to enhance their own safety resonated particularly with Occasional cyclists:
  - Making yourself visible, being always alert, being predictable and clearly letting other people know of your presence and intentions
- Many were unaware that it is the law to have a bell (or other warning device)
- Some were unaware a red reflector at the rear was required by law
- Likewise, many did not know the law stipulates having at least one hand on the handlebars
- Many did not know the rule about the minimum age of cyclists for towing passengers in a trailer, that passengers have to be under 10 and have to wear a helmet
- The state of bicycle safety resonated particularly having equipment checked at a bike shop
- Occasional cyclists were keen to get the message out about the law permitting cyclists to ride on footpaths in the ACT
- There was also a belief that both cyclists and drivers needed to be further educated about the law and their behaviour at traffic lights when they were on the road or on the footpath
- Stakeholders highlighted that there were differences between NSW laws (Queanbeyan) and the ACT which meant behaviours had to change once crossing the border

# Detail resonated with Frequent cyclists but raised issues of non-compliance

- With Frequent cyclists, the point about giving way to buses, coupled with the earlier discussion about the Northbourne Avenue 'hot spot' for accidents prompted discussion about the frustration of the 'stop-start' process along Northbourne Avenue – some of them waited, some of them just went around the buses into the next traffic lane to overtake the buses when they stopped, some treated the situation differently depending on the time of day (whether peak hour or not)
- Frequent cyclists were keen for the message about the law allowing cycling two abreast to be communicated to drivers, as much antagonism experienced was from drivers believing the cyclists should be single file
- A counter to this was raised in that cyclists need to judge when it is safe to ride two abreast and persisting with two abreast in some instances when they should single out is unsafe and blocks traffic, thus frustrating drivers
- The messages about courtesy from cyclists to other road path users resonated strongly with Frequent cyclists
- Frequent cyclists thought that cyclists should not always have to stop at red lights and that the law should be reviewed accordingly.
- Frequent cyclists raised the issue of the state of the bike lanes, where a lot of debris was swept over the side of the road making it difficult to navigate safely and also higher risk of getting a flat tyre – they did not consider them "in a reasonable condition for use" as stated in the brochure

# Non cyclists' attitudes shifted with exposure to messaging

- The attitudes of Non cyclists towards cyclists shifted noticeably after concentrated discussion and exposure to campaign materials about cycling safety
  - "*How easy it is to injure them"*
  - *"They have gone from annoying to vulnerable – the last thing I want to do is hurt someone"*
- In particular, there was a softening of the 'us and them' attitude
  - *"This discussion has helped me see them as a person and an equal"*
- The information was found to be personally relevant because they could relate to the outcomes for themselves of an accident with a cyclist
  - "*That a lapse in judgement has consequences for me"*
- Some Non cyclists felt they would be more motivated to treat cyclists as 'equals' on the road if they were treated equally in the eyes of law enforcement and if they behaved as motorists have to behave
  - *"I want to see the road rules enforced for them"*

# Improvements to infrastructure perceived to reduce risk

- Quality planning and infrastructure is seen to underpin the safest environments for cyclists and pedestrians
- Where economically and physically possible, separation of the vulnerable from the larger vehicle (cyclists from cars, pedestrians from bicycles) is seen as desirable - *"Separate cycle paths from roads and on busy paths keep them separate from pedestrians"*
- Both Occasional and Frequent cyclists articulate the need for finalising a complete network of on-road bike lanes and shared paths - *"Connect all the small missing links on cycle paths and on-road bike lanes"*
- Stakeholders were particularly vocal about the need for a whole-of-government approach and the need to demonstrate cost benefits of proposed initiatives (both infrastructure and communications)

# Message to cyclists: obey the rules, be visible, predictable and prepared

- Dressing for high visibility, following the road rules, respecting drivers, being competent, alert and predictable were messages the community wanted to impart to cyclists:
  - “safety clothes/lights”
  - “ride within your capabilities and always respect the rules and motorists”
  - “assume the driver hasn’t seen you until they look at you”
  - “high viz clothing”
  - “Don’t cross in front of cars”
  - “Make eye contact with drivers”
  - “Be consistent when cycling on the road – nothing fast or reactive”
  - “visibility – bright clothes/flashing rear light”
  - “Be prepared – expect the unexpected”
  - “nobody else will look out for you – always be aware”
  - “always expect drivers to do stupid things”
  - “consequences of unpredictability”
  - “be on the lookout for hazards when riding”

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# Message to drivers: be aware & leave room or face the consequences

- Being more aware of cyclists, leaving more room, respect and understanding the consequences of an accident were seen as key messages the community wanted to impart to drivers:
  - Increased awareness
    - *"being made more aware – by this discussion, by advertising and education" Non cyclist*
    - *I need to be more cautious as well as giving them space" Non cyclist*
    - *"driving is dangerous – be alert" Non cyclist*
    - *"statistics, personal stories" Occasional cyclist*
    - *"Education" Occasional cyclist*
    - *"road signage" Occasional cyclist*
    - *"media/advertising" – Occasional cyclist*
    - *"Be aware that it isn't just cars on the road – look!" Frequent cyclist*
    - *"trust no-one" Frequent cyclist*
    - *"Be on the lookout for cyclists" Frequent cyclist*
    - better knowledge of the law with respect to cyclists
    - *"Better education on road rules" Non cyclist*
    - *"be more aware of cycling laws" Occasional cyclist*
  - Allowing more room for cyclists
    - *"give more room" Non cyclist*
    - *"giving cyclist sufficient space" Non cyclist*
    - *"keeping a safe distance" Frequent cyclist*
    - *"Give adequate room to bike riders" Frequent cyclist*
  - Better understanding of the consequences of an accident with a cyclist and their vulnerability
    - *"the consequences of having an accident and hurting someone" Non cyclist*
    - *"the consequences of a lapse in judgement" Non cyclist*
    - *"cyclists are very vulnerable – high incidence of significant injury" Non cyclist*
    - *"the consequences for a cyclist if you actually hit them" Frequent cyclist*
    - *The consequences you could face if you make a bad/wrong decision whilst driving" Frequent cyclist*
    - *"the consequences of hitting a cyclist – 5 seconds earlier to work isn't worth a human life" Frequent cyclist*
  - Treating cyclists as people and respecting them
    - *"Seeing cyclists treated as a peer/equal fellow road user" Non cyclist*

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# Summary of findings

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# What issues are causing conflict and reducing cycling safety?

- Stage 3 of the ACT Safer Cycling Strategy aims to deliver evidence-based solutions and initiatives to address the issues which reduce cycling safety, and cause friction between cyclists and other road/path users. These may address how different user groups view other users i.e. issues of perception, as well as actual conflicts
- Findings from the community and stakeholder consultation are summarised in this context.

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# Operating environment: Cycling safety is not a top-of-mind issue

- There is a very low level of awareness of current or previous cycling safety initiatives
- The community believes reducing accidents and injuries for cyclists and pedestrians is a worthwhile thing to address, but only when prompted to think about it
- It is not spontaneously something on the top of their list of priorities – personally, or for government
- Many don't see the issue of cycling safety as personally relevant
- The less frequent the cycling activity, the less important it appears to be as an issue

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# Infrastructure and behaviour key issues to address

- Pulling all the consultation data together, some key themes emerge:
  1) That infrastructure plays a key role in facilitating and encouraging cycling per se and specifically in making cyclists *feel* safer and *be* safer physically. This includes, for example, segregated bike lanes/paths (separation from cars/pedestrians), complete routes of shared paths allowing uninterrupted access to locations across the ACT, quality shared paths (width, maintenance)
  2) When infrastructure is not an issue, human behaviour is the main influence on cycling safety – for example, attitudes of motorists towards cyclists, attitudes of cyclists to road rules, behaviours of pedestrians on shared paths, etc
- A strategy for safer cycling will inevitably have a multi-faceted approach, including addressing infrastructure issues and behavioural change (of motorist, cyclist and pedestrian cohorts)

# The community supports improvements to cycling infrastructure

- More could be done to complete shared path network and maintain paths in reasonable condition for cycling
- Green lanes are worthwhile but more could be done to segregate cyclists from motorists on busy roads and high speed roads
- More could be done to keep bike lanes free of debris and in reasonable condition for cyclists

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# The community believes defensive behaviours will help prevent accidents

- The community believes cyclists should adopt defensive behaviours that will maximise their safety including:
  - Maintain their bicycle in good working order
  - Be competent on their bicycle (get training if needed)
  - Wear a helmet and high visibility clothing
  - Match their speed to the conditions and their competence
  - Not ride if their judgement is impaired (e.g. by alcohol)
  - Remain alert at all times while riding
  - Be predictable in their actions and signal intentions clearly
  - Obey the road rules

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# Pedestrians also need to adopt defensive behaviours on shared paths

- The community believes both cyclist and pedestrian safety on shared paths would be improved by pedestrians also adopting defensive behaviours including:
  - Being predictable on the path
  - Controlling animals and children
  - Avoiding busy times and places

# The community wants motorists to: be aware, leave room, respect, know the consequences

- Key messages the community wanted to impart to drivers:
  - Being more aware of cyclists
  - Leaving more room around cyclists
  - Respecting and treating cyclists as legitimate road users
  - Recognising cyclists as people like themselves
  - Understanding the vulnerability of cyclists
  - Knowing the consequences of injuring a cyclist

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# Attitudinal shifts are required by motorists, cyclists and pedestrians

- The community believes all cohorts need to recognise, consider and respect the rights of other users of roads/paths
- The ‘weaker’ position (cyclists on roads, pedestrians on paths) needs to recognise their own vulnerability and act defensively
- The ‘stronger’ position (motorists on roads, cyclists on paths) needs to recognise the vulnerability of the ‘weaker’ position and act accordingly
- Cyclists in particular need to acknowledge they have an obligation to uphold the road rules like all other vehicles
- Motorists in particular need to acknowledge that cyclists are people who ride bicycles who also may be drivers and pedestrians at other times and are ‘real people’ with families and friends, not a faceless annoyance

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# Three simple messages apply to all audiences

- Be prepared
- Be alert
- Be considerate

- Noting that it is not simply the delivery of these messages that will change behaviours, but the way in which users are engaged to adopt these behaviours

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# Recommendations

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# What do we need to consider?

- Stage 3 of the ACT Safer Cycling Strategy aims to “deliver a range of recommendations and initiatives, recognising that one or two initiatives alone are unlikely to significantly improve safety”
- The low base of salience of the issue within the community means the strategy must both create awareness of the issue as well as attempt to drive behavioural change: that is, *why* the issue is important and *how* to address it
- Community consultation indicates that elements addressing both infrastructure and behavioural change ought to be included in the strategy

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# What is missing from our data and what do we need to do about it?

- Stakeholders cited a number of specific reports they felt should input to the data collection. These could be obtained and reviewed for possible inclusion.
- Stakeholders were also interested in what cycling safety measures were being undertaken in other jurisdictions in Australia and overseas, and what could be learnt from these (without 'reinventing the wheel'). A review of domestic and international initiatives could be conducted and incorporated as appropriate.
- The absence of ACT Policing at the Stakeholder Workshop was noted; the lack of input from such a key stakeholder was seen to be a significant gap. Measures should be undertaken to seek their input and feedback for inclusion.
- Other groups considered to be influential stakeholders and with a role to play included retail bicycle shop proprietors and their staff (as separate groups recognising different agendas), bicycle manufacturers, and insurance companies. Consideration could be given to how input from these groups might be gathered and included.
- The lack of specificity of some data in the Stage 1 report and some of the conclusions drawn by perceived incomparable linkages caused some Stakeholders to question the credibility of the report overall. Consideration of these comments and addressing these apparent inconsistencies will be important to underpinning Stakeholder support for the Strategy.

# Key strategy elements might include…

- The issue of cycling safety is not a high top-of-mind priority for the community and also is not seen to be a high political priority for governments. The lack of 'importance' ascribed to cycling safety is seen to be reflected in the responses to addressing safer cycling. Therefore, Government could be a key target audience in the strategy, and advocacy will play a role in this.
- The value of early education of cyclists in defensive behaviours was strongly supported. Including in the strategy enhancement of opportunities to educate pre-driving age children about road rules and the differences for cars and bikes could assist with generational change in driver attitudes.
- A whole-of-government approach is likely to consolidate efforts, reduce duplication and maximise effectiveness. The strategy could include explicitly how this might be achieved.
- Mechanisms to encourage and improve the competence of cyclists could form one plank of the strategy.
- The strategy might examine the avenues for updating (detailed) community knowledge about the road and road use, for example in driver training, testing and at licence renewal time.
- The strategy might recommend more data gathering such as target audience segmentation and a survey of cyclists on accidents (unreported).
- A Communications Plan for draft versions (to seek stakeholder feedback) and roll-out of the strategy might be included.
- A Communications Plan incorporating the various elements of the strategy, identifying target audiences, key messages, executional elements (e.g. advertising, social media, viral marketing, in-shop literature, online promotion, earned media, paid media, etc), plus relevant costings and timeframes could be included.
- The strategy might include an assessment of the gaps in the shared path network and the cost to address these to complete the network.
- The strategy might include an assessment and costing of the feasibility of physical segregation measures in busy areas and high speed roads.

# Cutting through the communications clutter

- If we accept the community and stakeholder views that changing a range of behaviours will result in safer cycling, a cycling safety strategy should consider how it initiates and maintains that behavioural change
- At the heart of behavioural change in the context of safer cycling is initiating greater regard and respect between road and path users, and raising the consciousness of users to the vulnerability of the weak and the consequences of an accident
- Cycling safety is a 'given' – people do not need to be persuaded that it is a good thing to address – but it is only when they are reminded of the issue and the consequences, and they consider how their own behaviours might impact, that they move to a frame of mind which predisposes them to change their ways (NOTE: this is just preparing the ground – it does not of itself lead to change)
- It is useful to remember we are not operating in isolation (or in the rarified atmosphere of a community consultation group with their undivided attention focused on what we want them to focus on), but in a fast-paced world with time poor individuals who are being bombarded with many messages, from many media
- Lack of awareness or recall of current and past campaigns (particularly television components) addressing road/cycling safety suggests lack of 'cut-through' with audiences which may stem from insufficient funding for media (i.e. lack of frequency of the ads) and/or poorly targeted messaging and/or unmemorable creative which does not capture attention - so, how does a safer cycling strategy cut through the communications clutter?
- Awareness is driven by two things: repetition and memorability. Since the budget for any strategy is unlikely to be sufficient to support the advertising weight needed to achieve unprompted recall (and the evidence suggests that campaigns like "A metre matters" have failed to engage Canberra television viewers to remember them), the importance of a highly creative approach to the campaign messaging cannot be overstated
- The other essential factor in achieving memorability and, indeed, action is to articulate the issues in a way that is personally relevant for the audience/s:

*Persuade by reason, motivate through emotion*

# Cost strategy elements, identify priorities, build on successes

- Campaign experience shows that a consequence of insufficient funds to underpin a campaign will dilute its effectiveness because the intended audience simply does not see it and therefore does not get the messages
- The consequence of this is that even the best-researched and executed campaign can fail
- With limited resources, a strategy needs to identify what it can achieve and also what it will NOT do – in other words, it will not attempt to deliver a wishlist (e.g. trying to include and juggle the many competing interests of the various stakeholder groups), but set out and execute those elements that are measurably achievable given the budget allocated
- It must also prioritise the campaign elements by 'bang for buck' in terms of where efforts are going to achieve the greatest outcomes
- An important tenet underpinning this is accurately costing the elements and using cost benefit analysis to guide and justify priorities
- Further, identifying the target audiences where the likelihood of achieving behavioural change is high, will provide opportunities for developing exemplars on which to base future activities
- Achieving success within a particular audience can then be used to promote the achievement amongst a wider audience using general media
- The strategy should also define what "success" means and how it will be measured, so milestones can be documented and promoted

# Strong creative is vital, in both content and dissemination

- With modest funding the need to execute strong creative in developing advertising and campaign materials is critical – Canberra offerings in this regard are scant
- As noted in the project proposal, the strategy is likely to be multi-faceted and require more than one creative approach to address the multiple audiences
- Pathways for communication with target audiences are most effective when they are natural to that audience – as noted in the stakeholder workshop, traditional approaches to advertising/PR may not be the best methods - “television is passé”
- For example, Social media is low-cost and can be used effectively to drive community ‘conversations’, particularly amongst certain target audiences (and, for example, to promote an exemplar)

# Finally, a successful strategy would change the mindset of users in key areas

| From | To |
|---|---|
| *I've got other things on my mind* | *I need to stay alert and focused* |
| *I don't have to think about going out for a ride/walk/drive* | *How can I prepare to make my trip safer?* |
| *I am invincible* | *I am vulnerable* |
| *I can do anything I like* | *I need to consider other road/path users* |
| *I don't have to be responsible because no-one will catch me* | *There are consequences for my actions* |
| *Bicycles shouldn't be on the road – they should be on the bike path* | *People on bicycles have a legitimate place on the road like me or anyone in any other vehicle* |
| *Cyclists are an annoyance* | *Cyclists are people just like me* |

# Post research contact:

- This research and report remains the intellectual property of Landscape Research+Communications
- No part of this report may be released publicly without the prior approval of Landscape Research+ Communications
- Any questions about this report should be directed to Jane Seaborn 0414 829 282 or jane@landscaperesearch.com.au



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# Appendix D

## Example of an Infrastructure Initiative

*Note – this section provides a guide to the development of the strategy only. GTA Consultants have focused on initiative i1a as an example.*

## i1a- Upgrade bicycle infrastructure at major intersections

This initiative seeks to improve bicycle infrastructure at intersections with high crash histories. The project would focus on the top ten crash suburbs identified through crash data analysis (Stage 1) and pilot projects would be undertaken at these locations.

### Issues to be addressed

Review of the issues:

- Cycling crashes are most common at intersections (e.g. data analysis carried out in Stage 1 of the project revealed that 53% of accidents reported to police occur within an intersection)
- Crash concentrations are apparent in certain locations
- Infrastructure in the ACT is inadequate - improvements to existing infrastructure are required.

### Current conditions and planning in the ACT

- Review different intersection types in the ACT
- Review relevant documents including:
    - ACT Government Cycling and Walking Strategy Feasibility Study, SKM for ACT Government (2009).
    - Cycling and Pedestrian Network Priority Infrastructure for Capital Works, Cardno for ACT Government (2010).
    - Design Standards for Urban Infrastructure - DS13 Design Standards for Pedestrian and Cycle Facilities, ACT Territory and Municipal Services Directorate.
- Review current projects / studies including:
    - Austroads study on roundabouts (brief released last month)
    - ACT Strategic Cycle Network Plan.

### Best practice

Review of best practice design at intersections in Australia and internationally

- Intersection treatments – approach, within, departure
- Roundabout treatments, bike boxes etc
- Conference papers, studies
- Design guidelines.

### Description of initiative

**Selecting destinations**

- Pilot project focused on top 10 crash locations (intersections)
- Not all intersections require an infrastructure upgrade.
- Prioritise intersection upgrades
- A suite of treatment templates to address different intersection types/ traffic flows.

### Cost benefit analysis

Undertake a cost benefit analysis of the initiative.

### Implementation

- Medium term
- Priority based on crash history, feasibility and cost.

### Target audience

- On-road bike riders
- Motor vehicle drivers.

### Success factors

- Determine what the success factors are
- Determine how success is to be measures:
    - Reduction in the number of accidents recorded at intersections
    - Increased number of on-road bike riders recorded.

### Supportive initiatives

An educational campaign would need to be developed to complement this initiative.

# Appendix E

## Example of a Soft Initiative

*Note – this section provides a guide to the development of the strategy only. GTA Consultants have focused on initiative e1 as an example.*

## e1- Develop an effective advertising campaign to promote safer cycling

Initiative e1 is to develop an advertising campaign which improves cycling safety in the ACT. The campaign would be aimed at young adult bike riders and motorists, with a clear and uncomplicated message.

### Issues to be addressed

Review of the issues:

- Bike riders aged 20-29 years old are most likely to be injured in cycling crashes
- Bike riders are provided with insufficient space when drivers overtake
- There is a lack of mutual respect between different road and path users
- Lack of awareness and tolerance of bike riders by motorists.

### Current campaigns in the ACT

- Review current and past advertising campaigns in the ACT
- Review any relevant projects/ studies.

### Best practice

Review best practice advertising campaigns for cycling safety in Australia and internationally. Examples may include:

- City of Sydney
- London
- Netherlands.

An abundance of road safety campaigns have been developed to address road safety in general, and cycling safety more specifically, both in Australia and overseas. There are some examples of campaigns that have been successful – and more which have been unsuccessful. Both provide valuable lessons for the development of initiative e1.

### Description of initiative

- Create an impact in order to be effective
- Make non-bike riders interested in cycling safety
- Have personal relevance
- Have a simple, uncomplicated approach
- Have a simple, uncomplicated message
- Be interesting and focused
- Have a clear target audience
- Cut through communication clutter and provide a new/ innovative/ highly creative approach.

### Cost benefit analysis

Undertake a cost benefit analysis of the initiative/ different options for advertising campaign.

### Implementation and next steps

- Short term
- Explain next steps.

### Target audience

- Young adult on-road bike riders
- Motor vehicle drivers.

### Success factors

Success measured by:

- Posting on social media sites
- Positive media coverage
- Reduction in the number of accidents recorded
- Reduced conflict between bike riders and motorists.

### Supportive initiatives

This initiative could be supported by a range of other initiative, including:

- Flyers/ posters/ leaflets
- Newspaper/ internet advertisements
- Promotional material at special events
- Promotion on social networking sites.

**Melbourne**

A 87 High Street South
PO Box 684
KEW VIC 3101
P +613 9851 9600
F +613 9851 9610
E melbourne@gta.com.au

**Canberra**

**A** Unit 4, Level 1, Sparta Building, 55 Woolley Street
PO Box 62
DICKSON ACT 2602
**P** +612 6263 9400
**F** +612 6263 9410
**E** canberra@gta.com.au

**Townsville**

**A** Level 1, 25 Sturt Street
PO Box 1064
TOWNSVILLE QLD 4810
**P** +617 4722 2765
**F** +617 4722 2761
**E** townsville@gta.com.au

**Sydney**

**A** Level 2, 815 Pacific Highway
CHATSWOOD NSW 2067
PO Box 5254
WEST CHATSWOOD NSW 1515
**P** +612 8448 1800
**F** +612 8448 1810
**E** sydney@gta.com.au

**Adelaide**

**A** Suite 4, Level 1, 136 The Parade
PO Box 3421
NORWOOD SA 5067
**P** +618 8334 3600
**F** +618 8334 3610
**E** adelaide@gta.com.au

**Brisbane**

**A** Level 3, 527 Gregory Terrace
BOWEN HILLS QLD 4006
PO Box 555
FORTITUDE VALLEY QLD 4006
**P** +617 3113 5000
**F** +617 3113 5010
**E** brisbane@gta.com.au

**Gold Coast**

**A** Level 9, Corporate Centre 2
Box 37
1 Corporate Court
BUNDALL QLD 4217
**P** +617 5510 4800
**F** +617 5510 4814
**E** goldcoast@gta.com.au

**www.gta.com.au**

GTAconsultants