EVALUATION OF THE VICROADS COMMUNITY POLICING AND EDUCATION PROJECT: FINAL REPORT

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APRIL, 2012

Sponsoring Organisation
This report was prepared for VicRoads

This project was funded by the Motorcycle Safety Levy.

Report documentation

DATE	PAGES	ISBN
APRIL 2012	103	978-0-7311-9177-2

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ABSTRACT

The Community Policing and Education Project was launched by VicRoads and Victoria Police in 2009 to reduce the likelihood of motorcycle crashes through a combination of enforcement and education countermeasures. The Centre for Automotive Safety Research at the University of Adelaide was chosen to evaluate the effectiveness of the Project using a range of methods. These methods include a process evaluation, analysis of crash data, on-road speed surveys, an online survey of motorcyclists, and roadside traffic observation. This final report provides an analysis of data collected during all phases of the evaluation.

KEYWORDS

motorcycle, evaluation, enforcement, education, survey, speed, offences, roadside observation, process evaluation, crash data

Summary

The Community Policing and Education Project was launched by VicRoads and Victoria Police in 2009 to reduce motorcycle road trauma through a combination of enforcement and education countermeasures. The Centre for Automotive Safety Research at the University of Adelaide was chosen to evaluate the effectiveness of the Project using a range of methods. These methods include a process evaluation, analysis of crash data, on-road speed surveys, an online survey of motorcyclists, and roadside traffic observations.

The process evaluation, analysis of offences, on-road speed surveys, roadside observations of road users, and online survey of motorcyclists have provided key performance indicators that can be analysed to assess the effectiveness of the Project. The most important results referred to in this report can be summarised thus:

- The results from the process evaluation suggest the program has been well understood and accepted by Victoria Police members and that there was no obvious resistance to undertaking educational interventions. Members interviewed felt the program was positive in improving safety and raising awareness of motorcycle issues. There was particular enthusiasm for the commuter operation that improved knowledge about protective clothing among commuting motorcyclists and scooter riders. Victoria Police members were disappointed by the lack of media interest in the Project.
- The number of moving violation offences recorded for motorcyclists reduced in 2008/2009 and 2009/2010 from the totals in the two previous financial years. This could mean more law-abiding behaviour by motorcyclists or reflect changes in enforcement practices in which educational interventions are encouraged during normal hours of enforcement. The overall reduction in offences was chiefly due to reductions in speeding offences.
- There was a marked increase in the number of hand held mobile phone use offences among drivers of motor vehicles other than motorcycles. The most likely reason for this increase was the focus within the Project on enforcement of hand held mobile phone bans for drivers, to reduce driver distraction. This increase in offences can be considered an indicator of success for the Project.
- In addition to monitoring mobile phone use offences recorded by the police, the project involved direct observation of rates of mobile phone use by drivers in Victoria. Rates of hand held mobile phone use by drivers in regional Victoria declined across the course of the Project, reducing from a very low starting point. This change may be partly due to greater take up of hands free kits but still may reflect a deterrent effect resulting from police enforcement.
- There was no evidence for a sustained reduction in motorcycle speeds on regional roads in Victoria as a result of the Project. However, motorcycle speeds did not increase, contrasting with increased speeds of cars. Despite the gap closing between the two speed distributions (motorcycles and cars), the proportion of motorcycles exceeding the 100 km/h speed limit by more than 10 km/h was double that of cars, whether examining data for all vehicles or just those travelling at free speeds.
- A very positive finding in the roadside observations was the increase in the proportion of riders in metropolitan Melbourne wearing full body protection following a targeted operation. Across the three surveys, this proportion increased from 17 (before the operation) to 24 (just after the operation) to 38 percent (three weeks after the operation). Improvement was most marked among riders of sports and standard/naked motorcycles but is still needed among riders of cruisers and scooters. It is also interesting to note that Victoria Police members, in the process evaluation, rated the targeted commuter operations as being likely to be beneficial.

- Conspicuity remains a component of motorcyclist apparel that needs improvement. The proportion of motorcyclists judged to be conspicuous (retroreflective or brightly coloured torso, retroreflective or brightly coloured helmet) ranged between one in five to one in four, whether observations were being made in metropolitan Melbourne or regional Victoria. There was no indication of improvement associated with the Project. Riders of cruisers were particularly inconspicuous.
- The online survey of Victorian motorcyclists found very few differences between riders responding across the survey period. The only differences were increases in the perception that more riders in Victoria are being booked than in the previous year and in the perceived risk of apprehension for motorcyclists committing traffic offences. These two differences represent an identifiable but modest success for the Project.

Contents

1 Introduction

The Community Policing and Education Project was launched by VicRoads and Victoria Police in 2009 to reduce motorcycle road trauma through a combination of enforcement and education countermeasures. The Centre for Automotive Safety Research (CASR) at the University of Adelaide was chosen to evaluate the effectiveness of the Project using a range of methods. These methods include a process evaluation, analysis of crash and offence data, on-road speed surveys, an online survey of motorcyclists, and roadside traffic observation.

1.1 The Project

In recognition of the high involvement of motorcyclists in road crashes and associated trauma, the Victorian Government introduced a levy in 2002 that was added to the Transport Accident Commission premiums paid when registering motorcycles with engine capacity above 125 cc. The funds raised are dedicated to special projects for improving rider safety.

One project given approval for the use of levy funds was the Community Policing and Education Project, a joint initiative of VicRoads and Victoria Police to improve motorcycle safety through the integrated use of police-led education and traffic law enforcement. This program was launched in January 2009 and ran for two years. A full description of the program is available in an article by Shuey and Casey[1] but the following is a brief summary.

Victoria Police ran the Project under the name “Operation Yellow Flag, Black Flag”. For the Police, this operation involved broadening the scope of its usual activities, with an educational component being combined with the more familiar enforcement-related programs. Enforcement was conducted in a manner to achieve both general and specific deterrence of high-risk behaviours for both motorcycle riders and drivers of cars. The high-risk behaviours that were targeted included excessive speed, crossing double lines, failure to give way, changing lanes when unsafe, driver distraction (e.g. mobile phone use while driving) and driving or riding when impaired by alcohol and drugs. The enforcement was planned so as to be visible and active, repetitive, fair, credible and well publicised.

The education component was delivered to both drivers and riders, with the messages focused on awareness of the safety issues associated with motorcycle riding. Drivers were encouraged to take time to look for motorcycles, give space to motorcycles and expect the unexpected. Riders were encouraged to ride defensively, position themselves appropriately on the road and to make sure they could be seen. Particularly important was the emphasis on the use of conspicuous and protective clothing. As part of the education component of the Project, a Sharing the Road brochure was produced and was handed out to riders and drivers during educational interactions with the Police. This is provided in Appendix A.

Victoria Police used the extra funds available for overtime to stage five state-wide operations in each of the two years. Each state-wide operation lasted for three days and used both regional and central police resources. These funds were also used to run ten operations in each of the 5 regions, each of these lasting for two days. These operations were originally planned so that they would be spread evenly across the five regions. (The Victoria Police regions were re-organised in the time since the beginning of the project.)

The complex nature of the Project and the need to keep track of the educational activities of the Police, in addition to the usual enforcement-related activities, required the development of new data recording techniques and resources. A data analyst was specifically employed to maintain the data and to provide statistics necessary to guide the program.

Other features of the Community Policing and Education Project included:

- Regular reporting to the Road Policing Strategic Advisory Group to ensure the project kept to its budget and time schedule.
- Regular reporting to VicRoads and the Victoria Motorcycle Advisory Council.
- An internal communication strategy including project wide meetings at important milestones, designed to ensure management 'buy-in' and to allow all team members the opportunity to give and receive feedback.
- A motorcycle awareness program for 100 non-rider personnel in the Police Traffic Management Unit (TMU).

In 2010, an additional component was added to the Project. A subsidised training scheme for motorcyclists was established called 'Rider Survivor Training'. During educational interventions as part of the Community Policing and Education Project, Victoria Police members were instructed to invite motorcyclists who would benefit from skills training to attend the course. A flier was printed and distributed for this purpose. The eight hour training session, administered by DECA Training, included a theory component, a skills session on a training range, and an on-road coaching session. The budget allowed for subsidies for 150 riders, with a limit of five riders per session. The outcome of this additional component of the Project is summarised in Appendix B.

1.2 The methodology of the evaluation

This complex Project involving state-wide and regional resources being utilised for both education and enforcement required a multi-faceted methodology to evaluate it. The methodology used by CASR included a process evaluation, analysis of crash and offence data, on-road speed surveys, roadside traffic observation and an online survey of motorcyclists. The remainder of the report provides details of the separate methodologies and outcomes of each of these components of the evaluation.

2 Process Evaluation

2.1 Introduction

The aims of the process evaluation were to understand how well the program was implemented, identify any barriers to its implementation, identify possible improvements and explore how well the program was understood and accepted by staff of Victoria Police and VicRoads.

The evaluation was carried out in three stages. Stage 1 was undertaken early in 2010, Stage 2 between July and September 2010 and Stage 3 between October 2010 and February 2011.

Stage 1 consisted of:

- Interviews with Project Management and Senior Management staff and consultants from both VicRoads and Victoria Police.
- Collection of plans, manuals and data relevant to the program.
- Interviews with Victoria Police members involved in state and regional operations under the program.
- A survey of Victoria Police members who received motorcycle awareness training.

Stage 2 of the review consisted of three parts:

- Interviews with VicRoads staff
- Interviews with staff from Victoria Police involved with management and administration of the program
- An audit of the paperwork associated with the individual operations.

Stage 3 of the review included:

- Interviews with senior and project staff from Victoria Police.
- Interviews with Victoria Police members who are solo riders and have been involved in state and regional Flag operations.
- Interviews with staff from VicRoads

2.2 Interviews with management staff and consultants from VicRoads and Victoria Police

Project and senior management staff members from both VicRoads and Victoria Police were interviewed during all three stages of the process evaluation. Most information was obtained in the Stage 1 interviews with subsequent interviews being used to discuss any changes in perception about the program and any new concerns. During Stage 1 consultants involved in the initial set up of the program were also interviewed and relevant proposals and manuals examined.

2.2.1 Shared understanding of the program

The Stage 1 interviews revealed a high degree of shared understanding and agreement about the main aims of the program. All respondents identified the high level of risk for motorcyclists and agreed changing rider behaviour and increasing the use of safety equipment are important objectives. The respondents emphasised that the program was focussed on being part of the community and finding new ways to reduce the risk to motorcyclists, not just increasing enforcement.

All respondents named changing the nature of interactions with motorcyclists and increasing the number of these interactions as the two main activities of the program. There was also general agreement that, while emphasising the educational aspects of interactions with motorcyclists was supported, ongoing evaluation would be required to determine if the approach was successful.

An increase in the use of safety equipment and a reduction of speed were identified as key performance indicators by some respondents, whilst others suggested that changes in crash numbers would be the major indicator. Most respondents stated that the major key performance indicators for implementation of the program would be the number of operations and the resulting number of interactions.

While all respondents agreed that increasing the number of interactions with car drivers and addressing issues likely to be unsafe for motorcyclists was a component of the program, this was not emphasised in the same way as interactions with motorcycle riders. When prompted, most respondents felt interactions with car drivers would be a natural outcome of the operations.

The development of the program was discussed by all respondents, particularly the need to balance the roles of education and enforcement. Some respondents believed this balance had been achieved whilst others suggested continual adjustment would be required. A number of respondents mentioned that they did not want the program to be seen as just increasing enforcement and felt the educational aspects of the program should be further emphasised. There was disagreement about whether the educational components were only included to secure the additional funding or whether they resulted from long term planning.

The special events and displays supporting the operations were identified as important but there was not a shared view of the role or extent of these events. Some respondents saw them as only useful to support a particular operation whilst others felt more frequent displays or “education days” would have value as stand alone activities.

During the Stage 1 interviews there was some disagreement whether police members were being asked to show more leniency in Flag operations than when doing routine enforcement. Both VicRoads and Victoria Police management agreed that riders committing offences should be treated as ‘business as usual” but there was some concern whether this was fully understood. This issue was explored further in the Stage 2 and Stage 3 interviews and appeared to be have been resolved through the use of standard operational briefings.

The Stage 2 and Stage 3 interviews showed that VicRoads and Victoria Police maintained a shared understanding of the program and its aims in spite of changes in senior personnel within both organisations.

2.2.2 Operational issues

The start of the operation was considerably delayed by the diversion of resources to activities associated with the major bushfires suffered by Victoria early in 2009. All people interviewed agreed this delay was unavoidable given the magnitude of the bushfire event. Many of the bushfires impacted areas and routes used by recreational motorcyclists and would have been expected to impact any rural operations carried out early in 2009. Further disruptions occurred due to extensive flooding in 2010 and 2011, and a number of operations were cancelled.

The overall program was managed through the Road Safety Strategic Services Division, which has responsibility for overall strategy, management of data and leading statewide operations. Regional operations were managed at the local level with detailed information being provided to Road Safety

Strategic Services. During 2009, the management of the program was affected slightly by changes to the overall structure of Victoria Police but the general roles and responsibilities remained the same.

The accurate collection of information about the operations was a source of concern in the early stages of the program but a successful process was in place by late 2009. Victoria Police management stressed the importance of intelligence-led planning of the operation. Problem profiles were developed for regions using crash and enforcement data to identify problem locations and times and then used to plan operations. The information and assistance available to the regions increased throughout the program.

Operations were delivered mainly by solo police riders based either centrally or with the various regions with some support from car based personnel. Other Traffic Management Unit (TMU) personnel, including those who received the Honda Australia Rider Training (HART), did not have any role in the program until the commuter operation in 2010.

The extensive use of the solo riders was seen as a strength of the program as they are widely recognised and respected by motorcyclists for their riding skills. They are able to suggest alternative behaviours with credibility and to discuss the importance of safety equipment using personal experiences. The potential benefits of including general traffic management unit personnel were considered to be the wider promulgation of the education-based approach to enforcement and the possibility of extending the size and number of operations.

The program was considered to be unusual because it was expected to require a degree of cultural shift for the police members involved. Respondents believed that this message had been articulated well by senior officers from Victoria Police but that some resistance was inevitable. In spite of this concern there was little resistance to the emphasis of the Flag operations on education and the different approach was greeted with enthusiasm by many police members.

2.2.3 Communication

A communications plan was developed for the project aimed at better internal communications, better communications with stakeholders, improved communication with road users and use of the media to explain and support the program. Some aspects of this plan were implemented but communication was identified as a source of concern in most of the interviews.

Three areas of communication were considered during the stakeholder interviews:

- Communication between VicRoads and Victoria Police.
- Communication within Victoria Police.
- Communication with media and external stakeholders.

Communication and cooperation between VicRoads and Victoria Police were consistently reported as excellent by both organisations. Some respondents attributed this success to the formation of the project steering committee and the controlled number of contact points between the two organisations and the Victorian Motorcycle Advisory Council (VMAC).

There was some concern during the Stage 1 interviews about the availability of information describing the operations, media coverage and the educational events but this had been addressed by the time the Stage 2 interviews were carried out.

Both VicRoads and the Victoria Police expressed concern about the lack of interest by the media in the program even when the program was announced by the Minister for Police and Emergency

Services. This concern continued throughout the program in spite of continuing attempts to interest the media in the program.

2.3 Focus groups with solo riders involved in Flag Operations

Procedure

The solo riders were interviewed during Stage 1 and Stage 3 of the process review. Twenty-four members divided into two groups of twelve were involved in the Stage 1 interviews and a single group of 12 was interviewed for Stage 3.

The focus group discussions were targeted to address:

- Communication about the program.
- Differences between the program and previous motorcycle enforcement.
- Planning and targeting of operations.
- Problems with operations.
- Resources and resource constraints.
- Aspects of the operation that have worked well.
- Responses from motorcyclists.
- Suggestions for improvement.

The discussions were guided but allowed the members an opportunity to raise any issues they considered to be important. Most of the information was obtained during the Stage 1 interviews and was confirmed by the Stage 3 discussion.

Communication and understanding of the program

All the riders showed a clear understanding of the goals of the program and stated that the main goal of the program was to reduce motorcycle related trauma by increasing awareness of motorcycle safety issues for both motorcyclists and car drivers. They also understood the aim of increasing educational interventions and positive interactions with drivers and motorcyclists while maintaining a visible enforcement presence.

It was felt that communication about the program had been good and that the program had been sufficiently explained to them. One of the Stage 1 groups believed that there had been some confusion initially about whether riders detected committing offences should be shown more leniency than usual. They said that this issue had been clarified early in the program and that now infringement notices and warnings were used in the same way as for conventional operations. The other group believed this had always been the case and had not experienced the same uncertainty.

There did seem to be some uncertainty about how much the focus of the operation should be on motorcyclists and how much effort should be given to interactions with car drivers. There was general agreement that priority was given to talking to motorcyclists for the educational interactions although car drivers were definitely included. The results from both regional and state operations suggest a reasonable balance was achieved.

There was some concern that not enough feedback had been given to members about the results of operations although this improved throughout the Project.

Operations

During both Stage 1 and Stage 3 interviews the riders stated that planning and targeting of operations improved during the program with more support for profiling areas with high numbers of motorcycle crashes.

Some of the members thought that less emphasis should be given to the special events and more to operations in areas with high motorcycle volumes. There was not general agreement on this issue. Statewide operations were reported as being better organised and better resourced, as there was some concern about the difficulty of sharing resources for regional operations.

There was a positive response to the commuter operation; the riders thought that it had allowed communication with a different group of motorcyclists including commuters and scooter riders. It was thought that there was great potential to improve the use of protective clothing by this group.

Attitudes of motorcyclists

There was agreement that the response of motorcyclists to the educational interventions and leaflets had been generally positive and that negative responses were less common than would be expected in conventional operations. Both groups said they occasionally got the response “why are you picking on bikies?” but this seemed to soften when the program was explained and particularly when the riders were told that the program included talking to car drivers about motorcycle issues.

There was some concern that some motorcyclists were stopped multiple times during an operation particularly during the special events such as the Superbikes or MotoGP. One member reported that a motorcyclist told him he had been stopped six times during the MotoGP operation and ‘maybe that was enough’.

There was general agreement that motorcyclists respected the solo police riders and were happy to talk to them about their bikes, equipment, et cetera. The solo riders believed they have credibility with other motorcyclists and so are able to get the safety message across successfully.

Positive aspects of the program

Most of the participants in the focus groups were positive about the program and said, “It had to be a good idea”. They believed more interaction with both riders and drivers would raise awareness of motorcycle safety issues.

Members agreed that the most positive aspect of the program was that it allowed increased hours of operation for the solo motorcycles and so increased their visibility and deterrence value. In the Stage 3 interviews they also discussed the value of being able to call on riders from a number of regions and so put a highly visible presence on the road. The members felt that the operations were most successful when there was a large number of police motorcycles rather than a mixture of police cars and motorcycles.

Suggestions for improvement

Some members thought that interactions with both motorcyclists and car drivers would be easier if there was more publicity about the program. They suggested that knowledge of the program was increasing, especially amongst motorcyclists, but that the media could do more to assist.

The issue of multiple interactions with the same rider during special events was raised a number of times. Some members suggested that, by the third day, educational interventions were becoming

counter productive and that maybe these operations should concentrate on education for the first one or two days and then change to enforcement only on the third day. This was suggested in both the Stage 1 and Stage 3 interviews.

The members found the information leaflets useful and a good way of starting the conversation. There was some concern that those motorcyclists who were already wearing the correct protective clothing and obeying traffic laws found the leaflets irrelevant and it was suggested a wider variety of material might be useful.

There was some concern that opportunities were being missed because of a lack of resources and all participants agreed it would be useful to extend the program. Some of the members suggested that the approach used in Flag operations could be integrated into routine enforcement activities, further increasing the educational interactions.

2.4 Review of documentation

To assist with Stage 2 of the evaluation, Victoria Police made the files from the Flag operations available for review. Fourteen files were examined, including six statewide operations and eight regional operations. The oldest file reviewed was for a statewide operation early in 2009 and the most recent for a regional operation in July 2010.

The major items examined in the files were the problem profile, the operational order, the detail sheet (if present) the debrief sheet and any media release. It was clear from a review of the files that for early operations the necessary paperwork was being developed but for later operations standard procedures and forms were available.

The operation order for the state operation early in 2009 stressed the importance of safety and visibility and also the importance of record keeping. There was some explanation of the education component of the program but it was not clearly defined. Preparation for the operation was affected by the bushfire crisis meaning that not all members involved could be present for a detailed briefing. The debrief sheet recorded some concern about the lack of briefing and some confusion but a generally positive response and a recommendation for more operations.

The next state operation reviewed was from August 2009. The operational order clearly explained the aims of increasing awareness through maximising interactions with riders and drivers. The operation was described as using a multifaceted approach including education, advice and enforcement. The debrief sheet reported no issues, with the comment being made that the operation had been clearly defined for all members by the operation order and briefing. The operation involved successful cooperation from all regions.

The remaining state operations reviewed showed similar stories. The operation orders clearly explained the aims of the Flag operations and the mixture of education and enforcement. The importance of providing good data on the operation was also stressed. The major issues raised in the debrief sheets were the need to increase the number of operations, making sure all members received the same briefing and simplifying the record keeping and submission processes.

A number of the operational files included media releases but there seems to have been limited success in achieving media coverage for an essentially “good news” story.

The commuter operation in March 2010 had a slightly different format as it employed foot patrols as well as solo riders. The operation order stressed the importance of education and awareness but also stipulated that infringement notices should still be issued where appropriate. Again, the importance of

recording and reporting all interactions was stressed. The debrief sheet mentioned the thorough briefing given to all members and no problems were recorded.

The regional operations reviewed, although smaller, showed a similar pattern to the state operations. The operation orders from 2009 included maximising the number of interactions and the importance of recording the interactions. By 2010, the orders had developed to include an explanation of the program and its aims, and the importance of combining education and enforcement. Some of the operations used solos only and others included car-based enforcement. Problem profiles were available for most operations. The debrief sheets reported no negative comments about the requirement to combine education and enforcement.

2.5 Survey of members who undertook awareness training

An early activity of the program was to provide an awareness program for 100 non-rider police members from the Traffic Management Unit (TMU). The aim of this awareness training was to enhance general police motorcycle enforcement and so increase the reach of the program. Honda Australia Rider Training (HART), which provides courses to new motorcyclists, delivered the awareness training.

A survey was sent to all Victoria Police members who attended the HART training and 31 responses were received. All respondents were male and had between 4 and 34 years of experience with Victoria Police. Seven of the respondents held motorcycle licences and 12 had previous motorcycle experience. Nearly all respondents were positive about the delivery and content of the course.

Thirty of the 31 respondents reported they had obtained useful knowledge from the course with the main areas identified being:

- The vulnerability and exposure of motorcycles.
- The importance of safety equipment.
- Basic riding skills such as braking and cornering.
- The challenges faced by riders such as the restricted vision when wearing a helmet, the physical demands of riding and exposure to weather.

Twenty-four of the respondents reported the course would change their attitude to motorcycle enforcement with the most common response being that they would now feel more confident and credible when talking to riders about safety issues. A number of respondents said they felt they better understood the challenges faced by normally law abiding motorcyclists but only two respondents said this would make them more lenient towards motorcyclists, whilst two others said understanding the safety issues would make them less lenient.

Overall, the course was felt to be useful by the participants. It is not possible to determine whether the course had led to any changes in general motorcycle policing but many attendees of the course believed it helped their confidence when interacting with motorcyclists. Many of the members who attended this course took part in the commuter operation in March 2010.

2.6 Overall success of the program

All respondents considered that the operations had been successful and achieved their objectives. They acknowledged that the program had started slowly and mentioned that the operational procedures had not been developed fully for the early operations but there was a belief that these problems had been overcome.

The view was expressed that there had been a need for some time for an increased police motorcycle presence and a greater emphasis on motorcycle enforcement. This program demonstrated how this could be achieved whilst maintaining a positive relationship with the motorcycling community. All respondents expressed satisfaction with the amount of additional resources they had been able to deploy.

All respondents believed that the additional program funding allowing the use of overtime was essential to the success of the Flag operations. They believed that the pressure of normal duties would mean that the operations could not continue as part of normal operations and that it would not be possible to get the same level of cooperation between regions to resource the larger operations without separate funding and the use of overtime.

The senior police respondents were all positive about the relationship that had been formed with VicRoads and considered communication between the organisations to be very good.

Some respondents thought there was too much emphasis on the use of protective clothing in the educational interventions although most supported its importance. The recent CBD operation highlighted a new audience of scooter and moped riders. It was thought that there was considerable scope to improve knowledge and use of protective clothing for this group of riders.

There was some concern that educational interventions might have been overused and it was suggested that the proportions of education and enforcement be varied between operations and on different days for the longer operations.

Assistance for mature age, returning riders was mentioned as a particular need identified through the program. The opportunity to invite riders to register for additional training in the Rider Survivor program was considered a positive step but there was concern about the very slow take up of offers.

There was disappointment at the low level of media support for the program in spite of repeated efforts to provide media releases and provide opportunities for coverage. The program was promoted throughout the wider police force and received positive feedback. Although the program is now reasonably well known it was thought unlikely that it had influenced how routine traffic enforcement is carried out.

All respondents expressed regret that the program was coming to an end but did not think it would be possible for it to continue without additional dedicated funding.

2.7 Findings

The conclusions of the process evaluation can be summarised as the following:

- VicRoads and the Victoria Police demonstrated a shared understanding of the program philosophy and objectives.
- The solo riders who had most involvement in the operations were positive, and reported the program and educational interactions were received well by the majority of motorcyclists.
- The operational procedures were developed early in the program and were applied consistently.
- The commuter operation introduced the educational material to a new group of commuter motorcyclists and scooter riders. It was thought that there was considerable scope to improve knowledge and use of protective clothing for this group of riders.

- The need for assistance for returning riders was identified but there was concern that the offer of Rider Survivor training was not being taken up.
- There were some suggestions that media involvement in the program could be improved and there was a desire to extend the program by using other TMU members who had received training in motorcycle issues.
- Most police members were positive about the motorcycle awareness training provided. The major benefit identified was a greater feeling of confidence and credibility when interacting with motorcycle riders.

3 Crash and registration analysis

This Section examines motorcycle registrations and crashes up to the end of 2010. Note that the 2010 data are preliminary data and subject to change.

3.1 Motorcycle registrations

The number of registered motorcycles in Victoria for the years 1993 to 2010 is shown in Table 3.1 and graphically in Figure 3.1. A steady increase in the number of registered motorcycles is clearly evident. The number of registered motorcycles is the best indicator of the number of motorcycles on the road[2,3], rather than the number of motorcycle licences, as there are many licensed motorcyclists who are not actively riding.

Table 3.1
Number of registered motorcycles in Victoria by year

Year	Number
1993	74,863
1994	73,537
1995	70,465
1996	72,686
1997	74,481
1998	78,048
1999	83,921
2000	89,098
2001	94,472
2002	102,400
2003	105,058
2004	108,601
2005	114,335
2006	121,661
2007	130,610
2008	144,182
2009	154,286
2010	162,091

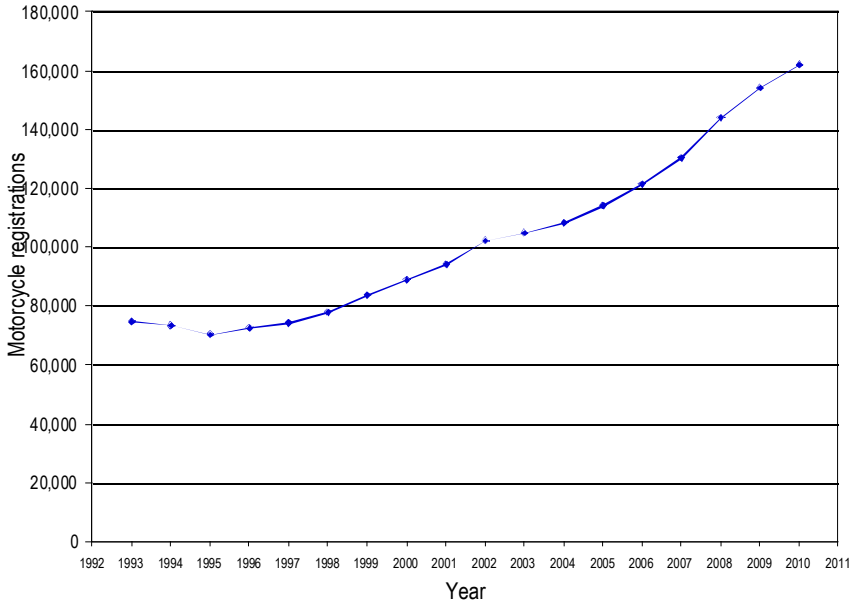

Figure 3.1
Number of registered motorcycles in Victoria by year

3.2 Motorcycle injury crashes

Table 3.2 shows the number of motorcycle involved injury crashes per year by the injury severity of the crash. The injury severity of a crash is defined as the most serious injury suffered by anyone in the crash (note that this may not be the motorcyclist). The data for all motorcycle involved injury crashes is shown graphically in Figure 3.2. The number of injury crashes has remained stable over the past decade but with considerable variation year to year. The number in 2010 was 12 percent lower than the average for the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.2
Number of injury crashes involving a motorcycle in Victoria by year and crash injury severity

Year	Crash injury severity			Total
	Fatal	Hospital	Minor	
2001	63	802	1,134	1,999
2002	54	920	1,039	2,013
2003	39	800	948	1,787
2004	38	824	1,007	1,869
2005	48	883	1,151	2,082
2006	49	885	900	1,834
2007	45	1,010	976	2,031
2008	44	1,174	970	2,188
2009	39	996	1,034	2,069
2010	48	796	1,004	1,848

Note: 2010 data are preliminary (98% complete)

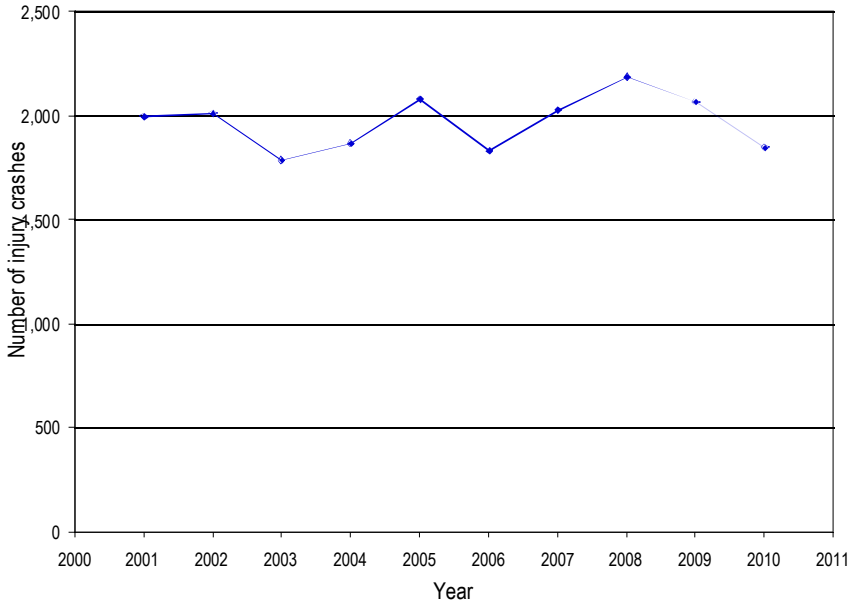

Figure 3.2
Number of injury crashes involving a motorcycle in Victoria by year (2010 data are preliminary)

By combining the numbers in Tables 3.1 and 3.2 the rate of motorcycle injury crashes per 1,000 registered motorcycles each year was calculated and the results are shown in Table 3.3 and graphically in Figure 3.3. A marked decline in the rate of motorcycle injury crashes can be seen extending over the past decade. The rate in 2010 was 23 percent lower than the average over the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.3
Injury crashes involving a motorcycle per 1,000 motorcycle registrations by year

Year	Motorcycle registrations	Motorcycle injury crashes	Crashes per 1,000 registrations
2001	94,472	1,999	21.16
2002	102,400	2,013	19.66
2003	105,058	1,787	17.01
2004	108,601	1,869	17.21
2005	114,335	2,082	18.21
2006	121,661	1,834	15.07
2007	130,610	2,031	15.55
2008	144,182	2,188	15.18
2009	154,286	2,069	13.41
2010	162,091	1,848	11.40

Note: 2010 data are preliminary (98% complete)

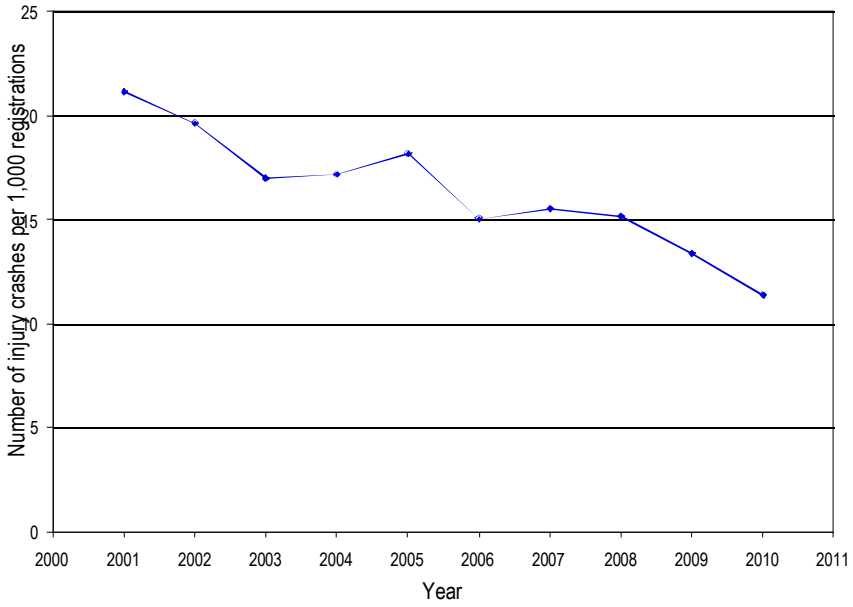

Figure 3.3
Injury crashes involving a motorcycle per 1,000 motorcycle registrations by year (2010 data are preliminary)

3.3 Motorcyclist injuries

Table 3.4 shows the number of motorcycle riders and motorcycle passengers injured per year by the severity of their injury. The data for all motorcyclist injuries is shown graphically in Figure 3.4. Similar to the results for motorcycle injury crashes, the numbers have been relatively stable across the past decade but with variation from year to year. The number of injured motorcyclists in 2010 was 7.5 percent lower than the average for the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.4
Number of motorcyclists injured in Victoria by year and crash injury severity

Year	Crash injury severity			Total
	Fatal	Hospital	Minor	
2001	64	826	1185	2,075
2002	56	930	1104	2,090
2003	39	822	984	1,845
2004	37	840	1061	1,938
2005	48	902	1209	2,159
2006	47	898	952	1,897
2007	45	1034	1009	2,088
2008	43	1194	1016	2,253
2009	38	1013	1085	2,136
2010	49	813	1042	1,904

Note: 2010 data are preliminary (98% complete)

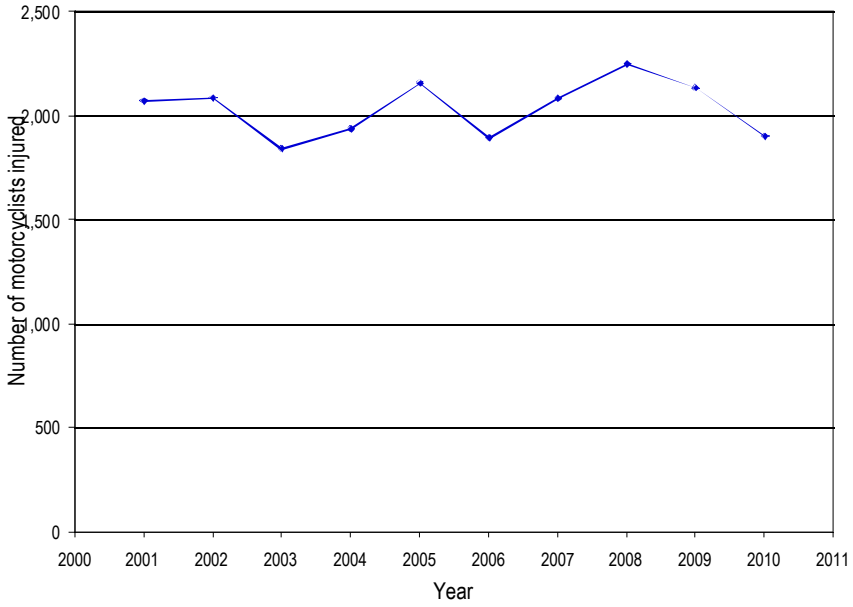

Figure 3.4
Number of motorcyclists injured in Victoria by year (2010 data are preliminary)

By combining the numbers in Tables 3.1 and 3.4 the rate of motorcyclist injuries per 1,000 registered motorcycles each year was calculated and the results are shown in Table 3.5 and graphically in Figure 3.5. Similar to the findings for injury crashes, the rate of motorcyclist injuries has declined over the past decade. The rate of motorcyclist injuries per registered motorcycle in 2010 was 22 percent below the average for the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.5
Number of motorcyclists injured per 1,000 motorcycle registrations by year

Year	Motorcycle registrations	Motorcyclists injured	Motorcyclist injuries per 1,000 registrations
2001	94,472	2,075	21.96
2002	102,400	2,090	20.41
2003	105,058	1,845	17.56
2004	108,601	1,938	17.85
2005	114,335	2,159	18.88
2006	121,661	1,897	15.59
2007	130,610	2,088	15.99
2008	144,182	2,253	15.63
2009	154,286	2,136	13.84
2010	162,091	1,904	11.75

Note: 2010 data are preliminary (98% complete)

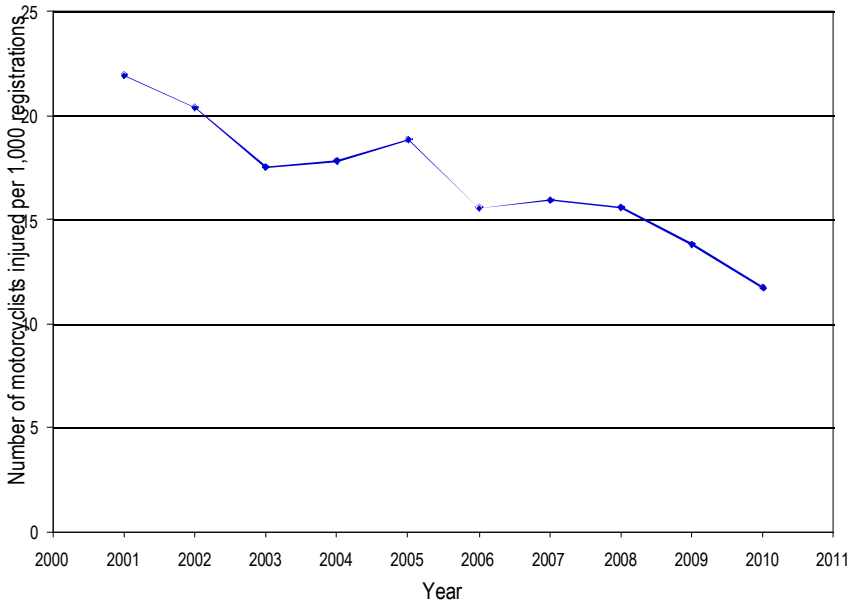

Figure 3.5
Number of motorcyclists injured per 1,000 motorcycle registrations by year (2010 data are preliminary)

3.4 Injuries in motorcycle crashes

Table 3.6 shows the number of people injured in crashes that involved a motorcycle by year and the severity of their injury. The data for all injuries is shown graphically in Figure 3.6. Note that these numbers include all road users who were injured in a crash in which a motorcycle was involved: the motorcyclist may not have been injured; and the injuries may not have been related to the motorcycle. The number of injured persons in Victorian motorcycle crashes has hovered between 2000 and 2350 over the past decade. The number of injured persons in 2010 was 12 percent lower than the average over the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.6
Number of persons injured in Victorian motorcycle involved crashes by year and crash injury severity

Year	Crash injury severity			Total
	Fatal	Hospital	Minor	
2001	65	855	1296	2,216
2002	56	955	1201	2,212
2003	41	847	1065	1,953
2004	38	867	1130	2,035
2005	49	929	1298	2,276
2006	49	935	1016	2,000
2007	46	1072	1074	2,192
2008	45	1225	1072	2,342
2009	40	1043	1155	2,238
2010	50	838	1096	1,984

Note: 2010 data are preliminary (98% complete)

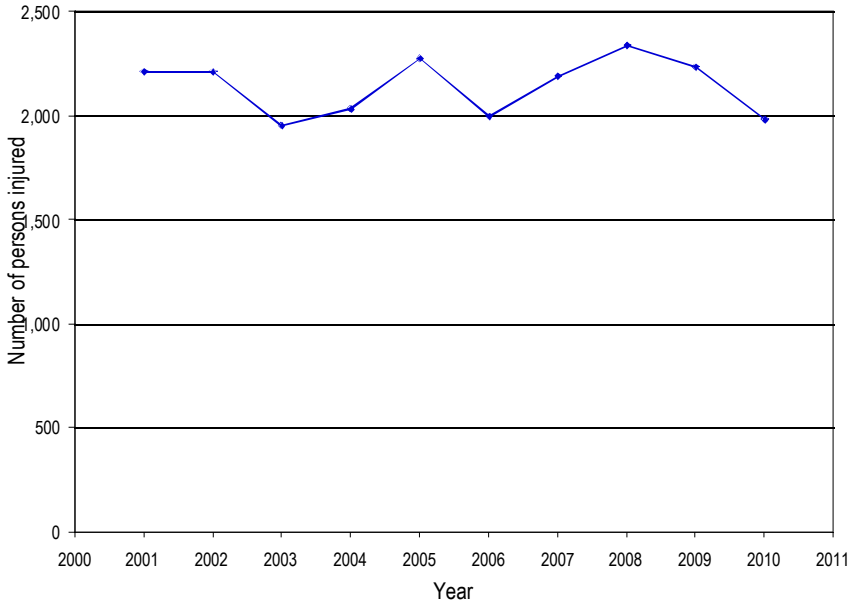

Figure 3.6
Number of persons injured in Victorian motorcycle involved crashes by year (2010 data are preliminary)

By combining the numbers in Tables 3.1 and 3.6 the rate of motorcycle crash related injuries per 1,000 registered motorcycles each year was calculated and the results are shown in Table 3.7 and graphically in Figure 3.7. Again, the rate has declined markedly over the past decade. The rate in 2010 was 23 percent lower than the average rate across the previous three years. Note again, however, that the 2010 data are preliminary (about 98% complete) and the numbers are likely to increase slightly once they are finalised.

Table 3.7
Number of persons injured in motorcycle involved crashes per 1,000 motorcycle registrations by year

Year	Motorcycle registrations	Motorcyclists injured	Motorcyclist injuries per 1,000 registrations
2001	94,472	2,216	23.46
2002	102,400	2,212	21.60
2003	105,058	1,953	18.59
2004	108,601	2,035	18.74
2005	114,335	2,276	19.91
2006	121,661	2,000	16.44
2007	130,610	2,192	16.78
2008	144,182	2,342	16.24
2009	154,286	2,238	14.51
2010	162,091	1,984	12.24

Note: 2010 data are preliminary (98% complete)

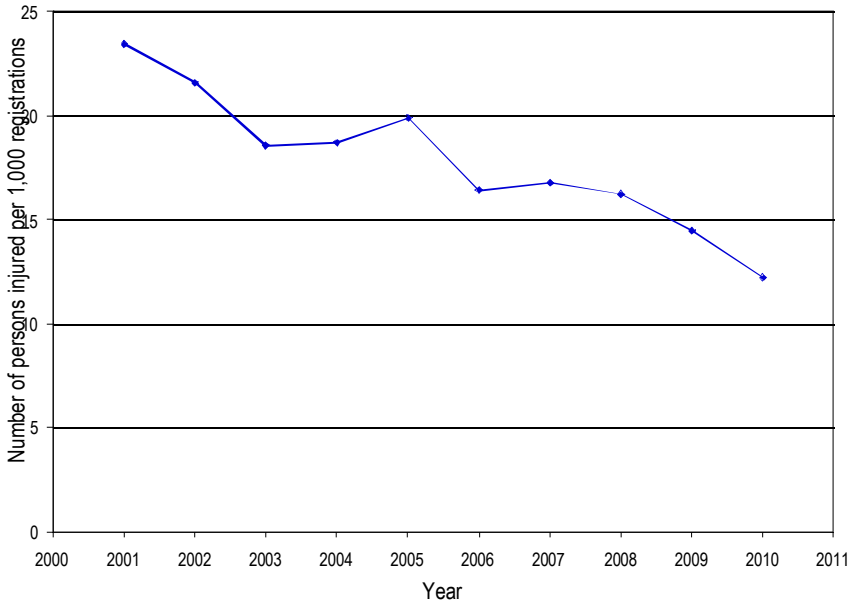

Figure 3.7
Number of persons injured in motorcycle involved crashes per 1,000 motorcycle registrations by year (2010 data are preliminary)

3.5 Motorcycle crash type

Table 3.8 shows the types of injury crashes from 2007-2010 that involved a motorcycle. Proportions of multiple vehicle versus single vehicle collisions have remained consistent over the past four years.

Table 3.8
Injury crashes involving a motorcycle by crash type and year

Crash type	Number				Per cent			
	2007	2008	2009	2010	2007	2008	2009	2010
Collision with vehicle	870	891	883	788	42.84	40.72	42.68	42.64
No collision and no object struck	598	606	544	457	29.44	27.70	26.29	24.73
Collision with a fixed object	223	254	203	177	10.98	11.61	9.81	9.58
Vehicle overturned (no collision)	132	218	208	198	6.50	9.96	10.05	10.71
Fall from or in moving vehicle	77	73	73	114	3.79	3.34	3.53	6.17
Collision with some other object	48	76	78	54	2.36	3.47	3.77	2.92
Struck animal	51	38	49	39	2.51	1.74	2.37	2.11
Struck pedestrian	29	31	29	20	1.43	1.42	1.40	1.08
Other accident	3	1	2	1	0.15	0.05	0.10	0.05
Total	2031	2188	2069	1848	100.00	100.00	100.00	100.00

Note: 2010 data are preliminary (98% compete)

3.6 Motorcycle crash speed limit

Table 3.9 shows the speed limit at the locations of injury crashes from 2007-2010 that involved a motorcycle. An analysis comparing the distribution of crash numbers on roads with a speed limit of 60 km/h or less with those on roads with a speed limit of greater than 60 km/h revealed that from 2007 to 2010, there was an increase in relative crash numbers on low speed roads with an associated decrease on high speed roads ($X^2_{(3)} = 8.3$, $p < .05$).

Table 3.9
Injury crashes involving a motorcycle by speed limit and year

Speed limit	Number				Per cent			
	2007	2008	2009	2010	2007	2008	2009	2010
30	-	-	1	2	-	-	0.05	0.11
40	36	34	44	45	1.77	1.55	2.13	2.44
50	365	447	357	355	17.97	20.43	17.25	19.21
60	621	667	667	594	30.58	30.48	32.24	32.14
70	138	126	110	90	6.79	5.76	5.32	4.87
75	-	1	-	-	-	0.05	-	-
80	211	275	246	201	10.39	12.57	11.89	10.88
90	11	4	10	11	0.54	0.18	0.48	0.60
100	468	441	421	348	23.04	20.16	20.35	18.83
110	4	4	7	16	0.20	0.18	0.34	0.87
Other speed limit	1	2	1	-	0.05	0.09	0.05	-
Camping grounds	22	26	24	22	1.08	1.19	1.16	1.19
Unknown	154	161	181	164	7.58	7.36	8.75	8.87
Total	2031	2188	2069	1848	100.00	100.00	100.00	100.00

Note: 2010 data are preliminary (98% complete)

3.7 Summary

Whether one examines motorcycle injury crashes, injured motorcyclists or injuries sustained in motorcycle crashes, the pattern is similar for Victorian data for the last ten years. The overall numbers of crashes or injuries have been stable over the past decade but with a degree of variation from year to year. When the annual numbers of registered motorcycles were used to convert crash and injury numbers to rates, a marked decline over the past decade became evident. Whether looking at crash and injury numbers, or crash and injury rates per registered motorcycle, the numbers in 2010 were markedly lower than the average for the previous three years.

There is also evidence that there was a shift from 2007 to 2010 in the location of crashes, with a *relative* increase on low speed roads (60 km/h limit or below) rather than on higher speed roads. These findings are consistent with a greater proportion of motorcycle riding being done by commuters rather than recreational riders. It could be that the increase in recent years in registered motorcycles includes a large proportion of motorcycles (or scooters) purchased to enable commuting. The registration data are not sufficiently detailed to confirm this.

Although changes in exposure could explain the reductions in crashes and injuries, the crash and injury reductions are also consistent with an effect of the Community Policing and Education Project. Crash and injury rates both declined in 2010 relative to the previous three years, which could be due to safer riding practices in response to greater police presence on the roads. Even a small reduction in crash or injury rates would signify a positive cost-benefit ratio for the Project. Caution does need to be exercised in interpreting the results, however. The preliminary 2010 data may exclude a number of crashes that will be added at a later date. Also, linking changes in crash and injury rates to specific interventions is always difficult, and especially so when there are possible changes in the demographics and exposure patterns of the road user group being targeted by the intervention.

4 Offences

Data on infringement notices issued were supplied by Victoria Police for the period 1 July 2006 to 30 June 2010 separately for motorcycle riders and motor vehicle drivers and grouped by financial year. The number of infringement notices issued for each of 2006/2007, 2007/2008, 2008/2009 and 2009/2010 were supplied for individual offence types which were then collapsed into offence categories (the categories used by Police).

Note that in the data supplied, where the number of offences of a given type was one or two in a given financial year, the actual number was not recorded due to privacy and confidentiality reasons. To work around this the number of offences in these cases was set to 1.5 and the totals in the offence categories were rounded up if necessary. This should have only a very small effect on the total numbers.

The number of motorcyclist moving violations by year is shown in Table 4.1 and the number of motorcyclist administrative offences by year is shown in Table 4.2.

Table 4.1
Motorcyclist moving violation infringement notices issued in Victoria, July 2006 - June 2010

Moving violation	Financial year			
	2006/2007	2007/2008	2008/2009	2009/2010
Speeding	3,183	2,971	2,808	2,606
Fail to stop	408	325	356	320
Diverging	240	221	170	329
Impaired riding	57	82	77	74
Fail to give way	23	24	22	39
Hand held mobile phone	7	13	19	10
Total	3,918	3,636	3,452	3,378

Table 4.2
Motorcyclist administrative infringement notices issued in Victoria, July 2006 - June 2010

Administrative offence	Financial year			
	2006/2007	2007/2008	2008/2009	2009/2010
Unlicensed riding	840	1,024	1,055	637
Unregistered riding	625	807	870	382
Learner offences	50	62	438	409
Total	1,515	1,893	2,363	1,428

Note: the high rate of learner offences from mid 2008 onwards coincides with new offences for learner riders riding a motorcycle not approved for a learner rider

For comparison, the number of motor vehicle moving violations by financial year is shown in Table 4.3 and the number of motor vehicle administrative offences by financial year is shown in Table 4.4.

Table 4.3
Motor vehicle driver moving violation infringement notices issued in Victoria, July 2006 - June 2010

Moving violation	Financial year			
	2006/2007	2007/2008	2008/2009	2009/2010
Speeding	148,927	139,811	141,851	147,455
Fail to stop	33,243	32,412	35,318	38,160
Diverging	6,429	6,177	6,470	9,287
Impaired driving	11,141	12,091	12,333	11,322
Fail to give way	5,370	5,633	5,870	6,339
Hand held mobile phone	37,405	42,392	53,130	53,811
Total	242,515	238,516	254,972	266,374

Table 4.4
Motor vehicle driver administrative infringement notices issued in Victoria for unlicensed driving, July 2006 - June 2010

Administrative offence	Financial year			
	2006/2007	2007/2008	2008/2009	2009/2010
Unlicensed driving	18,246	16,933	18,552	18,490

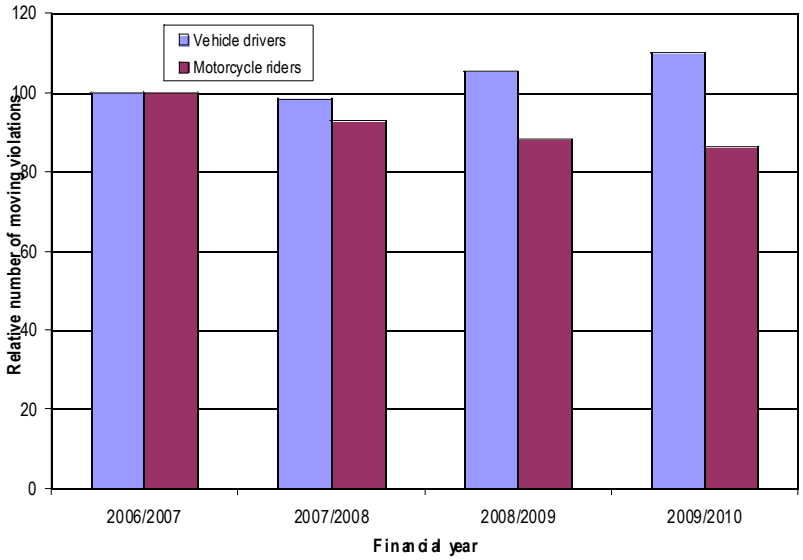

Figure 4.1
Relative number of motorcycle rider and motor vehicle driver moving violations issued in Victoria, July 2006 - June 2010

The numbers of moving violations for motor vehicle drivers and motorcycle riders were normalised to the 2006/2007 figures for each of these groups and are plotted in Figure 4.1 (i.e. offence numbers for both other vehicles and motorcycles are expressed as a percentage of the number of offences in 2006/2007). It is apparent that while vehicle driver moving violations were generally increasing over time, motorcycle rider moving violations were decreasing. There was a particular increase for motor vehicles in the numbers of hand held mobile phone violations. This increase may have been at least partly due to the focus on this offence within the Project. For motorcyclists, the reduction in overall offences was chiefly due to reductions in speeding offences.

With regard to the reductions in motorcyclist moving violations, there are a number of possible explanations:

- Random year to year variation (unlikely in the totals due to the relatively large numbers).
- A systematic error in the extraction of the data on motorcyclists.
- Motorcyclist exposure has decreased due to fewer motorcyclists or less riding.
- Less police enforcement
- Motorcyclists are following road laws more often.
- More warnings are being issued instead of infringement notices to motorcyclists.

It is not possible to determine the relative contributions of these possible explanations given the data available. However, the last two seem most likely, while the third is very unlikely given recent increases in motorcycle registrations. It is also curious that the reduction in motorcycle moving violations started before the current campaign began.

5 On-road speed surveys

As speed enforcement is a major component of the Community Policing and Education Project, it was necessary to analyse on-road travel speeds of motorcycles. If the Project were successful, one would expect a reduction over the life of the Project in motorcycle speeds relative to other traffic. Three waves of on-road speed surveys were conducted, so that it was possible to look at baseline data, data at a mid point and data from near the end of the Project.

The on-road surveys were delivered by a sub-contractor, Traffic and Parking Surveys Pty Ltd, using MetroCount hardware. All vehicles for which data were recorded were classified according to the ARX system. This is similar to the Austroads system, except that classes 11 and 12 (double and triple road trains respectively) are combined and all other vehicles are moved up a class. This means that class 1 (previously all short vehicles) is free to be converted to referring to motorcycles only.

Three regional locations, all with a speed limit of 100 km/h, were chosen for the surveys. These were:

- South Gippsland Highway, west of Caldermeade Rd
- Melba Highway, 1km north of Healesville-Kinglake Rd
- Maroondah Highway, between Hyde Park and Maddens Rds

A fourth location on Warburton Highway was also originally in the list of locations but the speed limit of 90 km/h made it difficult to combine with the data for the other locations and so it was not included in the second and third survey waves. Note that only regional areas were included in the surveys as identification of motorcycles can be difficult with MetroCount hardware in congested urban areas.

Data collected for each vehicle included the number of axles, date, time, direction, travel speed, wheel base, headway and gap. Traffic travelling in both directions was included. The first survey ran from 26 November 2009 to 2 December 2009. The second survey wave ran for a continuous one week period from 14 April 2010 to 20 April 2010. The third survey ran for a continuous week from 15 November 2010 to 21 November 2010. The sites chosen were not affected by road works, and the weather during the chosen weeks was not especially wet. We are unaware of any special events occurring near the sites during the weeks of the surveys.

For each site, calculations were made for motorcycles and cars (cars or car derivatives not towing anything) of mean speed, median speed, 85th percentile speed, percentage travelling above the speed limit and percentage travelling more than 10 km/h above the speed limit. These were calculated using all vehicles (Section 5.1) and also separately using only vehicles with a free speed (Section 5.2). These were identified using the indicator of a headway of four seconds or more. Due to the inability of the speed measurements to distinguish between bicycles and motorcycles, all vehicles travelling below 50 km/h were excluded from all of the analyses.

5.1 All vehicles

The vehicle count and speed measurements for all motorcycles and cars at each of the three sites for the three surveys are shown in Tables 5.1-5.3.

Table 5.1
Vehicle count and speed measurements for the Maroondah Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	448	874	816	62813	60931	64509
Mean speed	99.94	97.16	96.71	97.23	96.27	96.11
Median speed	99.90	97.10	96.70	98.30	96.90	96.90
85th percentile speed	110.80	105.00	106.00	106.30	103.80	103.80
% exceeding 100 km/h	49.11	32.84	33.46	41.78	32.22	32.43
% exceeding 110 km/h	16.07	7.21	7.23	6.65	3.36	3.05

Table 5.2
Vehicle count and speed measurements for the Melba Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	256	403	448	23822	21418	23410
Mean speed	101.50	103.13	102.80	96.71	97.71	98.34
Median speed	101.70	102.20	102.20	97.00	98.30	98.90
85th percentile speed	114.00	113.70	115.50	106.70	106.50	107.60
% exceeding 100 km/h	57.42	58.81	58.26	37.54	41.30	44.46
% exceeding 110 km/h	23.05	23.33	26.56	9.03	7.99	9.91

Table 5.3
Vehicle count and speed measurements for the South Gippsland Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	834	972	981	112493	106206	114838
Mean speed	104.89	103.61	106.62	100.52	101.39	103.81
Median speed	104.40	103.40	105.80	100.60	101.50	103.80
85th percentile speed	113.80	111.50	115.10	106.50	107.20	110.10
% exceeding 100 km/h	70.98	66.87	79.71	54.11	61.20	74.17
% exceeding 110 km/h	26.14	20.16	30.17	6.45	7.40	15.32

Table 5.4 shows the vehicle count and speed measurements for motorcycles and cars of all three sites combined for the three surveys.

Table 5.4
Vehicle count and speed measurements for all sites combined (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	1538	2249	2245	199128	188555	202757
Mean speed	102.88	101.02	102.26	99.03	99.32	100.73
Median speed	102.70	100.50	102.20	99.80	100.00	101.40
85th percentile speed	113.20	110.20	112.80	106.50	106.30	108.50
% exceeding 100 km/h	62.35	52.20	58.62	48.24	49.57	57.46
% exceeding 110 km/h	22.69	15.70	21.11	6.82	6.17	10.79

Figure 5.1 compares the speed distribution of motorcycles in November 2009 with April 2010 for all three sites combined and Figure 5.2 compares November 2009 with November 2010. It appears that motorcycles across the board generally slowed down in April 2010 compared to November 2009. However, the the speed distribution of motorcycles in November 2010 was very similar to November 2009 at least on the high end of speeds.

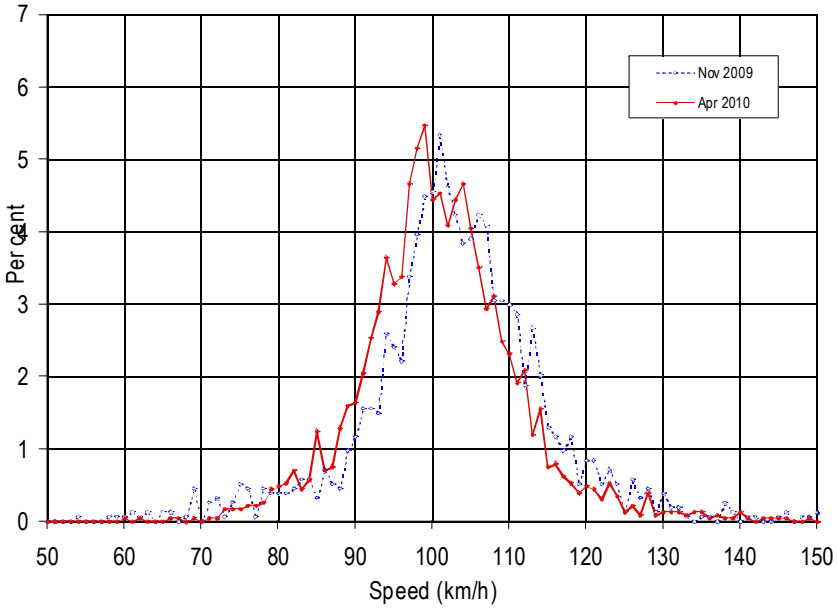

Figure 5.1
Speed distribution of motorcycles for all sites combined

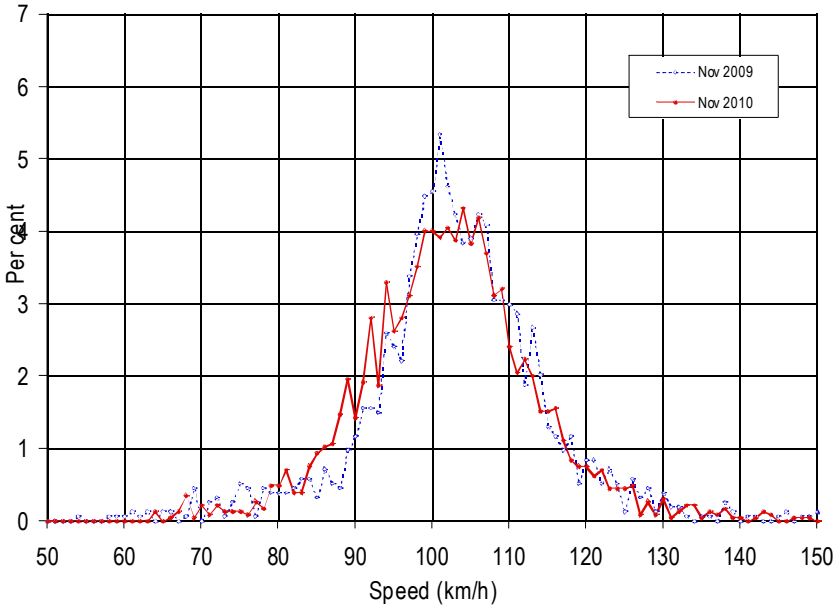

Figure 5.2
Speed distribution of motorcycles for all sites combined

Figure 5.3 compares the cumulative speed distribution of motorcycles in November 2009 with April 2010 for all three sites combined and Figure 5.4 compares November 2009 with November 2010. The lowering of all speeds from November 2009 to Apirl 2010 is apparent. However, only low end speeds showed a slight shift downward when comparing November 2010 with November 2009.

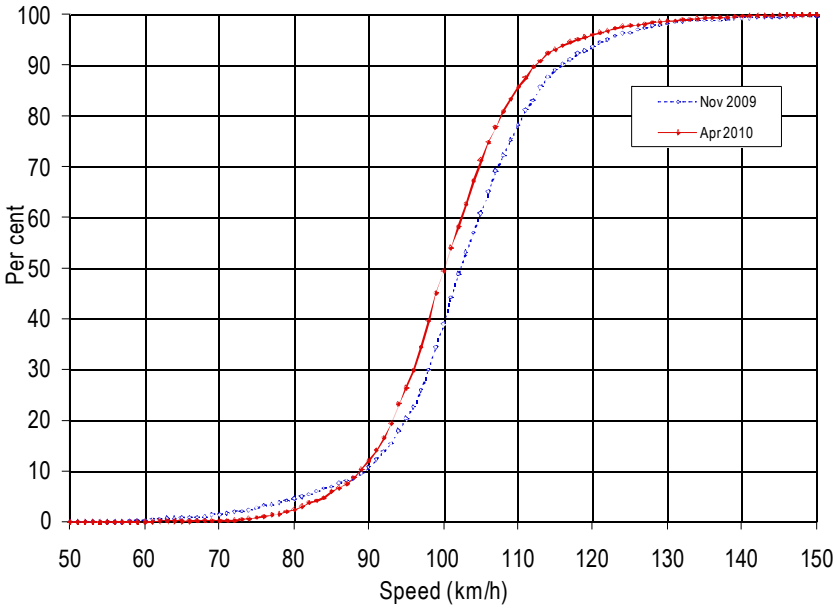

Figure 5.3
Cumulative speed distribution of motorcycles for all sites combined

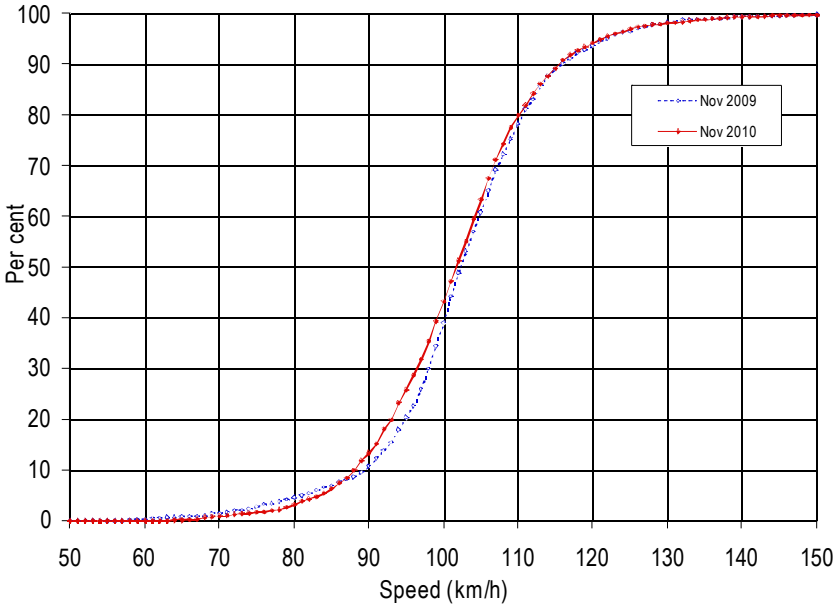

Figure 5.4
Cumulative speed distribution of motorcycles for all sites combined

Figure 5.5 compares the speed distribution of cars in November 2009 with April 2010 for all three sites combined and Figure 5.6 compares November 2009 with November 2010. While the distributions were very similar between November 2009 and April 2010, the November 2010 distribution showed a marked across the board increase in speeds.

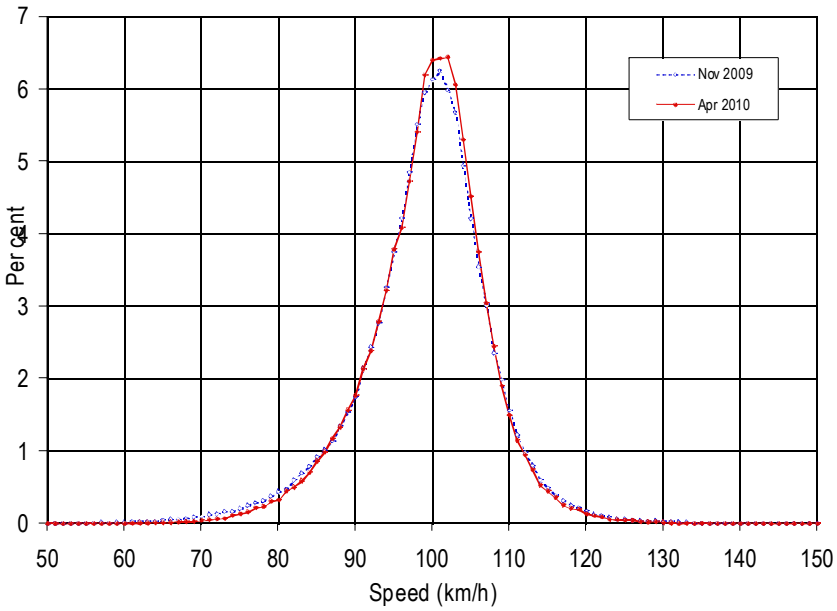

Figure 5.5
Speed distribution of cars for all sites combined

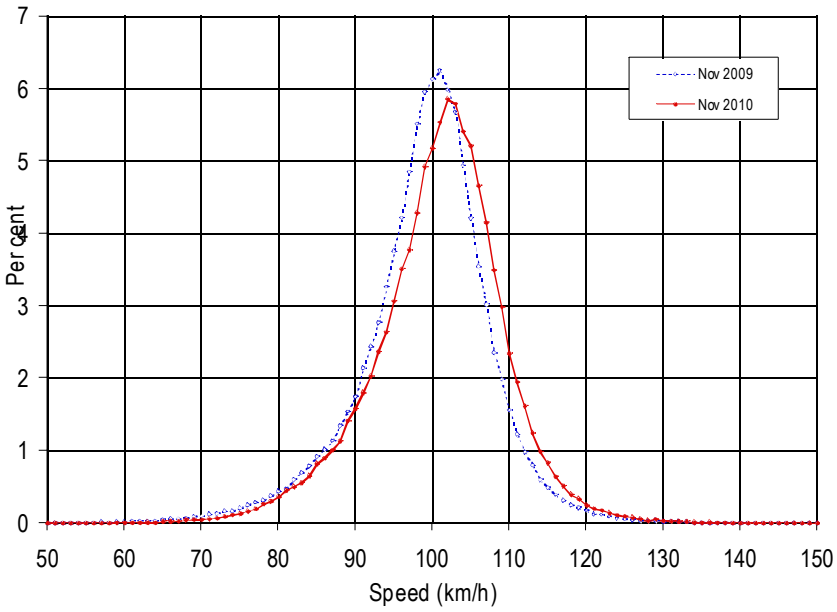

Figure 5.6
Speed distribution of cars for all sites combined

Figure 5.7 compares the cumulative speed distribution of cars in November 2009 with April 2010 for all three sites combined and Figure 5.8 compares November 2009 with November 2010. The marked increase across the board in car speeds in November 2010 is apparent in Figure 5.8.

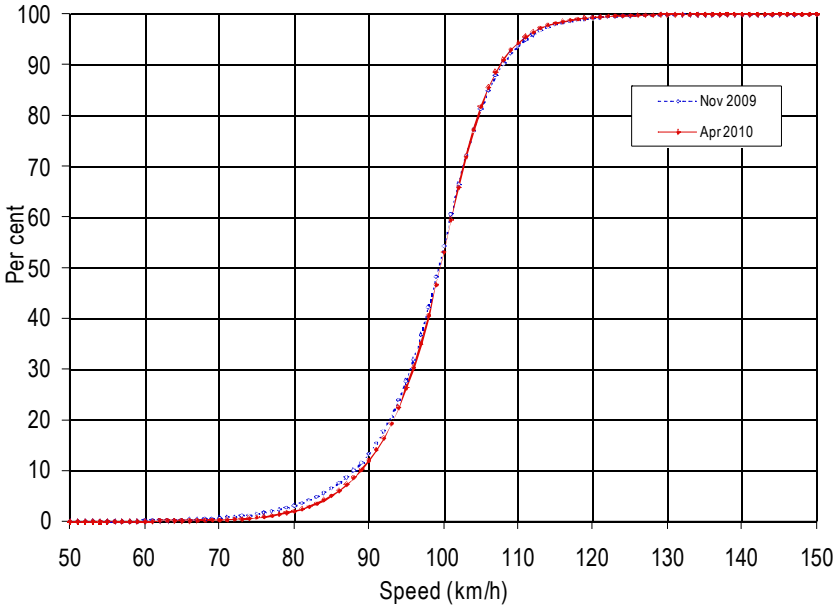

Figure 5.7
Cumulative speed distribution of cars for all sites combined

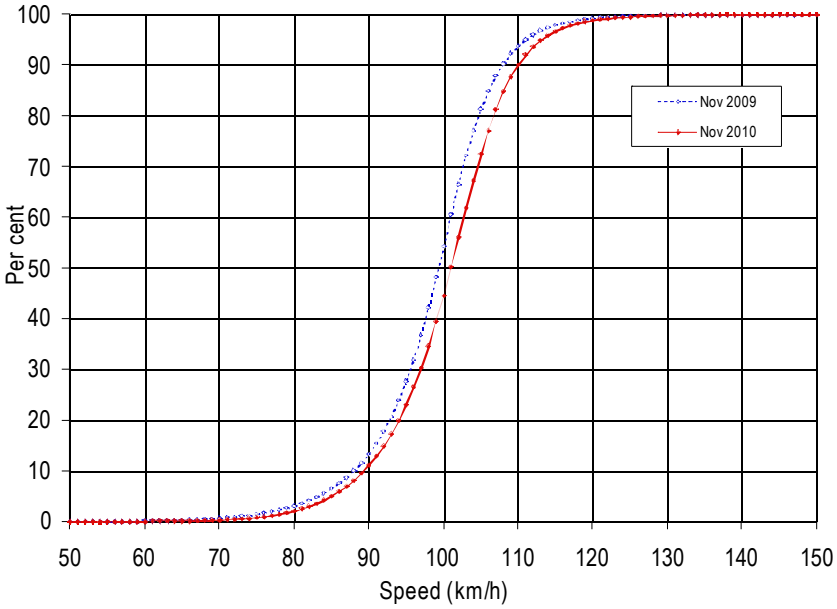

Figure 5.8
Cumulative speed distribution of cars for all sites combined

Table 5.5 shows the changes in vehicle count and speed measurements for motorcycles and cars of all three sites combined.

Table 5.5
Changes in vehicle count and speed measurements for all sites combined between surveys (100 km/h limit)

Measurement	Motorcycles		Cars	
	Nov 2009 - Apr 2010	Apr 2010 - Nov 2010	Nov 2009 - Apr 2010	Apr 2010 - Nov 2010
Number	+46.2%	-0.2%	-5.3%	+7.5%
Mean speed	-1.9 km/h	+1.2 km/h	+0.3 km/h	+1.4 km/h
Median speed	-2.2 km/h	+1.7 km/h	+0.2 km/h	+1.4 km/h
85th percentile speed	-3.0 km/h	+2.6 km/h	-0.2 km/h	+2.2 km/h
% exceeding 100 km/h	-10.2%	+6.4%	+1.3%	+7.9%
% exceeding 110 km/h	-7.0%	+5.4%	-0.7%	+4.6%

Starting from November 2009: motorcycle volume increased in April 2010 and remained high in November 2010; car volume decreased in April 2010 and increased again in November 2010; motorcycle speeds decreased in April 2010 and increased almost back to the November 2009 level in November 2010; car speeds remained much the same in April 2010 and increased in November 2010.

The limited number of sites surveyed, the different times of year surveyed, the variation of results between sites and the large change in motorcycle volume make generalisation of these results difficult.

The results are consistent with a seasonal effect for motorcycle speeds and car volumes. Just comparing the November 2009 survey with the November 2010 survey shows a small decrease in speed for motorcycles and a large increase in speed for cars.

5.2 Free speed vehicles

It is often argued that examining the speeds of all vehicles does not capture drivers' choice of speed because drivers in a platoon are limited by the speed of the vehicle at the front of the platoon. One way around this is to consider only vehicles with a sufficient gap in front of them such that their speed can be considered to be freely chosen. The value used is typically a 4 second headway. That is, only vehicles that pass a measurment site at an interval of 4 seconds or greater after the vehicle in front of them are considered to be travelling at a free speed.

However, this is not as simple as it sounds. The vehicles at the back of platoons do not have a choice of speed and are ignored. What we really want to know is what speed they would be travelling at if they had a choice - we extrapolate from the front vehicles but this is clearly incorrect to some degree.

Also, by only looking at free speed vehicles, we are giving more weight to vehicles travelling at low volume times of the day (i.e. at night) and giving less weight to vehicles travelling at high volume times (i.e. during the day) so changes in traffic flows can also affect free speeds as well as all speeds.

We prefer to highlight all speeds as this best represents the total burden of speeds on the vehicle population as a whole which most directly relates to crash risk for the population. However, to be complete, the free speed results are presented here for those who prefer them.

The vehicle count and speed measurements for all motorcycles and cars travelling at a free speed (headway of 4 seconds or more) at each of the three sites for the three surveys are shown in Tables 5.6-5.8.

Table 5.6
Vehicle count and free speed measurements for the Maroondah Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	225	407	363	34325	34813	35819
Mean speed	103.00	99.81	99.75	99.50	97.95	97.77
Median speed	101.70	99.00	98.90	100.20	98.30	98.30
85th percentile speed	113.50	108.20	108.70	107.80	105.00	104.90
% exceeding 100 km/h	57.33	44.96	43.25	50.77	39.10	39.04
% exceeding 110 km/h	22.67	13.27	11.02	9.49	4.98	4.45

Table 5.7
Vehicle count and free speed measurements for the Melba Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	120	214	221	14698	13824	14579
Mean speed	104.07	104.99	104.65	97.40	98.44	98.88
Median speed	103.20	104.10	105.30	97.90	99.00	99.50
85th percentile speed	114.80	115.10	116.00	107.20	107.00	108.00
% exceeding 100 km/h	65.83	65.42	63.80	40.52	44.76	47.45
% exceeding 110 km/h	26.67	28.50	30.32	9.47	8.69	10.36

Table 5.8
Vehicle count and free speed measurements for the South Gippsland Highway site (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	458	533	533	72590	68887	71155
Mean speed	105.87	104.26	107.66	100.97	101.75	104.34
Median speed	105.10	104.30	106.30	101.00	101.80	104.30
85th percentile speed	115.60	112.10	116.10	107.10	107.60	110.80
% exceeding 100 km/h	72.49	69.42	82.18	56.76	63.34	76.56
% exceeding 110 km/h	29.48	23.26	32.83	7.69	8.59	17.41

Table 5.9 shows the vehicle count and speed measurements for motorcycles and cars travelling at a free speed at all three sites combined for the three surveys.

Table 5.9
Vehicle count and free speed measurements for all sites combined (100 km/h limit)

Measurement	Motorcycles			Cars		
	Nov 2009	Apr 2010	Nov 2010	Nov 2009	Apr 2010	Nov 2010
Number	803	1154	1117	121613	117524	121553
Mean speed	104.80	102.83	104.50	100.12	100.24	101.75
Median speed	104.10	102.70	103.90	100.50	100.70	102.10
85th percentile speed	114.70	112.00	114.40	107.30	107.00	109.30
% exceeding 100 km/h	67.25	60.05	65.89	53.11	53.98	62.01
% exceeding 110 km/h	27.15	20.71	25.25	8.41	7.53	12.75

Figure 5.9 compares the free speed distribution of motorcycles in November 2009 with April 2010 for all three sites combined and Figure 5.10 compares November 2009 with November 2010. It appears that motorcycles across the board generally slowed down in April 2010 compared to November 2009. However, the speed distribution of motorcycles in November 2010 was very similar to November 2009 at least on the high end of speeds.

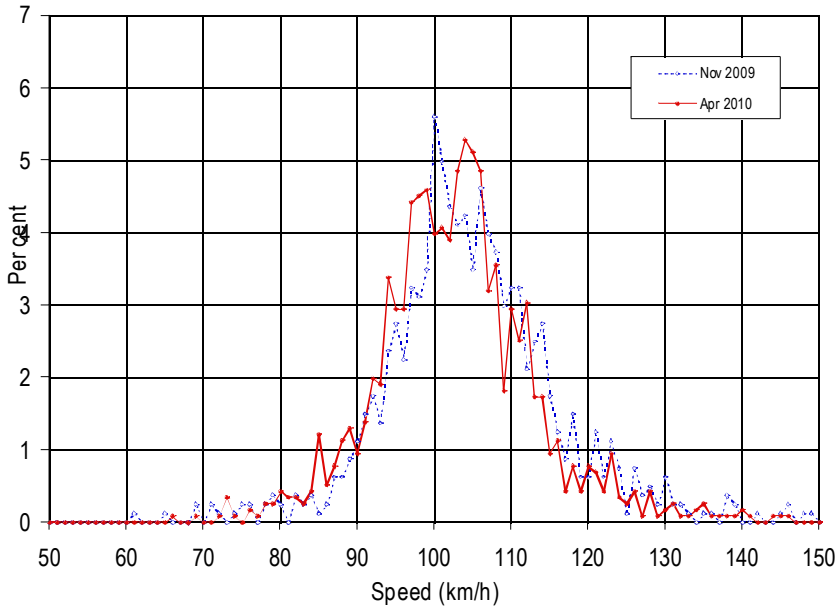

Figure 5.9
Free speed distribution of motorcycles for all sites combined

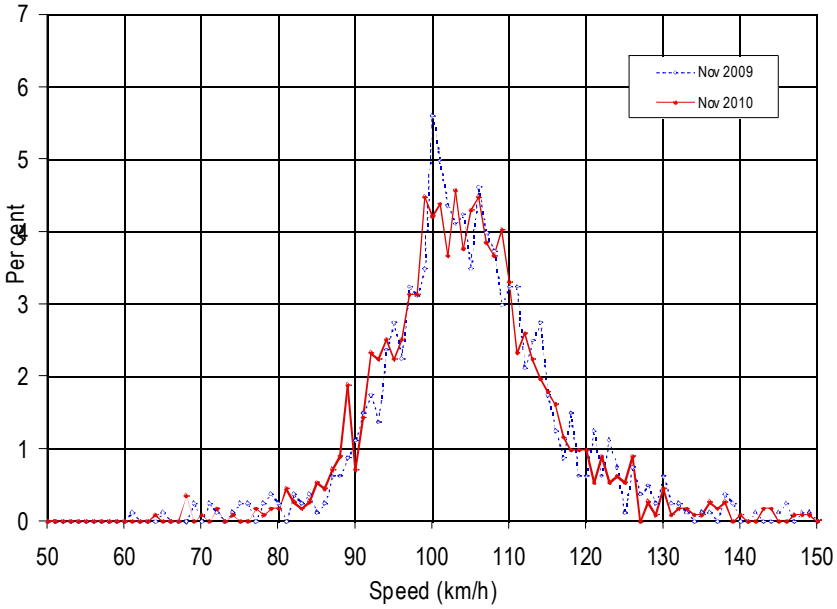

Figure 5.10
Free speed distribution of motorcycles for all sites combined

Figure 5.11 compares the cumulative free speed distribution of motorcycles in November 2009 with April 2010 for all three sites combined and Figure 5.12 compares November 2009 with November 2010. The lowering of all speeds from November 2009 to April 2010 is apparent. However, only low end speeds showed a very slight shift downward when comparing November 2010 with November 2009.

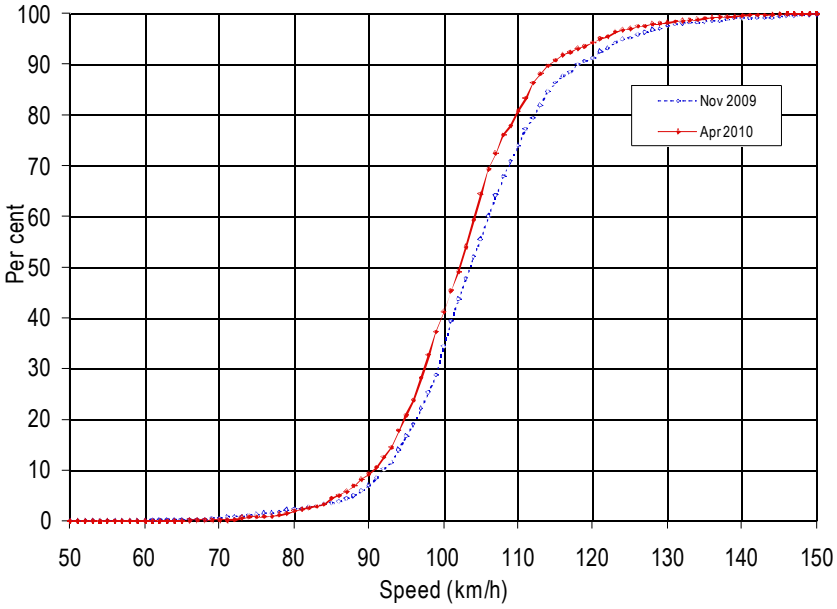

Figure 5.11
Cumulative free speed distribution of motorcycles for all sites combined

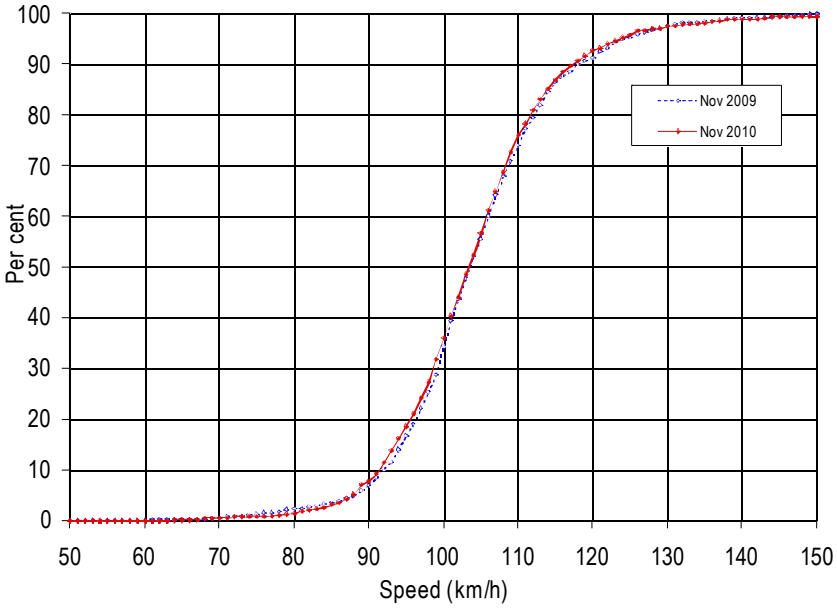

Figure 5.12
Cumulative free speed distribution of motorcycles for all sites combined

Figure 5.13 compares the free speed distribution of cars in November 2009 with April 2010 for all three sites combined and Figure 5.14 compares November 2009 with November 2010. While the distributions were very similar between November 2009 and April 2010, the November 2010 distribution showed a marked increase in speeds across the board.

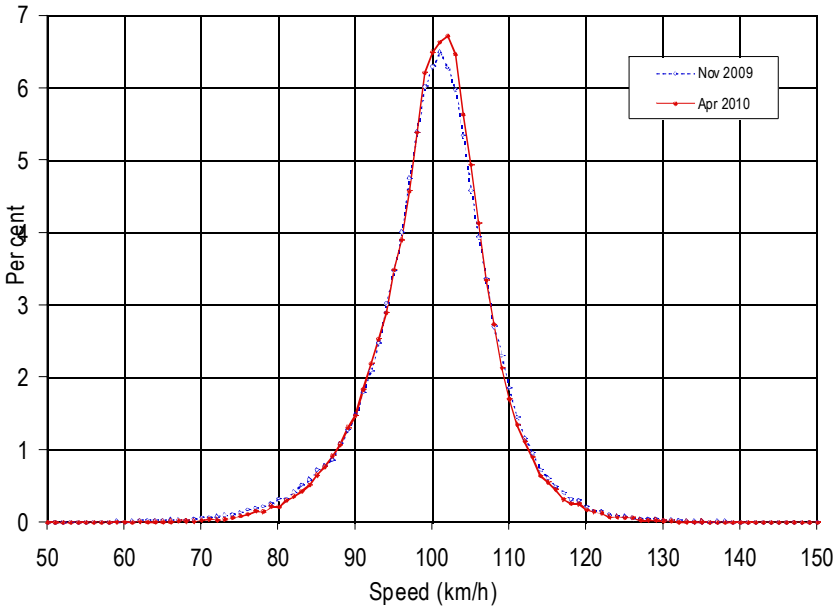

Figure 5.13
Free speed distribution of cars for all sites combined

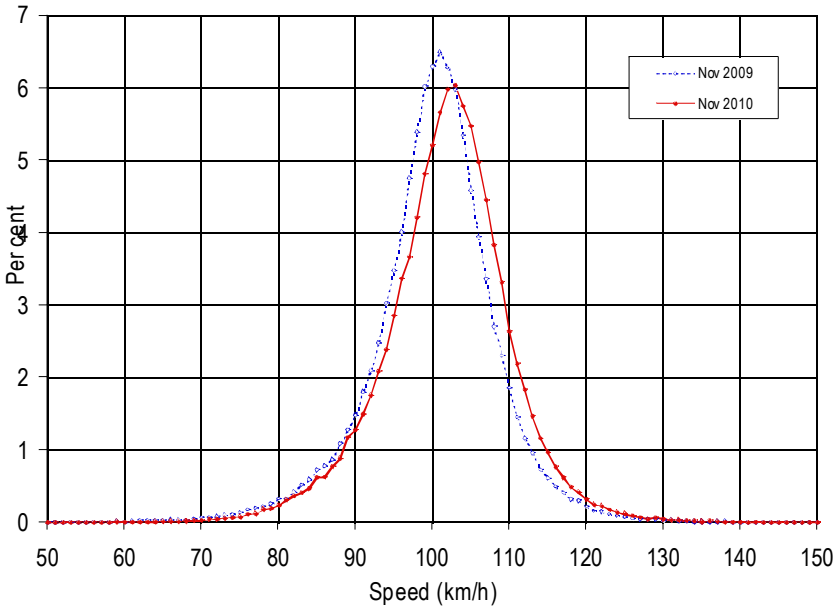

Figure 5.14
Free speed distribution of cars for all sites combined

Figure 5.15 compares the cumulative free speed distribution of cars in November 2009 with April 2010 for all three sites combined and Figure 5.16 compares November 2009 with November 2010. The marked across the board increase in car speeds in November 2010 in apparent in Figure 5.16.

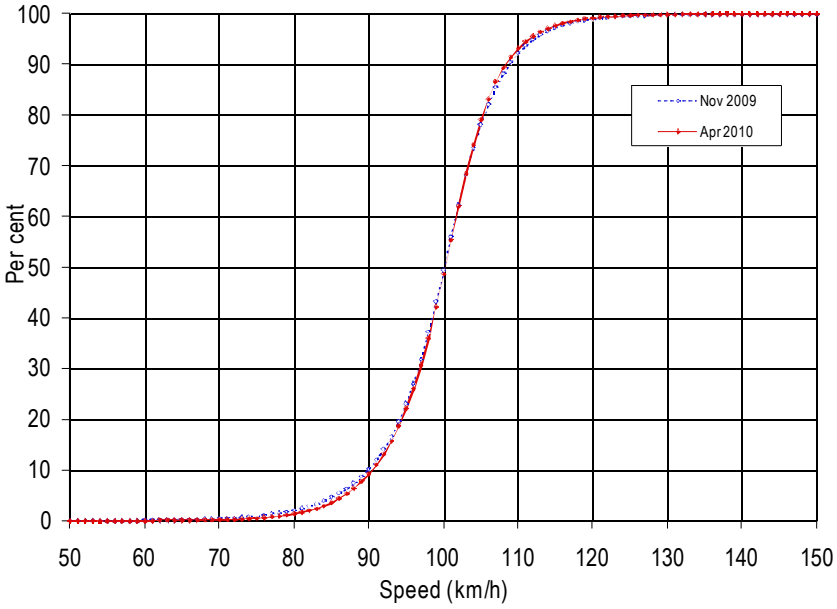

Figure 5.15
Cumulative free speed distribution of cars for all sites combined

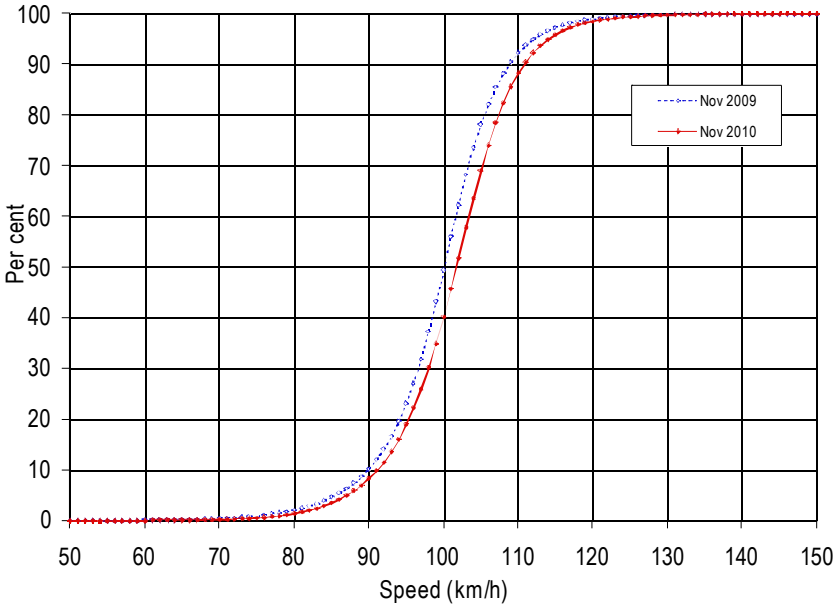

Figure 5.16
Cumulative free speed distribution of cars for all sites combined

Starting from November 2009, motorcycle volume increased in April 2010 and remained high in November 2010; car volume decreased in April 2010 and increased again in November 2010; motorcycle speeds decreased in April 2010 and increased almost back to the November 2009 level in November 2010; and car speeds remained much the same in April 2010 and increased in November 2010.

The limited number of sites surveyed, the different times of year surveyed, the variation of results between sites and the large change in motorcycle volume make generalisation of these results difficult.

The results for the free speed vehicles are similar to those given when analysing speeds of all vehicles. The results are consistent with a seasonal effect for motorcycle speeds and car volumes. Just comparing the November 2009 survey with the November 2010 survey shows a small decrease in speed for motorcycles and a large increase in speed for cars.

6 Roadside traffic observation

6.1 Methodology

Roadside traffic observations were conducted to observe some of the behaviours that were the focus of the Community Policing and Education Project. Behaviours amenable to roadside observation and which were chosen for this part of the evaluation were the hand held mobile phone use of car drivers and the use of conspicuous and protective clothing by motorcyclists. If the Project were successful, one would expect reduced hand held phone use by drivers and increased use of conspicuous and protective clothing by motorcyclists.

Two surveys in regional areas were conducted, one year apart. Both of these took place on weekends to ensure observation of recreational riders. Observations were located at intersections where vehicles slow or stop so that a suitable period of time was available for observations to be made for all vehicles. The times and locations for the regional surveys were as follows:

- Intersection South Gippsland Highway and Sladen St, Cranbourne. Saturday 11:00am-12:30pm
- Junction Melba Highway and Maroondah Highway, Coldstream. Saturday 4:00-5:30pm.
- Intersection of Anderson St and Maroondah Highway, Lilydale. Sunday 9:00-10:30am.
- Intersection of Maroondah Highway and Goulburn Valley Highway, Alexandra. Sunday 12:30-2:00pm.
- Junction of Goulburn Valley Highway and Whatton Place, Yea. Sunday 3:00-4:30pm.

In metropolitan Melbourne, surveys were conducted two weeks prior to a dedicated Victoria Police commuter operation, on the two days directly after the operation, and three weeks after it. All three urban surveys were conducted on Thursdays and Fridays and during commuting hours. The times and locations for the metropolitan surveys were as follows:

- Intersection of Charles St and Cotham Rd, Kew. Thursday 7:00-9:00am.
- Intersection of Hoddle St and Victoria St, East Melbourne. Thursday 4:30-6:30pm.
- Junction of Orrong Rd and Dandenong Rd, Caulfield North. Friday 7:00-9:00am.

The variables chosen for mobile phone use were sex of driver and use of hand held mobile phone (yes/no). Drivers were only deemed to be or not to be using a mobile phone if the observer was definite. If there was any doubt, no data point was recorded. For motorcycle riders, the variables recorded were as follows:

- Type of motorcycle (scooter including mopeds, trail, standard/naked, trike, cruiser, sports, touring, sports tourer)
- Headlights on or off
- Helmet use (full, open face, none)
- Conspicuity (high, low)
- Protection (full body, torso only, legs only, none)
- Passenger (yes/no and if yes, helmet use of passenger, as above)

A rider's clothing was adjudged to be highly conspicuous if the helmet or torso colour was white or bright yellow, or fitted with reflective material. Only the helmet and torso were used as indicators of conspicuity, as these were identified as protective in the study by Wells et al.[4]. When observing

protective clothing, special effort was directed toward determining if jeans were likely to be Kevlar jeans or similar. If additional stitching was evident, such jeans were assessed to be 'protective'. Full body protection could be a full body suit or the combination of a protective jacket and protective pants. Sex of rider was not collected as full protective clothing and a helmet can mask the sex of a rider.

Two trained observers sat by the side of the road and recorded observations. Traffic was recorded using a mounted digital camera to provide a back-up source of information if necessary. Weather conditions were recorded for each survey and there were no differences across waves that could have affected the results.

6.2 Results

6.2.1 Metropolitan Melbourne

This section summarises the results of the roadside traffic observations made in metropolitan Melbourne on the following dates:

- 11-12 March, 2010 (wave 1)
- 25-26 March, 2010 (wave 2)
- 15-16 April, 2010 (wave 3)

The first set of observations was conducted two weeks before a Yellow Flag/Black Flag operation directed at commuting motorcyclists. The second set was conducted in the days after the completion of the operation, while the third set was conducted three weeks later. The methodology was designed this way in order to detect changes in behaviour immediately following the operation, such as riders deciding to wear protective or conspicuous clothing that they already owned (changes observed in the second set of observations), and riders possibly wearing newly purchased protective or conspicuous clothing (changes observed in the third set of observations).

Location

The number of motorcycles observed in each location in each of the three waves is shown in Table 6.1. The site featuring the highest number of motorcycles was Hoddle St, where a motorcycle was observed at a rate of one or more per minute between 4:30 and 6:30pm. The proportions of the sample of motorcycles observed at each location were consistent across the three surveys.

Motorcycle type

Table 6.2 shows the percentage frequency of different types of motorcycles observed at all three sites combined across the three surveys. Again, the results are very consistent, with sports motorcycles being most common, followed by standard/naked motorcycles and scooters. This suggests that the samples across the three surveys are comparable.

Headlight operation

Table 6.3 presents the results of observations of headlight operation by motorcycle type, across the three surveys for all sites combined. The numbers refer to the percentage of total motorcycles within each survey. Overall, one in 40 motorcycles was observed not to have headlights operating in survey waves 1 and 3, while the percentage appeared lower in survey 2. These apparent differences were not statistically significant (p >.05). The very low proportion of non-headlight use is due to the automatic headlight operation of most motorcycles.

Table 6.1
Motorcycles observed by site location, metropolitan Melbourne Waves 1-3

Location	Number	Percent
Wave 1		
Cotham Rd	24	11.5
Hoddle St	118	56.5
Dandenong Rd	67	32.1
Total	209	100.0
Wave 2		
Cotham Rd	28	11.3
Hoddle St	152	61.5
Dandenong Rd	67	27.1
Total	247	100.0
Wave 3		
Cotham Rd	30	11.5
Hoddle St	150	57.7
Dandenong Rd	80	30.8
Total	260	100.0

Table 6.2
Motorcycles observed by type, metropolitan Melbourne Waves 1-3

Motorcycle type	Number			
	Wave 1	Wave 2	Wave 3	Total
Scooter	57	63	65	185
Trail	7	3	-	10
Standard/Naked	43	62	71	176
Trike	-	-	-	-
Cruiser	16	18	20	54
Sports	73	91	100	264
Sports Tourer	1	2	-	3
Tourer	12	8	4	24
Total	209	247	260	716

Motorcycle type	Percentage			
	Wave 1	Wave 2	Wave 3	Total
Scooter	27.3	25.5	25.0	25.8
Trail	3.3	1.2	-	1.4
Standard/Naked	20.6	25.1	27.3	24.6
Trike	-	-	-	-
Cruiser	7.7	7.3	7.7	7.5
Sports	35.0	36.8	38.5	36.9
Sports Tourer	0.5	0.8	-	0.4
Tourer	5.7	3.2	1.5	3.4
Total	100.0	100.0	100.0	100.0

Table 6.3
Motorcycles observed with headlights off, metropolitan Melbourne Waves 1-3

Motorcycle type	Number			
	Wave 1	Wave 2	Wave 3	Total
Scooter	3	-	4	7
Trail	-	-	-	-
Standard/Naked	1	-	2	3
Cruiser	-	1	1	2
Sports	-	-	-	-
Sports Tourer	-	-	-	-
Tourer	-	1	-	1
Total	4	2	7	13

Motorcycle type	Percentage			
	Wave 1	Wave 2	Wave 3	Total
Scooter	5.3	-	6.2	3.8
Trail	-	-	-	-
Standard/Naked	2.3	-	2.8	1.7
Cruiser	-	5.6	5.0	3.7
Sports	-	-	-	-
Sports Tourer	-	-	-	-
Tourer	-	12.5	-	4.2
Total	1.9	0.8	2.7	1.8

Helmet use

All of the observed riders were wearing helmets. Table 6.4 shows the proportion of riders in each survey who were wearing full face helmets, by type of motorcycle. There does not seem to be any change across the three surveys in types of helmets worn by riders. The patterns of use by motorcycle type are also consistent, with high use of full face helmets by riders of sports motorcycles and tourers, a third of riders of scooters opting for open face helmets and a large proportion of riders of cruisers also choosing open face helmets. The greater variation in percentages for the riders of cruisers reflects the smaller sample size for these types of motorcycle.

Table 6.4
Full face helmet use by motorcyclists, metropolitan Melbourne Waves 1-3

Motorcycle type	Number			
	Wave 1	Wave 2	Wave 3	Total
Scooter	37	44	43	124
Trail	6	3	-	9
Standard/Naked	42	58	63	163
Cruiser	7	13	10	30
Sports	72	89	99	260
Sports Tourer	1	1	-	2
Tourer	12	8	4	24
Total	177	216	219	612

Motorcycle type	Percentage			
	Wave 1	Wave 2	Wave 3	Total
Scooter	64.9	69.8	66.2	67.0
Trail	85.7	100.0	-	90.0
Standard/Naked	97.7	93.5	88.7	92.6
Cruiser	43.8	72.2	50.0	55.6
Sports	98.6	97.8	99.0	98.5
Sports Tourer	100.0	50.0	-	66.7
Tourer	100.0	100.0	100.0	100.0
Total	84.7	87.4	84.2	85.5

Conspicuity

Ratings of conspicuity (high or low) are shown in Table 6.5. Levels of conspicuity were generally low across the riding population. There is an apparent decrease in conspicuity across the three surveys, particularly evident among riders of scooters. This apparent difference, however, was not statistically significant ($p > .05$). The one consistent finding by motorcycle type was the very low proportion of riders of cruisers wearing conspicuous clothing or helmets.

Use of protective clothing

Observations of protective clothing are summarised in Tables 6.6 to 6.8, separately for each wave. Of most note is the overall proportion of riders observed to be fully protected. The percentage increased across the three waves from 17 to 24 to 38. The percentage of riders fully protected in the final survey was found to be greater than the percentage in the two previous surveys ($p < .05$). Inspection of the results for individual motorcycle types points to marked improvements in the rates of full protection among riders of sports and standard/naked motorcycles. Improvement is still needed among riders of scooters and cruisers.

Table 6.5
Highly conspicuous motorcyclists, metropolitan Melbourne Waves 1-3

Motorcycle type	Number			
	Wave 1	Wave 2	Wave 3	Total
Scooter	22	10	13	45
Trail	1	1	-	2
Standard/Naked	6	13	18	37
Cruiser	1	1	1	3
Sports	16	21	16	53
Sports Tourer	-	1	-	1
Tourer	2	1	1	4
Total	48	48	49	145

Motorcycle type	Percentage			
	Wave 1	Wave 2	Wave 3	Total
Scooter	38.6	16.7	23.1	24.3
Trail	14.3	33.3	-	20.0
Standard/Naked	14.0	21.0	25.4	21.0
Cruiser	6.3	5.6	5.0	5.6
Sports	21.9	23.1	16.0	20.1
Sports Tourer	-	50.0	-	33.3
Tourer	16.7	12.5	25.0	16.7
Total	23.0	19.4	18.8	20.3

Table 6.6
Body protection by motorcycle type, metropolitan Melbourne Wave 1

Motorcycle type	Number			
	Full body	Upper body	None	Total
Scooter	4	36	17	57
Trail	-	7	-	7
Standard/Naked	8	32	3	43
Cruiser	3	11	2	16
Sports	18	54	1	73
Sports Tourer	-	1	-	1
Tourer	3	9	-	12
Total	36	150	23	209

Motorcycle type	Percentage			
	Full body	Upper body	None	Total
Scooter	7.0	63.2	29.8	100.0
Trail	-	100.0	-	100.0
Standard/Naked	18.6	74.4	7.0	100.0
Cruiser	18.8	68.8	12.5	100.0
Sports	24.7	74.0	1.4	100.0
Sports Tourer	-	100.0	-	100.0
Tourer	25.0	75.0	-	100.0
Total	17.2	71.8	11.0	100.0

Table 6.7
Body protection by motorcycle type, metropolitan Melbourne Wave 2

Motorcycle type	Number			
	Full body	Upper body	None	Total
Scooter	4	34	25	63
Trail	-	1	2	3
Standard/Naked	16	36	10	62
Cruiser	4	14	-	18
Sports	30	54	6	90
Sports Tourer	1	1	-	2
Tourer	4	4	-	8
Total	59	144	43	246

Motorcycle type	Percentage			
	Full body	Upper body	None	Total
Scooter	6.3	54.0	39.7	100.0
Trail	-	33.3	66.7	100.0
Standard/Naked	25.8	58.1	16.1	100.0
Cruiser	22.2	77.7	-	100.0
Sports	33.0	59.3	6.6	98.9
Sports Tourer	50.0	50.0	-	100.0
Tourer	50.0	50.0	-	100.0
Total	23.9	58.3	17.4	99.6

NB: Percentages do not sum to 100 as there was one rider of a sports motorcycle who had protection for his lower body but not his upper body

Table 6.8
Body protection by motorcycle type, metropolitan Melbourne Wave 3

Motorcycle type	Number			
	Full body	Upper body	None	Total
Scooter	4	45	16	65
Trail	-	-	-	-
Standard/Naked	33	35	3	71
Cruiser	9	11	-	20
Sports	50	49	1	100
Sports Tourer	-	-	-	-
Tourer	3	1	-	4
Total	99	141	20	260

Motorcycle type	Percentage			
	Full body	Upper body	None	Total
Scooter	6.2	69.2	24.6	100.0
Trail	-	-	-	100.0
Standard/Naked	46.5	49.3	4.2	100.0
Cruiser	45.0	55.0	-	100.0
Sports	50.0	49.0	1.0	100.0
Sports Tourer	-	-	-	-
Tourer	75.0	25.0	-	100.0
Total	38.1	54.2	7.7	100.0

Pillion passengers

There were few passengers observed in metropolitan Melbourne. There were four in the first survey, nine in the second and six in the third. All but three of the passengers were wearing full face helmets.

Mobile phone use by drivers

Hand held mobile phone use by drivers of cars was only recorded by observers when they could be certain whether or not a phone was being used. The outcomes of these observations for the three waves of metropolitan surveys are shown in Table 6.9. The results across the three surveys are reasonably consistent, with half a percent or fewer drivers observed using a hand held mobile phone. We cannot detect any change in hand held mobile phone use on the basis of these figures. The three waves of observations were conducted within a relatively short time period, which was suitable for evaluating changes in motorcyclist behaviour in response to a Victoria Police operation, but this made it unlikely that mobile phone use by drivers would change during the short time period of the observations. We can only conclude from the observations that a small number of drivers were engaging in this activity at these intersections.

Table 6.9
Hand held mobile phone use by drivers of cars, three sites combined, metropolitan Melbourne Waves 1-3

Phone use variable	Wave 1	Wave 2	Wave 3
No. of drivers observed	13,601	18,311	14,577
Phone use, males	42	45	51
Phone use, females	17	13	18
Phone use, total	59	58	69
Phone use, % total	0.4	0.3	0.5

6.2.2 Regional Victoria

This section summarises the results of the roadside traffic observations made in regional Victoria on the following dates:

- 12-13 Dec, 2009 (wave 1)
- 20-21 Nov, 2010 (wave 2)

Location

The number of motorcycles observed in each location in each of the two waves is shown in Table 6.10. The site featuring the highest number of motorcycles in each survey was Lilydale, comprising around 30 percent of the motorcycles observed. Of particular note is the much larger sample in the second survey. This was not due to different weather conditions, as the weather was consistent across the two weekends when the surveys were carried out.

Motorcycle type

Table 6.11 shows the percentage frequency of different types of motorcycles observed at the five sites combined across the two surveys. Sports motorcycles and cruisers were the most commonly seen motorcycles, followed by standard/naked motorcycles and tourers. Two groups of three-wheeler motorcycles (‘trikes’) were observed in the second wave. Compared to metropolitan Melbourne, there was a higher proportion of cruisers and a lower proportion of scooters in regional Victoria.

Headlight operation

Table 6.12 presents the results of observations of headlight operation by motorcycle type, across the two surveys for all sites combined. The numbers refer to the percentage of motorcycles of each type. One in 10 motorcycles was observed not to have headlights operating in survey wave 1 but this dropped to one in 30 in survey wave 2. This difference was statistically significant ($X^2_{(1)} = 10.27$, $p < .01$). The very low proportion of non-headlight use is due to the automatic headlight operation of most motorcycles. The level of non-headlight use in metropolitan Melbourne was slightly lower, at a rate of one in 40 motorcycles.

Table 6.10
Motorcycles observed by site location, regional Victoria Waves 1-2

Location	Number	Percent
Wave 1		
Cranbourne	36	20.8
Coldstream	24	13.9
Lilydale	53	30.6
Alexandra	38	22.0
Yea	22	12.7
Total	173	100.0
Wave 2		
Cranbourne	46	12.3
Coldstream	53	14.2
Lilydale	121	32.4
Alexandra	63	16.9
Yea	90	24.1
Total	373	100.0

Table 6.11
Motorcycles observed by type, regional Victoria Waves 1-2

Motorcycle type	Number		
	Wave 1	Wave 2	Total
Scooter	4	6	10
Trail	4	7	11
Standard/Naked	19	55	74
Trike	-	20	20
Cruiser	48	121	169
Sports	65	92	157
Sports Tourer	15	15	30
Tourer	18	57	75
Total	173	373	546

Motorcycle type	Percentage		
	Wave 1	Wave 2	Total
Scooter	2.3	1.6	1.8
Trail	2.3	1.9	2.0
Standard/Naked	11.0	14.7	13.5
Trike	-	5.4	3.7
Cruiser	27.7	32.4	30.9
Sports	37.6	24.7	28.9
Sports Tourer	8.7	4.0	5.5
Tourer	10.4	15.3	13.7
Total	100.0	100.0	100.0

Table 6.12
Motorcycles observed with headlights off, regional Victoria Waves 1-2

Motorcycle type	Number		
	Wave 1	Wave 2	Total
Scooter	-	-	-
Trail	1	-	1
Standard/Naked	7	3	10
Trike	-	2	2
Cruiser	5	4	9
Sports	4	2	6
Sports Tourer	-	1	1
Tourer	-	-	-
Total	17	12	29

Motorcycle type	Percentage		
	Wave 1	Wave 2	Total
Scooter	-	-	-
Trail	25.0	-	9.1
Standard/Naked	36.8	5.5	13.5
Trike	-	10.0	10.0
Cruiser	10.4	3.3	5.3
Sports	6.2	2.2	3.8
Sports Tourer	-	6.7	3.3
Tourer	-	-	-
Total	9.8	3.2	5.3

Helmet use

All of the observed riders were wearing helmets. Table 6.13 shows the proportion of riders in each survey who were wearing full face helmets, by type of motorcycle. The overall level of full face helmet use in the second wave appeared slightly lower than in the first wave, although this apparent difference was not statistically significant and so may have occurred by chance ($X^2_{(1)} = 2.42$, $p > .05$). It is also the case that in the second wave there was a higher proportion of cruiser motorcycles and trikes in the cruiser style, motorcycle types which are associated with open face rather than full face helmet use. Inspection of the proportions of full face helmets used within each motorcycle type suggests consistent patterns of helmet choice by different groups of motorcyclists. Full face helmets were used to a greater degree in metropolitan Melbourne, a difference largely due to the effect of larger numbers of cruisers in regional Victoria (31% versus 7.5% of the sample).

Table 6.13
Motorcycles observed with full face helmets, regional Victoria Waves 1-2

Motorcycle type	Number		
	Wave 1	Wave 2	Total
Scooter	2	4	6
Trail	4	7	11
Standard/Naked	16	50	66
Trike	-	2	2
Cruiser	12	38	50
Sports	65	90	155
Sports Tourer	13	11	24
Tourer	18	54	72
Total	130	256	386

Motorcycle type	Percentage		
	Wave 1	Wave 2	Total
Scooter	50.0	66.7	60.0
Trail	100.0	100.0	100.0
Standard/Naked	84.2	90.9	89.2
Trike	-	10.0	10.0
Cruiser	25.0	31.4	29.6
Sports	100.0	97.8	98.7
Sports Tourer	86.7	73.3	80.0
Tourer	100.0	94.7	96.0
Total	75.1	68.6	70.7

Conspicuity

Ratings of conspicuity (high or low) are shown in Table 6.14. There is little difference between the two surveys and any apparent minor difference is not statistically significant ($X^2_{(1)} = 2.18$, $p > .05$). Conspicuity levels were consistently low for cruisers across the two surveys. The conspicuity of riders of trikes was also low but the trikes themselves, due to their width, are far more conspicuous vehicles than other motorcycles. Therefore, the figure of 10 percent in Table 6.14 is not indicative of their overall conspicuity. The results in regional Victoria were similar to those in metropolitan Melbourne, where rates of high conspicuity were around 20 percent, and where cruisers similarly exhibited especially low rates of conspicuity.

Table 6.14
Highly conspicuous motorcyclists, regional Victoria Waves 1-2

Motorcycle type	Number		
	Wave 1	Wave 2	Total
Scooter	3	0	3
Trail	1	4	5
Standard/Naked	6	15	21
Trike	-	2	2
Cruiser	1	7	8
Sports	24	28	52
Sports Tourer	5	3	8
Tourer	5	17	22
Total	45	76	121

Motorcycle type	Percentage		
	Wave 1	Wave 2	Total
Scooter	75.0	0.0	30.0
Trail	25.0	57.1	45.5
Standard/Naked	31.6	27.3	28.4
Trike	-	10.0	10.0
Cruiser	2.1	5.8	4.7
Sports	36.9	30.4	33.1
Sports Tourer	33.3	20.0	26.7
Tourer	27.8	29.8	29.3
Total	26.0	20.4	22.2

Protective clothing

Observations of protective clothing for motorcyclists in regional Victoria are summarised in Tables 6.15 to 6.16, separately for the two waves. Although there was an apparent small increase in riders with upper body protection combined with an apparent small decrease in unprotected riders, this difference was not statistically significant ($X^2_{(2)} = 3.51$, $p > .05$) and so could have occurred by chance. Just under half of the motorcyclists were wearing full body protection, and just under half were wearing protection only of the upper body. The lack of an effect of the Project on protective clothing in regional Victoria contrasts with the improvement observed in metropolitan Melbourne. However, the highest rate of full body protective clothing reached in metropolitan Melbourne in the third set of observations was still lower than the rate observed in regional Victoria.

Table 6.15
Body protection by motorcycle type, regional Victoria Wave 1

Motorcycle type	Number			
	Full body	Upper body	None	Total
Scooter	-	2	2	4
Trail	1	3	-	4
Standard/Naked	6	13	-	19
Trike	-	-	-	-
Cruiser	5	35	8	48
Sports	46	14	5	65
Sports Tourer	13	2	-	15
Tourer	9	9	-	18
Total	80	78	15	173

Motorcycle type	Percentage			
	Full body	Upper body	None	Total
Scooter	-	50.0	50.0	100.0
Trail	25.0	75.0	-	100.0
Standard/Naked	31.6	68.4	-	100.0
Trike	-	-	-	-
Cruiser	10.4	72.9	16.7	100.0
Sports	70.8	21.5	7.7	100.0
Sports Tourer	86.7	13.3	-	100.0
Tourer	50.0	50.0	-	100.0
Total	46.2	45.1	8.7	100.0

Table 6.16
Body protection by motorcycle type, regional Victoria Wave 2

Motorcycle type	Number			
	Full body	Upper body	None	Total
Scooter	1	3	2	6
Trail	6	-	1	7
Standard/Naked	25	30	-	55
Trike	2	16	2	20
Cruiser	26	82	10	118
Sports	63	27	2	92
Sports Tourer	9	6	-	15
Tourer	34	22	1	57
Total	166	186	18	370

Motorcycle type	Percentage			
	Full body	Upper body	None	Total
Scooter	16.7	50.0	33.3	100.0
Trail	85.7	-	14.3	100.0
Standard/Naked	45.5	54.5	-	100.0
Trike	10.0	80.0	10.0	100.0
Cruiser	21.5	67.8	8.3	97.5
Sports	68.5	29.3	2.2	100.0
Sports Tourer	60.0	40.0	-	100.0
Tourer	59.6	38.6	1.8	100.0
Total	44.5	49.9	4.8	99.2

NB percentages do not sum to 100 as three cruiser riders were wearing leg protection but no upper body protection

Pillion passengers

Tables 6.17 and 6.18 show the number of pillion passengers carried by motorcyclists observed in the two surveys, and whether the pillion passengers were wearing full face or open face helmets (none was without a helmet). There was an apparent increase in the number of pillion passengers observed in the second survey but the difference was not statistically significant ($X^2_{(2)} = 3.63$, $p > .05$) and so may have occurred by chance. There were more pillions observed in regional Victoria than in metropolitan Melbourne, where there were very few among the commuters observed.

Table 6.17
Pillion passengers and their helmet use by motorcycle type, regional Victoria Wave 1

Motorcycle type	Number			
	Full face	Open face	No pillion	Total
Scooter	-	-	4	4
Trail	-	-	4	4
Standard/Naked	1	-	18	19
Trike	-	-	-	-
Cruiser	2	6	40	48
Sports	5	-	60	65
Sports Tourer	5	-	10	15
Tourer	4	-	14	18
Total	17	6	150	173

Motorcycle type	Percentage			
	Full face	Open face	No pillion	Total
Scooter	-	-	100.0	100.0
Trail	-	-	100.0	100.0
Standard/Naked	5.3	-	94.7	100.0
-Trike	-	-	-	-
Cruiser	4.2	12.5	83.3	100.0
Sports	7.7	-	92.3	100.0
Sports Tourer	33.3	-	66.7	100.0
Tourer	22.2	-	77.7	100.0
Total	9.8	3.5	86.7	100.0

Table 6.18
Pillion passengers and their helmet use by motorcycle type, regional Victoria Wave 2

Motorcycle type	Number			
	Full face	Open face	No pillion	Total
Scooter	-	-	6	6
Trail	-	-	7	7
Standard/Naked	6	1	48	55
Trike	6	11	3	20
Cruiser	9	14	98	121
Sports	7	1	84	92
Sports Tourer	6	-	9	15
Tourer	7	1	49	57
Total	41	28	304	373

Motorcycle type	Percentage			
	Full face	Open face	No pillion	Total
Scooter	-	-	100.0	100.0
Trail	-	-	100.0	100.0
Standard/Naked	10.9	1.8	87.3	100.0
Trike	30.0	55.0	15.0	100.0
Cruiser	7.4	11.6	81.0	100.0
Sports	7.6	1.1	91.3	100.0
Sports Tourer	40.0	-	60.0	100.0
Tourer	12.3	1.8	86.0	100.0
Total	11.0	7.5	81.5	100.0

Mobile phone use by drivers

Rates of hand held mobile phone use by drivers in regional Victoria are shown in Table 6.19. It can be seen that rates were lower in the second wave, reducing from a very low starting point. This difference was found to be statistically significant ($X^2_{(1)} = 5.82$, $p < .05$). This change may be partly due to greater take up of hands free kits but still may reflect a deterrent effect resulting from police enforcement over the year between roadside observations. In contrast, no change was observed in metropolitan Melbourne. However, the metropolitan observations were made over a short time period, during which time it would be very unlikely for mobile phone use rates to change, compared to the 12 month separation of the two waves of observations conducted in regional Victoria. Furthermore, initial rates of mobile phone use while driving started from a lower base rate in metropolitan Melbourne than in regional Victoria. The rate of phone use observed in the second set of observations in regional Victoria was similar to the rate consistently observed in metropolitan Melbourne.

Table 6.19
Hand held mobile phone use by drivers of cars five sites combined, regional Victoria, Waves 1-2

Phone use variable	Wave 1	Wave 2
No. of drivers observed	855	1040
Phone use, males	6	3
Phone use, females	6	1
Phone use, total	12	4
Phone use, % total	1.4	0.4

6.3 Summary

The main positive finding from the roadside observations conducted as part of the Project evaluation was the increase in the use of full body protection by motorcyclists in metropolitan Melbourne following a Yellow Flag/Black Flag operation that targeted commuters. Surveys conducted just before, just after, and a month after the operation revealed increases in the proportion of fully protected riders from 17 to 24 to 38 percent. Greater body protection for motorcyclists is likely to reduce injury severity in a crash[5] and so this increase in full body protection among Melbourne commuting riders is a significant achievement for the Project. The greatest increases were observed among riders of sports and standard/naked motorcycles. Improvement in the use of protective clothing is still required among riders of cruisers and scooters.

Otherwise, the results for the observations in metropolitan Melbourne indicated that there was no change in the rate of use of headlights and no change in rider conspicuity. Headlight use was high, with only one in 40 motorcycles not operating with headlights on. This very high rate of headlight use can be explained by the provision of automatic headlights on modern motorcycles. All riders were wearing a helmet and full face helmets (rather than open face helmets) were worn by around 85 percent of riders. Rates of full face helmet use were lower for riders of cruisers and scooters. The majority of scooter riders still wore full face helmets, however. Rider conspicuity remained low across the three surveys, with only one in five riders wearing conspicuous clothing or helmets. Riders of cruisers were particularly inconspicuous, with only one in 20 wearing conspicuous clothing or helmets.

In regional Victoria, the only statistically significant difference was the decrease of non-headlight use. The rate of non-headlight use by motorcyclists dropped from one in 10 to one in 30. It is unclear whether this can be attributed to the Project. The weather conditions in the second survey were similar to the first but there were far more riders on the road in the second survey. In fact, the number of motorcycles observed doubled in the second survey. The increase was particularly driven by higher numbers of cruisers and a large number of cruiser-like trikes. A higher proportion of cruisers in the sample would be expected to lead to decreases in observed full face helmet use, full body protection and conspicuity. Any apparent differences, however, were not statistically significant. Even accounting for the differences in the two samples, inspection of the regional results for individual motorcycle types suggested that there had been no changes in rider apparel across the two surveys.

Comparison between metropolitan Melbourne and regional Victoria reveals that the motorcycle types in the two regions differ, with more cruisers in regional Victoria and more scooters in metropolitan Melbourne. Non-headlight use is more common in Melbourne, while the use of open face rather than full face helmets is more common in regional Victoria (associated with the higher proportion of cruisers). Conspciuity levels were similarly low (20 percent high conspicuity) in both metropolitan Melbourne and regional Victoria. The use of protective clothing increased in metropolitan Melbourne but not in regional Victoria. The baseline level of the use of protective clothing in regional Victoria was higher, however, than the improved level in Melbourne.

The overall results of the observations are very similar to those of the only other recent Australian study of its type[6]. This study involved observations of recreational and commuting riders in Brisbane and Canberra, using a similar methodology to the current study. The findings were that the majority of riders wore protection of the upper body but far fewer protected the lower body. There were marked differences in rates of protective gear between recreational and commuting riders, largely due to the lower levels of protective clothing worn by riders of scooters. Scooter riders also differed from others in favouring open face rather than full-face helmets[6].

With regard to motorists, there were very low levels of hand held mobile phone use. Levels in the metropolitan area were around 0.4 percent. In regional Victoria, the level was at 1.4 percent in the first survey before dropping to 0.4 percent in the second. This drop was statistically significant. The extent to which this drop in hand held mobile phone use is due to the Project is unclear but it is consistent with reduced use in response to increased enforcement of laws pertaining to use of hand held mobile phones while driving.

7 Online survey of motorcyclists

7.1 Methodology

In order to assess the possibility of changes in attitudes of motorcycle riders in response to the Community Policing and Education Project, an online survey of Victorian motorcyclists was used. As the ideal outcome of increased enforcement is an increase in the perceived likelihood of detection and a decrease in unsafe behaviours, both of these outcomes could be the basis for claiming a degree of success of the Project. The survey was designed to obtain self-reported data on these variables, while also seeking other information relevant to motorcycle safety.

The survey was advertised using flyers included in motorcycle registration renewal notices mailed out by VicRoads. Although the survey was run online, potential respondents without available internet were invited to contact CASR to be sent a hard copy of the survey in the mail. A reply paid envelope was included. Those completing the survey were eligible to win one of six $100 motorcycle store vouchers and a grand prize of two tickets to the 2011 IVECO MotoGP at Philip Island, Victoria. All of these prizes have been allocated and sent to the winners.

The items included in the questionnaire were determined on the basis of a literature review. The reports and papers that were useful in developing the questionnaire are included in the References section[7-17]. The general sections of the questionnaire are listed below (a full list of the items is provided in Appendix C):

- Rider demographics
- Motorcycle details
- Riding history
- Riding offence history
- Rider crash history
- Recent exposure to enforcement
- Perceived likelihood of detection for riding offences
- Road infrastructure in Victoria
- Attitudes and on-road behaviour

7.2 Results

This section presents a summary of the full twelve months of the online survey of Victorian motorcyclists. These responses are divided into three time periods. These time periods range from December 1, 2009 to March 16, 2010 (551 respondents), from March 17 to July 31, 2010 (481 respondents) and from August 1 to 13 December 2010 (1,046 respondents). The different frequencies in the separate time periods are likely to reflect seasonal differences in the rates of motorcycle registrations. These three groups of survey respondents will be referred to throughout as Groups 1, 2 and 3, respectively. By comparing the responses by riders in the three groups, changes in responding, which may be indicative of changes in motorcyclists' attitudes or behaviour in response to the Project, can be identified. Note that the Project commenced prior to the first period of the online survey. This means that the Project may have had some effect on attitudes and behaviour before the first period of the survey, which, in turn, means that the overall survey results (the comparison between Groups 1, 2 and 3) may underestimate the effects of the Project. Note also that the totals in tables vary in this section, due to cases in which respondents have not answered every question.

7.2.1 Rider demographics

Before comparing responses relevant to the aims of the Project, it is necessary to compare questions related to demographics. In order for comparisons between the three groups to be valid, it is necessary that the three groups be matched on demographic variables.

First, the distribution of sex of rider is shown in Table 7.1. In all groups, males were most common. A chi-square test of independence revealed that the groups did not differ significantly ($X^2_{(2)} = 4.35$, $p > .05$).

Table 7.1
Sex of participants

Group		Male	Female	Total
1	N	493	54	547
	%	90.1	9.9	100.0
2	N	445	33	478
	%	93.1	6.9	100.0
3	N	938	106	1044
	%	89.8	10.2	100.0
Total	N	1876	193	2069
	%	90.7	9.3	100.0

Table 7.2 shows the distribution of riders by age group. Ages ranged from 18 to 82 in Group 1 (X = 45.5, SD = 10.9), from 17 to 72 in Group 2 (X = 46.3, SD = 11.2), and from 20 to 78 in Group 3 (X = 46.7, SD = 10.6). These group means were not significantly different from each other ($F(2, 2070) = -2.27$, $p > .05$). Therefore, the three groups were matched on both age and sex.

Table 7.2
Age of participants

Age group	Number			
	Group 1	Group 2	Group 3	Total
18-25	23	20	34	77
26-35	72	67	137	276
36-45	171	112	258	541
46-55	182	175	399	756
56-65	88	95	184	367
66-75	12	10	31	53
76-85	1	-	1	2
Total	549	479	1044	2072

Age group	Percentage			
	Group 1	Group 2	Group 3	Total
18-25	4.2	4.2	3.3	3.7
26-35	13.1	14.0	13.1	13.3
36-45	31.1	23.4	24.7	26.1
46-55	33.2	36.5	38.2	36.5
56-65	16.0	19.8	17.6	17.7
66-75	2.2	2.1	3.0	2.6
76-85	0.2	-	0.1	0.1
Total	100.0	100.0	100.0	100.0

7.2.2 Motorcycle details

One of the most important variables in terms of establishing the comparability of the three groups is motorcycle type. Table 7.3 provides details of the motorcycles ridden by the survey participants in the three groups. Sports or sports tourers, standard/naked motorcycles and cruisers were the most common motorcycles ridden by those in all groups. A chi square test of independence revealed that the motorcycle types of the three groups did not differ significantly ($X^2_{(12)} = 9.49$, $p > .05$).

Table 7.3
Motorcycle type

Motorcycle type	Number			
	Group 1	Group 2	Group 3	Total
Moped	0	1	1	2
Scooter	27	18	57	102
Trail bike	24	22	31	77
Standard or Naked	106	95	196	397
Sports or Sports touring	233	206	454	893
Touring	46	51	84	181
Cruiser	99	78	194	371
Other	16	10	28	54
Total	551	481	1045	2077

Motorcycle type	Percentage			
	Group 1	Group 2	Group 3	Total
Moped	0.0	0.2	0.1	0.1
Scooter	4.9	3.7	5.5	4.9
Trail bike	4.4	4.6	3.0	3.7
Standard or Naked	19.2	19.8	18.8	19.1
Sports or Sports touring	42.3	42.8	43.4	43.0
Touring	8.3	10.6	8.0	8.7
Cruiser	18.0	16.2	18.6	17.9
Other	2.9	2.1	2.7	2.6
Total	100.0	100.0	100.0	100.0

Engine size of the motorcycles is shown in Table 7.4. The mean engine size for Group 1 was 835.5 (SD = 393.3), for Group 2 was 871.0 (SD = 409.6), and for Group 3 was 861.1 (SD = 393.6). There was no significant difference between the three groups in terms of motorcycle engine size ($F_{(2, 2065)} = 1.16$, $p > .05$). Therefore, the motorcycle types and engine size of the motorcycles in the three groups were comparable.

Table 7.4
Engine Size

Engine size	Number			
	Group 1	Group 2	Group 3	Total
1-250	88	71	113	272
251-500	30	28	69	127
501-750	126	104	250	480
751-1000	144	119	278	541
1001-1500	138	126	243	507
1501+	21	31	69	121
Total	547	479	1022	2048

Engine size	Percentage			
	Group 1	Group 2	Group 3	Total
1-250	16.1	14.8	11.1	13.3
251-500	5.5	5.8	6.8	6.2
501-750	23.0	21.7	24.5	23.4
751-1000	26.3	24.8	27.2	26.4
1001-1500	25.2	26.3	23.8	24.8
1501+	3.8	6.5	6.8	5.9
Total	100.0	100.0	100.0	100.0

Table 7.5 shows the distribution of motorcycles owned by repsondents according to whether or not they are included in the Learner Approved Motorcycle Scheme. Approximately a quarter of respondents reported riding a LAMS motorcycle, with consistent numbers across the three groups.

Table 7.5
Is the motorcycle on the Learner Approved Motorcycle Scheme list?

LAMS	Number			
	Group 1	Group 2	Group 3	Total
Yes	136	113	233	482
No	391	343	772	1506
Total	527	456	1005	1988

LAMS	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	25.8	24.8	23.2	24.2
No	74.2	75.2	76.8	75.8
Total	100.0	100.0	100.0	100.0

7.2.3 Riding history

Table 7.6 shows that the vast majority of motorcycle owners were fully licensed to ride. A chi square test of independence revealed no significant differences in licence type between the three groups ($X^2_{(6)} = 9.43$, $p > .05$).

Table 7.6
Licence type

Licence type	Number			
	Group 1	Group 2	Group 3	Total
Full	500	453	972	1925
Restricted	28	15	34	77
P2	4	2	6	12
P1	4	5	4	13
L	15	5	27	47
Disqualified	0	1	1	2
Total	551	481	1044	2076

Licence type	Percentage			
	Group 1	Group 2	Group 3	Total
Full	90.7	94.2	93.1	92.7
Restricted	5.1	3.1	3.3	3.7
P2	0.7	0.4	0.6	0.6
P1	0.7	1.0	0.4	0.6
L	2.7	1.0	2.6	2.3
Disqualified	0.0	0.2	0.1	0.1
Total	100.0	100.0	100.0	100.0

Survey participants were asked to report their frequency of riding per week. Their responses are reported in Table 7.7. Frequency of riding was reasonably evenly distributed across the categories and there were no significant differences between the three groups ($X^2_{(10)} = 17.80$, $p > .05$).

Table 7.7
Frequency of riding per week

Number of days	Number			
	Group 1	Group 2	Group 3	Total
Every day	66	61	93	220
4-6 days	127	90	191	408
2-3 days	110	98	209	417
At least 1 day	122	113	264	499
Less than 1 day	115	104	266	485
Never	6	9	11	26
Total	546	475	1034	2055

Number of days	Percentage			
	Group 1	Group 2	Group 3	Total
Every day	12.1	12.8	9.0	10.7
4-6 days	23.3	18.9	18.5	19.9
2-3 days	20.1	20.6	20.2	20.3
At least 1 day	22.3	23.8	25.5	24.3
Less than 1 day	21.1	21.9	25.7	23.6
Never	1.1	1.9	1.1	1.3
Total	100.0	100.0	100.0	100.0

The frequency of trips was also considered separately for commuting and leisure trips. The distributions of these two types of trips are displayed in Tables 7.8 and 7.9. For all groups, commuting trips are more numerous than leisure trips. There were no significant differences between the groups in terms of trip frequency (for commuting trips: $X^2_{(8)} = 16.87$, $p > .05$; for leisure trips: $X^2_{(8)} = 7.03$, $p >$

.05). Therefore, both licence type and various measures of riding frequency are comparable in the three groups.

Table 7.8
Number of trips commuting per month

Number of trips	Number			
	Group 1	Group 2	Group 3	Total
No trips	115	122	235	472
1-10 trips	178	146	371	695
11-20 trips	126	101	188	415
21-30 trips	24	33	52	109
More than 30 trips	42	24	56	122
Total	485	426	902	1813

Number of trips	Percentage			
	Group 1	Group 2	Group 3	Total
No trips	23.7	28.6	26.1	26.0
1-10 trips	36.7	34.3	41.1	38.3
11-20 trips	26.0	23.7	20.8	22.9
21-30 trips	4.9	7.7	5.8	6.0
More than 30 trips	8.7	5.6	6.2	6.7
Total	100.0	100.0	100.0	100.0

Table 7.9
Number of leisure trips per month

Number of trips	Number			
	Group 1	Group 2	Group 3	Total
No trips	19	9	34	62
1-10 trips	474	423	891	1788
11-20 trips	33	22	54	109
21-30 trips	3	3	14	20
More than 30 trips	2	2	4	8
Total	531	459	997	1987

Number of trips	Percentage			
	Group 1	Group 2	Group 3	Total
No trips	3.6	2.0	3.4	3.1
1-10 trips	89.3	92.2	89.4	90.0
11-20 trips	6.2	4.8	5.4	5.5
21-30 trips	0.6	0.7	1.4	1.0
More than 30 trips	0.4	0.7	0.4	0.4
Total	100.0	100.0	100.0	100.0

The data presented in Tables 7.1 to 7.9 and the associated statistical tests have shown that the three groups of riders are comparable in terms of age, sex, motorcycle type, motorcycle engine size, LAMS status of the motorcycle, type of licence, frequency of riding, number of commuting trips per month, and number of leisure trips per month. This means that any differences found in variables related to the aims of the Project can be attributed more confidently to program effects rather than confounding effects of pre-existing group differences. The variables related to the aims of the Project (presented in Tables 7.9 to 7.30) include the broad categories of exposure to enforcement, perceived likelihood of detection, and on-road behaviour.

7.2.4 Exposure to enforcement

Table 7.10 shows the proportion of riders in the three groups who have encountered police enforcement in the past 12 months. There were no statistically significant differences between the three groups ($X^2_{(2)} = 1.78$, $p > .05$).

Table 7.10
Frequency of riders who have encountered police enforcement in the past 12 months

Encountered police	Number			
	Group 1	Group 2	Group 3	Total
Yes	203	197	415	815
No	344	284	626	1254
Total	547	481	1041	2069

Encountered police	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	37.1	41.0	39.9	39.4
No	62.9	59.0	60.1	60.6
Total	100.0	100.0	100.0	100.0

Table 7.11 indicates that a small percentage of participants in each group report having been spoken to by police about safe riding practices. Although there appears to be a slight trend upward across the course of the project, a chi square test of independence revealed no significant difference between the groups ($X^2_{(2)} = 3.01$, $p > .05$), indicating that this apparent slight trend could have occurred by chance. Although the 5.5 percent of riders is a small percentage, it does equate to around 9,000 riders if it is assumed that the survey respondents are representative of the motorcycling population. This is a large number of riders spoken to directly by police about safe riding practices, interactions which would have a greater impact than if the information was communicated to riders in a more 'passive' manner, such as through media marketing of some sort. It is a postive outcome for the Project.

Table 7.11
Frequency of riders whom police have spoken to regarding safe riding practices

Spoken to about safe riding practices	Number			
	Group 1	Group 2	Group 3	Total
Yes	22	28	63	113
No	523	451	975	1949
Total	545	479	1038	2062

Spoken to about safe riding practices	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	4.0	5.8	6.1	5.5
No	96.0	94.2	93.9	94.5
Total	100.0	100.0	100.0	100.0

Similarly, Table 7.12 indicates that a small percentage of participants from any group were spoken to regarding protective clothing. Again, no significant difference between groups was observed ($X^2_{(2)} = 0.56$, $p > .05$).

Table 7.12
Frequency of riders whom police have spoken to regarding protective clothing

Spoken to about protective clothing	Number			
	Group 1	Group 2	Group 3	Total
Yes	18	20	40	78
No	526	459	996	1981
Total	544	479	1036	2059

Spoken to about protective clothing	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	3.3	4.2	3.9	3.8
No	96.7	95.8	96.1	96.2
Total	100.0	100.0	100.0	100.0

With regards to perceptions of police presence, just over a quarter of participants reported seeing more police on the roads compared to the previous year throughout the project (Table 7.13). When the 'yes' and 'no' responses were compared, there was no difference between the three groups according to a chi square test of independence ($X^2_{(2)} = 0.18$, $p > .05$).

Table 7.13
Are more police seen on the roads compared to last year?

Police seen on the roads more	Number			
	Group 1	Group 2	Group 3	Total
Yes	149	137	304	590
No	256	234	429	919
Don't know	146	108	309	563
Total	551	479	1042	2072

Police seen on the roads more	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	27.0	28.6	29.2	28.5
No	46.5	48.9	41.2	44.4
Don't know	26.5	22.5	29.7	27.2
Total	100.0	100.0	100.0	100.0

Participants were asked if they thought police were booking more riders this year compared to the last, and the responses are shown in Table 7.14. A greater proportion of riders in Groups 2 and 3 believed that this was the case, compared to Group 1, suggestive of a positive result for the Project. Analysing only the yes and no responses, a chi square test of independence revealed that this difference between Group 1 and Groups 2 and 3 was statistically significant ($X^2_{(2)} = 13.5$, $p < .01$).

Table 7.14
Are police booking more riders compared to last year?

Police booking more riders this year	Number			
	Group 1	Group 2	Group 3	Total
Yes	73	101	224	398
No	106	85	168	359
Don't know	372	295	651	1318
Total	551	481	1043	2075

Police booking more riders this year	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	13.2	21.0	21.5	19.2
No	19.2	17.7	16.1	17.3
Don't know	67.5	61.3	62.4	63.5
Total	100.0	100.0	100.0	100.0

Similarly, Table 7.15 shows that more participants from Groups 2 and 3 also believed that the risk of apprehension has increased over the past 12 months. Analysing only the yes and no responses, a chi square test of independence revealed that this difference between Group 1 and Groups 2 and 3 was statistically significant ($X^2_{(2)} = 7.86$, $p < .05$). The main means by which highly visible enforcement achieves a safety result is through general deterrence, whereby the perceived risk of apprehension among road users is increased. The finding of an apparent increase in this perceived risk is a positive outcome for the Project.

Table 7.15
Has the risk of apprehension increased compared to last year?

Risk of apprehension has increased	Number			
	Group 1	Group 2	Group 3	Total
Yes	102	130	226	458
No	152	120	256	528
Don't know	296	231	558	1085
Total	550	481	1040	2071

Risk of apprehension has increased	Percentage			
	Group 1	Group 2	Group 3	Total
Yes	18.5	27.0	21.7	22.1
No	27.6	24.9	24.6	25.5
Don't know	53.8	48.0	53.7	52.4
Total	100.0	100.0	100.0	100.0

7.2.5 Perceived likelihood of detection

Tables 7.16 to 7.22 show the results of the survey questions asking about riders' perceptions of the likelihood of being booked for a variety of offences. Comparisons between the three groups revealed no significant differences in the distribution of responses except for the offence of riding in an emergency lane. However, the difference in the distribution for this offence was chiefly a greater degree of central tendency in the responses of Group 3, with higher responses for 'occasionally' and associated lower responses for 'never' and 'frequently'. The relevant chi square statistics are shown in a footnote to each table. The offences for which riders think there is the highest likelihood of detection are speeding and not wearing a helmet. Given the risk of a crash and the injury risk associated with these behaviours, it is good that these two offences are perceived as most likely to be detected.

Riders perceive a low likelihood of detection for overtaking on a double line, illegal parking and use of an emergency or bus lane.

Table 7.16 shows the perceived likelihood of being booked for speeding. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.16
Perceptions of the likelihood of being booked for speeding

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	5	1	4	10
Hardly ever	72	59	135	266
Occasionally	265	222	494	981
Quite often	124	119	234	477
Frequently	55	59	129	243
Nearly all the time	13	10	15	38
Total	534	470	1011	2015

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	0.9	0.2	4.0	0.5
Hardly ever	13.5	12.6	13.4	13.2
Occasionally	49.6	47.2	48.9	46.7
Quite often	23.2	25.3	23.1	23.7
Frequently	10.3	12.6	12.8	12.1
Nearly all the time	2.4	2.1	1.5	1.9
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 5.26$, $p > .05$

Table 7.17 shows the perceived likelihood of being booked for drink/drug riding. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.17
Perceptions of the likelihood of being booked for drink/drug riding

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	8	10	25	43
Hardly ever	121	112	216	449
Occasionally	271	241	560	1072
Quite often	89	60	123	272
Frequently	33	30	55	118
Nearly all the time	7	5	6	18
Total	529	458	985	1972

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	1.5	2.2	2.5	2.2
Hardly ever	22.9	24.5	21.9	22.8
Occasionally	51.2	52.6	56.9	54.4
Quite often	16.8	13.1	12.5	13.8
Frequently	6.2	6.6	5.6	6.0
Nearly all the time	1.3	1.1	0.6	0.9
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 11.19$, $p > .05$

Table 7.18 shows the perceived likelihood of being booked for running a red light. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.18
Perceptions of the likelihood of being booked for running a red light

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	14	10	27	51
Hardly ever	121	88	198	407
Occasionally	259	244	508	1011
Quite often	88	79	176	343
Frequently	36	36	72	144
Nearly all the time	8	7	12	27
Total	526	464	993	1983

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	2.7	2.2	2.7	2.6
Hardly ever	23.0	19.0	19.9	20.5
Occasionally	49.2	52.6	51.2	51.0
Quite often	16.7	17.0	17.7	17.3
Frequently	6.8	7.8	7.3	7.3
Nearly all the time	1.5	1.5	1.2	1.4
Total	100.0	100.0	100.0	100.0

$X^2_{(10)} = 4.11$, $p > .05$

Table 7.16 shows the perceived likelihood of being booked for travelling in an emergency lane. Although the chi square test of independence was statistically significant, the change in the distribution of rider perceptions over the course of the Project was not meaningful.

Table 7.19
Perceptions of the likelihood of being booked for travelling in an emergency/bus lane

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	49	32	48	129
Hardly ever	183	167	350	700
Occasionally	224	179	460	863
Quite often	40	46	90	176
Frequently	25	30	35	90
Nearly all the time	5	4	7	16
Total	526	458	990	1974

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	9.3	7.0	4.8	6.5
Hardly ever	34.8	36.5	35.4	35.5
Occasionally	42.6	39.1	46.5	43.7
Quite often	7.6	10.0	9.1	8.9
Frequently	4.8	6.6	3.5	4.6
Nearly all the time	1.0	0.9	0.7	0.8
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 22.7$, $p < .01$

Table 7.20 shows the perceived likelihood of being booked for overtaking on a double line. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.20
Perceptions of the likelihood of being booked for overtaking on a double line

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	41	30	41	112
Hardly ever	201	182	383	766
Occasionally	219	192	432	843
Quite often	47	45	91	183
Frequently	17	15	42	74
Nearly all the time	4	1	7	12
Total	529	465	996	1990

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	7.8	6.5	4.1	5.6
Hardly ever	38.0	39.1	38.5	38.5
Occasionally	41.4	41.3	43.4	42.4
Quite often	8.9	9.7	9.1	9.2
Frequently	3.2	3.2	4.2	3.7
Nearly all the time	0.8	0.2	0.7	0.6
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 11.4$, $p > .05$

Table 7.21 shows the perceived likelihood of being booked for not wearing a helmet. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.21
Perceptions of the likelihood of being booked for not wearing a helmet

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	50	41	103	194
Hardly ever	129	114	242	485
Occasionally	135	125	256	516
Quite often	80	68	155	303
Frequently	69	56	118	243
Nearly all the time	66	57	121	244
Total	529	461	995	1985

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	9.5	8.9	10.4	9.8
Hardly ever	24.4	24.7	24.3	24.4
Occasionally	25.5	27.1	25.7	26.0
Quite often	15.1	14.8	15.6	15.3
Frequently	13.0	12.1	11.9	12.2
Nearly all the time	12.5	12.4	12.2	12.3
Total	100.0	100.0	100.0	100.0

$X^2_{(10)} = 2.5$, $p > .05$

Table 7.22 shows the perceived likelihood of being booked for illegal parking. There was no evidence of a change in rider perceptions over the course of the Project.

Table 7.22
Perceptions of the likelihood of being booked for illegal parking

Perceived likelihood of being booked	Number			
	Group 1	Group 2	Group 3	Total
Never	80	66	133	279
Hardly ever	187	146	383	716
Occasionally	166	159	304	629
Quite often	46	42	86	174
Frequently	31	29	56	116
Nearly all the time	19	18	29	66
Total	529	460	991	1980

Perceived likelihood of being booked	Percentage			
	Group 1	Group 2	Group 3	Total
Never	15.1	14.3	13.4	14.1
Hardly ever	35.3	31.7	38.6	36.2
Occasionally	31.4	34.6	30.7	31.8
Quite often	8.7	9.1	8.7	8.8
Frequently	5.9	6.3	5.7	5.9
Nearly all the time	3.6	3.9	2.9	3.3
Total	100.0	100.0	100.0	100.0

$X^2_{(10)} = 2.5$, $p > .05$

7.2.6 Self-reported behaviour

Data for self-reported frequency of protective behaviours are shown in Tables 7.23 to 7.27. The results of chi square tests of independence are shown as a footnote to each table. For all behaviours, there was no change across Groups 1 to 3, suggesting that the Project has not affected riders in terms of these behaviours. Only a third of riders reported 'often' or 'always' wearing bright or reflective clothing, over 80 percent reported always wearing protection of the upper body and around a half reported always wearing protection for the lower body.

Table 7.23 shows the self-reported frequency of wearing bright/reflective clothing among the survey respondents. There was no change in the frequency of this behaviour over the course of the Project.

Table 7.23
Frequency of wearing bright/reflective clothing

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	149	127	309	585
Rarely	116	103	248	467
Sometimes	107	86	185	378
Often	77	73	142	292
Always	100	88	155	343
Total	549	477	1039	2065

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	27.1	26.6	29.7	28.3
Rarely	21.1	21.6	23.9	22.6
Sometimes	19.5	18.0	17.8	18.3
Often	14.0	15.3	13.7	14.1
Always	18.2	18.4	14.9	16.6
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 7.79$, $p > .05$

Table 7.24 shows the self-reported frequency of the use of daytime headlights among the survey respondents. There was no change in the frequency of this behaviour over the course of the Project.

Table 7.24
Frequency of using daytime headlights

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	11	8	16	35
Rarely	10	7	14	31
Sometimes	16	11	26	53
Often	17	12	35	64
Always	494	443	952	1889
Total	548	481	1043	2072

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	2.0	1.7	1.5	1.7
Rarely	1.8	1.5	1.3	1.5
Sometimes	2.9	2.3	2.5	2.6
Often	3.1	2.5	3.4	3.1
Always	90.1	92.1	91.3	91.2
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 2.38$, $p > .05$

Table 7.25 shows the self-reported frequency of wearing full-body armour among the survey respondents. There was no change in the frequency of this behaviour over the course of the Project.

Table 7.25
Frequency of wearing full-body armour

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	156	134	329	619
Rarely	63	43	101	207
Sometimes	59	77	139	275
Often	94	88	179	361
Always	174	134	282	590
Total	546	476	1030	2052

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	28.6	28.2	31.9	30.2
Rarely	11.5	9.0	9.8	10.1
Sometimes	10.8	16.2	13.5	13.4
Often	17.2	18.5	17.4	17.6
Always	31.9	28.2	27.4	28.8
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 12.28$, $p > .05$

Table 7.26 shows the self-reported frequency of wearing protective clothing on the upper body among the survey respondents. There was no change in the frequency of this behaviour over the course of the Project.

Table 7.26
Frequency of wearing protective upper-body clothing

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	5	2	14	21
Rarely	6	2	7	15
Sometimes	11	12	35	58
Often	75	73	122	270
Always	453	391	863	1707
Total	550	480	1041	2071

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	0.9	0.4	1.3	1.0
Rarely	1.1	0.4	0.7	0.7
Sometimes	2.0	2.5	3.4	2.8
Often	13.6	15.2	11.7	13.0
Always	82.4	81.5	82.9	82.4
Total	100.0	100.0	100	100.0

$X^2_{(6)} = 8.87$, $p > .05$

Table 7.27 shows the self-reported frequency of wearing protective clothing on the lower body among the survey respondents. There was no change in the frequency of this behaviour over the course of the Project.

Table 7.27
Frequency of wearing protective lower-body clothing

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	39	29	81	149
Rarely	48	33	63	144
Sometimes	77	65	129	271
Often	107	112	228	447
Always	276	241	541	1058
Total	547	480	1042	2069

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	7.1	6.0	7.8	7.2
Rarely	8.8	6.9	6.0	7.0
Sometimes	14.1	13.5	12.4	13.1
Often	19.6	23.3	21.9	21.6
Always	50.5	50.2	51.9	51.1
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 8.11$, $p > .05$

The following four tables (7.28 to 7.31) are concerned with self-reports of various risky behaviours. Again, comparisons were made between the responses of the three groups, with the outcomes of chi square tests of independence provided in captions to the tables. The only statistically significant difference was a greater tendency among Group 3 respondents, compared to Group 2 respondents, to report rarely, rather than never, riding after use of alcohol or drugs. Exceeding the speed limit is the most common risky behaviour self-reported by the survey respondents (18% 'often' or 'always' speeding), while self-reporting drink or drug riding is very rare (92% 'never').

Table 7.28 shows the self-reported frequency among survey respondents of riding above the speed limit. There was no change in this behaviour over the course of the Project.

Table 7.28
Frequency of riding above the speed limit

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	45	38	97	180
Rarely	169	144	305	618
Sometimes	243	213	448	904
Often	82	71	162	315
Always	11	15	30	56
Total	550	481	1042	2073

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	8.2	7.9	9.3	8.7
Rarely	30.7	29.9	29.3	29.8
Sometimes	44.2	44.3	43.0	43.6
Often	14.9	14.8	15.5	15.2
Always	2.0	3.1	2.9	2.7
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 3.02$, $p > .05$

Table 7.29 shows the self-reported frequency among survey respondents of riding when feeling tired. There was no change in this behaviour over the course of the Project.

Table 7.29
Frequency of riding while feeling tired

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	123	124	250	497
Rarely	293	243	552	1088
Sometimes	125	109	221	455
Often	6	4	14	24
Always	1	-	4	5
Total	548	480	1041	2069

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	22.4	25.8	24.0	24.0
Rarely	53.5	50.6	53.0	52.6
Sometimes	22.8	22.7	21.2	22.0
Often	1.1	0.8	1.3	1.2
Always	0.2	-	0.4	0.2
Total	100.0	100.0	100.0	100.0

$X^2_{(8)} = 3.97$, $p > .05$

Table 7.30 shows the self-reported frequency among survey respondents of riding while affected by alcohol or drugs. Riders in Group 3 were more likely than those in Group 2 to report rarely rather than never riding after alcohol or drug use. This was a small change, however.

Table 7.30
Frequency of riding while under the influence of alcohol or drugs

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	510	456	944	1910
Rarely	32	22	86	140
Sometimes	6	1	7	14
Often	-	-	1	1
Always	2	1	4	7
Total	550	480	1042	2072

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	92.7	95.0	90.6	92.2
Rarely	5.8	4.6	8.3	6.8
Sometimes	1.1	0.2	0.7	0.7
Often	-	-	0.1	0.0
Always	0.4	0.2	0.4	0.3
Total	100.0	100.0	100.0	100.0

$X^2_{(2)} = 9.16$, $p < .05$

Table 7.31 shows the self-reported frequency among survey respondents of misjudging the speed needed to negotiate a bend. There was no change in this behaviour over the course of the Project.

Table 7.31
Frequency of misjudging the speed needed to negotiate a bend

Frequency	Number			
	Group 1	Group 2	Group 3	Total
Never	101	88	173	362
Rarely	323	296	665	1284
Sometimes	119	93	199	411
Often	4	-	2	6
Always	-	-	1	1
Total	547	477	1040	2064

Frequency	Percentage			
	Group 1	Group 2	Group 3	Total
Never	18.5	18.4	16.6	17.5
Rarely	59.0	62.1	63.9	62.2
Sometimes	21.8	19.5	19.1	19.9
Often	0.7	-	0.2	0.3
Always	-	-	0.1	0.0
Total	100.0	100.0	100	100.0

$X^2_{(4)} = 4.19$, $p > .05$

7.3 Summary

A total of 2078 Victorian motorcyclists responded to the online survey between the start of December 2009 and the start of December 2010. Responses were divided into three groups (December 2009 to mid-March 2010, mid-March to August 2010, and from August to December 2010) and comparisons made between groups to ascertain whether the Project was having an effect on riders' attitudes and self-reported behaviours. Comparisons between these groups in terms of rider demographics (age, sex), motorcycle details (type, engine size, LAMS status), and riding history (licence type, frequency of riding, number of commuting and leisure trips per month) found no differences between the three groups of riders and so comparisons between the three groups in responses to questionnaire items being used to measure the success of the Project (exposure to enforcement, perceived risk of detection, self-reported behaviour) could be made validly.

There were only limited signs of an effect of the Project on rider attitudes and self-reported behaviour. The only statistically significant changes indicative of a degree of success of the Project were an increase in the perception that police were booking more riders than in the previous year, and an increase in the risk of apprehension for traffic offences. There were also non-significant apparent trends toward participants reporting being spoken to by police about safe riding practices and more police being seen on the roads but these could have occurred by chance. There were no statistically significant differences in self reported use of conspicuous or protective clothing, and no differences in self reported risky behaviour (speeding, fatigued riding, riding when affected by alcohol or drugs, and misjudging speed on a bend). This overall set of results suggests that the Project had only a limited effect on rider attitudes and behaviour. However, highly visible enforcement works through increasing the perception that police are booking traffic offenders, and increasing the perceived risk of apprehension for traffic offences. Although it is true that the Project appears to have affected few outcome measures, it has affected two of the most important rider perceptions for improving safety.

It is important to note that the riders in Group 3 could have been different to those in Groups 1 and 2 in such a way that affected the results. The participants were recruited through promotional material mailed out in registration renewal notices. This means that the three groups were different in terms of

the time of year at which they registered their motorcycles. Given that some motorcycle riding is seasonal, particularly leisure riding, it is possible that the time of year of motorcycle registration is associated with particular types of riders. In this study, we examined rider demographics, motorcycle details and riding history, and found no differences between the groups. It is possible, however, that there are more subtle differences between the groups that could have affected the results. Additional limitations include that the sample was self-selected, and that the Group 1 results do not correspond to a 'before' group, as the survey went online following the commencement of the Project.

8 Summary and conclusions

This report presents outcomes from the Evaluation of the Community Policing and Education Project. This Project was a collaboration between Victoria Police and VicRoads to address the high crash and injury risk of motorcyclists through a program of combined education and enforcement. A process evaluation, analysis of crash and offence data, on-road speed surveys, roadside observation of motorcyclists and an online survey of motorcyclists were used to evaluate the Project. The results of each of these separate components are summarised below.

8.1 Process evaluation

The process evaluation was aimed at understanding how well the program was implemented and identifying any processes which could be improved for similar future programs. The review was carried out in three stages, completed in April, July and December 2010 respectively.

The conclusions of the process evaluation can be summarised as the following:

- VicRoads and the Victoria Police demonstrated a shared understanding of the program philosophy and objectives.
- The solo riders who had most involvement in the operations were positive, and reported the program and educational interactions were received well by the majority of motorcyclists.
- The operational procedures were developed early in the program and were applied consistently.
- The commuter operation introduced the educational material to a new group of commuter motorcyclists and scooter riders. It was thought that there was considerable scope to improve knowledge and use of protective clothing for this group of riders.
- The need for assistance for returning riders was identified but there was concern that the offer of “Rider Survivor” training was not being taken up.
- There were some suggestions that media involvement in the program could be improved and there was a desire to extend the program by using other Traffic Management Unit members who had received training in motorcycle issues.
- Most non-solo rider police members were positive about the motorcycle awareness training provided. The major benefit identified was a greater feeling of confidence and credibility when interacting with motorcycle riders.

8.2 Offence data

Offence data for the years 2006/2007 to 2009/2010 for Victorian motorcyclists and other motor vehicles were analysed to see if the Project had resulted in changes in offence rates. The offences included in the analysis were those that are relevant to the Community Policing and Education Project. These were: speeding offences, failure to stop, diverging, impaired riding/driving, failure to give way, hand held mobile phone use while riding/driving, unlicensed riding/driving, unregistered riding/driving, and learner offences.

Across the last four years, there had been a small decrease in the numbers of motorcycle violations. This is a surprising result given the additional enforcement conducted as part of the Community Policing and Education Project. There are several possible explanations for this decline in motorcyclist violations. The most plausible are increased law abiding by motorcyclists and/or changes in police

practices, such that more enforcement time was dedicated to educational interventions. The overall reduction was chiefly due to reductions in speeding offences

These reductions in motorcycle offence numbers were not evident among other motor vehicles. Of particular note in the other motor vehicle offence numbers was the increase in hand held mobile phone offences. These increased from 37,000 in 2006/2007 to 42,000 in 2007/2008 to 53,000 in 2008/2009 and 54,000 in 2009/2010. Without data from these years for rates of hand held mobile phone use by drivers, collected through observational surveys rather than enforcement, it is not possible to determine whether the greater offence numbers are due to higher levels of offending. The most likely explanation for the increases in 2009 and 2010 was that this offence was a specific target of the Project.

8.3 Crash data analysis

There is no evidence for any increase in motorcycle crash numbers in Victoria over the past decade. Moreover, crash rates per registered motorcycle have declined markedly in this time. Crash numbers and the crash rate per registered motorcycle in 2010 were lower than those in the previous three years. There is also evidence that there was a shift from 2007 to 2010 in the location of crashes, with a *relative* increase on low speed roads (60 km/h limit or below) rather than on higher speed roads.

The reductions in crash involvement for motorcyclists in 2010 are consistent with an effect of the Community Policing and Education Project. The decline in crash and injury rates in 2010 relative to the previous three years could be due to safer riding practices in response to greater police presence on the roads. Even a small reduction in crash or injury rates would signify a positive cost-benefit ratio for the Project. Caution does need to be exercised in interpreting the results, however. The preliminary 2010 data may exclude a number of crashes that will be added at a later date. Also, linking changes in crash and injury rates to specific interventions is always difficult, and especially so when there are possible changes in the demographics and exposure patterns of the road user group being targeted by the intervention.

With regard to the latter, the relative increase in crashes on low speed roads is consistent with a greater proportion of motorcycle riding being done by commuters rather than recreational riders. It could be that the increase in recent years in registered motorcycles includes a large proportion of motorcycles (or scooters) purchased to enable commuting. The registration data are not sufficiently detailed to confirm this.

8.4 On-road speed surveys

Speed surveys were conducted at three points during the Project: November 2009, April 2010, and November 2010. Speeds were recorded for motorcycles specifically and also for other motor vehicles as a basis for comparison. They were conducted in regional Victoria on 100 km/h highways, so the results are not generalisable to speed choices in urban locations within Victoria.

Although there were declines in motorcycle speeds from November 2009 to April 2010, this reversed in November 2010 and so may have reflected a seasonal effect. The results were similar whether looking at all vehicles or free speed vehicles. There was also a noteworthy increase in the volume of motorcycles from November 2009 to April 2010, which remained in November 2010.

The results for motor vehicles contrasted with those for motorcycles, with an increase in travel speeds in November 2010 relative to the other two surveys. These increases were apparent for mean speeds, median speeds, 85th percentile speeds and the proportions exceeding 100 km/h or 110 km/h. The

proportion exceeding the speed limit in November 2010 was much closer to the proportion of speeding motorcyclists than in the two previous surveys.

Although the overall results do not show that the Project reduced motorcycle travelling speeds, they do indicate a maintenance of the speeds in contrast to increases among motor vehicles, which is a positive finding. However, the limited number of sites surveyed, the variation of results between sites and the large change in motorcycle volumes makes interpretation and generalisation of the results difficult.

8.5 Roadside traffic observations

8.5.1 Metropolitan Melbourne

Roadside traffic observations were made before, directly after and three weeks after a Yellow Flag/Black Flag commuter operation conducted as part of the Community Policing and Education Project. The observations of motorcycles were concentrated on headlight use, helmet use, conspicuity and the use of protective clothing, while car drivers were inspected for handheld use of mobile phones. They were conducted during commuting periods (7-9am and 4:30-6:30pm) at intersections surrounding the centre of Melbourne.

The three waves of observations were consistent in terms of the proportions of motorcycles observed at the three sites and also the proportions of different motorcycle types observed. This consistency means that the three sets of observations can be validly compared for differences in rider behaviour.

Very few motorcycles were observed without headlights on and all riders were wearing helmets. The majority of helmets were full-faced (around 85% across the three surveys) but riders of cruisers and scooters often preferred an open face helmet.

Conspicuity remains a component of motorcyclist apparel that needs improvement. The proportion of motorcyclists judged to be conspicuous (retroreflective or brightly coloured torso, retroreflective or brightly coloured helmet) remained less than a quarter across all three surveys, with no indication of improvement. Riders of cruisers were particularly inconspicuous.

A very positive finding was the increase in the proportion of riders wearing full body protection. This proportion increased from 17 to 24 to 38 percent across the three surveys. The increase from the second to the third survey was found to be statistically significant. There were marked improvements in the likelihood of full body protection particularly for riders of sports motorcycles (25 to 33 to 50%) and standard/naked motorcycles (19 to 26 to 46%). As greater body protection for motorcyclists has been found to reduce injury severity in crashes[5], this is an excellent result for the Project. The observed changes could not be due to any effects of the weather, as weather conditions were similar across all observation sessions. Improvement is still needed among riders of cruisers and scooters.

Pillion riders were rare among commuting motorcyclists in Melbourne. Nearly all of them were wearing a full helmet.

Hand held mobile phone use was at very low levels among the drivers of cars observed. In all three metropolitan surveys of commuting motorists, half a percent or fewer of the drivers were using a hand held mobile phone at the time of observation. There was no indication of reductions in phone use in later surveys but detecting such changes would be difficult with such a low baseline as the 0.4 percent recorded in the first survey.

8.5.2 Regional Victoria

In regional Victoria, observations of motorcyclist apparel and car driver mobile phone use were made in mid December 2009 and late November 2010. Comparison between the two sets of observations was used as the basis for conclusions about the effectiveness of the Project in encouraging recreational motorcyclists to wear more protective clothing.

In regional Victoria, the only statistically significant difference among motorcyclists was the decrease of non-headlight use. The rate of non-headlight use by motorcyclists dropped from one in 10 to one in 30. It is unclear whether this can be attributed to the Project.

There were no statistically significant changes between the two surveys in type of helmet used (full face versus open face), rider conspicuity, levels of protective clothing, carriage of pillions, or type of helmet worn by pillion. The weather conditions in the second survey were similar to the first but there were far more riders on the road in the second survey. In fact, the number of motorcycles observed doubled in the second survey. The increase was particularly driven by higher numbers of cruisers and a large number of cruiser-like trikes. A higher proportion of cruisers in the sample would be expected to lead to decreases in observed full face helmet use, full body protection and conspicuity. Any apparent differences, however, were not statistically significant. Even accounting for the differences in the two samples, inspection of the results for individual motorcycle types suggested that there had been no changes in rider apparel across the two surveys.

With regard to motorists, hand held mobile phone use was at a level of 1.4 percent in the first survey before dropping to 0.4 percent in the second. This drop was statistically significant. The extent to which this drop in hand held mobile phone use is due to the Project is unclear but it is consistent with reduced use in response to increased enforcement of laws pertaining to use of hand held mobile phones while driving.

8.5.3 Comparison of the two locations

Comparison between metropolitan Melbourne and regional Victoria reveals that the motorcycle types in the two regions differ, with more cruisers in regional Victoria and more scooters in metropolitan Melbourne. Non-headlight use is more common in Melbourne, while the use of open face rather than full face helmets is more common in regional Victoria (associated with the higher proportion of cruisers). Conspiciuity levels were similarly low (20 percent high conspicuity) in both metropolitan Melbourne and regional Victoria. The use of protective clothing increased in metropolitan Melbourne but not in regional Victoria. The baseline level of the use of protective clothing in regional Victoria was higher, however, than the improved level in Melbourne.

The significant reduction in mobile phone use by drivers in regional Victoria contrasted with the lack of any change in metropolitan Melbourne. However, the metropolitan observations were made over a short time period, during which time it would be very unlikely for mobile phone use rates to change, compared to the 12 month separation of the two waves of observations conducted in regional Victoria. Furthermore, initial rates of mobile phone use while driving started from a lower base rate in metropolitan Melbourne than in regional Victoria. The rate of phone use observed in the second set of observations in regional Victoria was similar to the rate consistently observed in metropolitan Melbourne.

8.6 Online survey of motorcyclists

The results of the online survey of motorcyclists presented in this report are based on 551 responses registered between 1 December 2009 and 16 March 2010 (Group 1), 481 responses registered

between 17 March 2010 and 31 July 2010 (Group 2), and 1,046 responses registered between August 1 and 13 December 2010. Comparisons between the responses of these three groups of motorcyclists were used as an indicator of the effects of the Project on riders' attitudes and self-reported behaviour.

The participants were recruited through promotional material mailed out in registration renewal notices. This means that the three groups were different in terms of the time of year at which they registered their motorcycles. Given that some motorcycle riding is seasonal, particularly leisure riding, it is possible that the time of year of motorcycle registration is associated with particular types of riders. In this study, we examined rider demographics, motorcycle details and riding history, and found no differences between the groups. Specifically, the three groups of riders were found to be comparable in terms of age, sex, motorcycle type, motorcycle engine size, LAMS status of the motorcycle, type of licence, frequency of riding, number of commuting trips per month, and number of leisure trips per month. Although it is possible that the three groups were different in more subtle ways that were not picked up by these variables, it is likely that any differences found between the groups in variables related to the aims of the Project (exposure to enforcement, perceived likelihood of detection, and on-road behaviour) can be attributed to program effects rather than confounding effects of pre-existing group differences.

The key types of variables examined in the evaluation were exposure to enforcement, perceived likelihood of detection, and self-reported behaviour. If the Project were a success, it would be expected that there would be greater reported exposure to enforcement as the Project progressed, greater perceived likelihood of detection for traffic offences, and improvements in self-reported behaviour (greater use of protective clothing and lower levels of risky or illegal behaviour). These changes over time would be expected if more and more riders were being exposed to enforcement or Police-led educational initiatives.

In terms of exposure to enforcement, there were no effects observed for the level of Police traffic enforcement encountered in the last 12 months, the extent to which riders had been spoken to by Police about safe riding practices, the extent to which riders had been spoken to about wearing protective clothing, or the extent to which Police had been seen on the roads in the past year. However, there were statistically significant increases across the period of the Project in the proportion of riders reporting a higher perceived risk of apprehension for motorcyclists committing traffic offences, and a higher perceived number of motorcyclists being booked by Police. These latter two findings are in line with the aims of the Project to increase the perceived risk of apprehension for traffic offences.

Other findings from the online survey did not provide any indication of an effect of the Project. There were no detected improvements in the perceived risk of detection for a specified set of traffic offences, no detected improvements in self-reported use of conspicuous or reflective clothing, and no detected improvements in self-reported risky behaviour.

The survey revealed that the offences for which riders think there is the highest likelihood of detection are speeding and not wearing a helmet. Riders perceive a low likelihood of detection for overtaking on a double line, illegal parking and use of an emergency or bus lane. Only a third of riders reported 'often' or 'always' wearing bright or reflective clothing, over 80 percent reported always wearing protection of the upper body and around a half reported always wearing protection for the lower body. Exceeding the speed limit is the most common risky behaviour self-reported by the survey respondents (18% 'often' or 'always' speeding), while self-reporting drink or drug riding is very rare (92% 'never').

8.7 Key findings

The ultimate aim of the Community Policing and Education Project was to improve motorcycle safety, with fewer crashes and associated trauma. This is a long-range goal, and is only achievable through changes in behaviour among motorcyclists and drivers of other vehicles. These changes in behaviour need to be driven by well implemented enforcement and educational interventions.

The process evaluation, analysis of offences, on-road speed surveys, roadside observations of road users, and online survey of motorcyclists have provided key performance indicators that can be analysed to assess the effectiveness of the Project. The most important results referred to in this report can be summarised thus:

- The results from the process evaluation suggest the program has been well understood and accepted by Victoria Police members and that there was no obvious resistance to undertaking educational interventions. Members interviewed felt the program was positive in improving safety and raising awareness of motorcycle issues. There was particular enthusiasm for the commuter operation that improved knowledge about protective clothing among commuting motorcyclists and scooter riders. Victoria Police members were disappointed by the lack of media interest in the Project.
- The number of moving violation offences recorded for motorcyclists reduced in 2008/2009 and 2009/2010 from the totals in the two previous financial years. This could mean more law-abiding behaviour by motorcyclists or reflect changes in enforcement practices in which educational interventions are encouraged during normal hours of enforcement. The overall reduction in offences was chiefly due to reductions in speeding offences.
- There was a marked increase in the number of hand held mobile phone use offences among drivers of motor vehicles other than motorcycles. The most likely reason for this increase is the focus within the Project on enforcement of hand held mobile phone bans for drivers, to reduce driver distraction. This increase in offences can be considered an indicator of success for the Project.
- In addition to monitoring mobile phone use offences recorded by the police, the project involved direct observation of rates of mobile phone use by drivers in Victoria. Rates of hand held mobile phone use by drivers in regional Victoria declined across the course of the Project, reducing from a very low starting point. This change may be partly due to greater take up of hands free kits but still may reflect a deterrent effect resulting from police enforcement.
- There was no evidence for a sustained reduction in motorcycle speeds on regional roads in Victoria as a result of the Project. However, motorcycle speeds did not increase, contrasting with increased speeds of cars. Despite the gap closing between the two speed distributions (motorcycles and cars), the proportion of motorcycles exceeding the 100 km/h speed limit by more than 10 km/h was double that of cars, whether examining data for all vehicles or just those travelling at free speeds.
- A very positive finding in the roadside observations was the increase in the proportion of riders in metropolitan Melbourne wearing full body protection following a targeted operation. Across the three surveys, this proportion increased from 17 (before the operation) to 24 (just after the operation) to 38 percent (three weeks after the operation). Improvement was most marked among riders of sports and standard/naked motorcycles but is still needed among riders of cruisers and scooters. It is also interesting to note that Victoria Police members, in the process evaluation, rated the targeted commuter operations as being likely to be beneficial.
- Conspicuity remains a component of motorcyclist apparel that needs improvement. The proportion of motorcyclists judged to be conspicuous (retroreflective or brightly coloured torso,

retroreflective or brightly coloured helmet) ranged between one in five to one in four, whether observations were being made in metropolitan Melbourne or regional Victoria. There was no indication of improvement associated with the Project. Riders of cruisers were particularly inconspicuous.

- The online survey of Victorian motorcyclists found very few differences between riders responding across the survey period. The only differences were increases in the perception that more riders in Victoria are being booked than in the previous year and in the perceived risk of apprehension for motorcyclists committing traffic offences. These two differences represent an identifiable but modest success for the Project.

Acknowledgements

This study was funded by VicRoads through a project grant to the Centre for Automotive Safety Research. The VicRoads Project Manager was Barry Scott.

Thank you to Roger Trewenack from Traffic and Parking Surveys Pty Ltd for co-ordinating the on-road speed surveys.

The Centre for Automotive Safety Research is supported by both the South Australian Department for Transport, Energy and Infrastructure and the South Australian Motor Accident Commission.

The views expressed in this report are those of the authors and do not necessarily represent those of the University of Adelaide or the funding organisation.

References

1. Shuey R, Casey K (2009), 'Community policing and education to reduce motorcycle trauma', *Journal of the Australasian College of Road Safety, 20*(4), pp 25-29.
2. Christie R (2001). 'Motorcyclist fatality and motorcycle sales patterns in Australia', in Proceedings of Road Safety Research, Policing and Education Conference, Melbourne, Australia, November 2001.
3. Andrea D (2006). Development of a strategic motorcycle safety program in Victoria, Australia. Kew, Victoria: VicRoads.
4. Wells S, Mullin B, Norton R, Langley J, Connor J, Lay-Yee R, Jackson R (2004), 'Motorcycle rider conspicuity and crash related injury: case-control study', *British Medical Journal, 328* (7444), p857.
5. de Rome L, Ivers R, Fitzharris M, Du W, Haworth N, Heritier S, Richardson D (2011). Motorcycle protective clothing: Protection from injury or just the weather? *Accident Analysis and Prevention* in press.
6. Wishart D, Watson B, Rowden P (2009). Motorcycle rider protective apparel wearing: Observational study results from the Brisbane and Canberra regions. *Journal of the Australian College of Road Safety, 20*(4), pp 52-59.
7. Clarke DD, Ward P, Bartle C, Truman W (2004). In-depth study of motorcycle accidents. Road Safety Research Report no 54. London: Department of Transport.
8. Elliott MA, Baughan CJ, Sexton BF (2007), 'Errors and violations in relation to motorcyclists' crash risk', *Accident Analysis and Prevention, 39*(3), pp. 491-499.
9. Friswell R, Williamson A, Allsopp G, Gavin A, Bryant P (2008). 'Impact of a direct mail safety campaign for motorcyclists' in Proceedings of Road Safety Research, Policing and Education Conference, Adelaide, Australia, 10-12 November 2008.
10. Hakkert AS, Gitelman V, Cohen A, Doveh E, Umansky T (2001), 'The evaluation of effects on driver behaviour and accidents of concentrated general enforcement on interurban roads in Israel', *Accident Analysis and Prevention, 33*(1), pp. 43-63.
11. Isah N, Mansor FA, Musa M, Sien KL, Abidin NZ, Goonting K (2008). Perception of being caught. Road User Behavioural Research Centre, Malaysian Institute for Road Safety Research.
12. Jamson S, Chorlton K, Conner M (2005). The older motorcyclist. Road Safety Research Report no 55. London: Department of Transport.
13. Mannering FL, Grodsky LL (1995), 'Statistical analysis of motorcyclists' perceived accident risk', *Accident Analysis and Prevention, 27*(1), 21-31.
14. Mitchell-Taverner P, Zipparo L, Goldsworthy J (2003). Survey on speeding and enforcement. Road Safety Research Report CR 214. Canberra: Australian Transport Safety Bureau.
15. Newstead S, Cameron M, Bobevski I, Hosking S (2004). Evaluation of the Queensland Road Safety Initiatives Package. Report no 272. Clayton, Victoria: Monash University Accident Research Centre.
16. Reeder AI, Chalmers DJ, Langley JD (1996), 'The risky and protective motorcycling opinions and behaviours of young on-road motorcyclists in New Zealand', *Social Science and Medicine, 42*(9), pp. 1297-1311.
17. Sexton B, Baughan C, Elliott M, Maycock G (2004). The accident risk of motorcyclists. TRL Report TRL607. Wokingham, Berkshire, UK: TRL Limited.

Appendix A - Sharing the Road brochure

SHARING THE ROAD
TIPS FOR DRIVERS

Here are some simple tips on sharing the road safely with motorcycle and scooter riders. Remember all sorts of people ride motorcycles and scooters … people just like you.

Take the time to look out for motorcyclists:

- at intersections
- when you make a right turn
- when you do a u-turn
- when you change lanes – always do a head check (look over your shoulder to see through the rear side windows)
- before you pull out from the kerb or a driveway.

Motorcyclists can be hard to see. Drivers sometimes fail to 'see' and respond to a motorcyclist even though they may be 'looking' straight at the rider.

What would be a minor crash for a car driver can have very severe consequences for a motorcyclist. About 14% of all serious injuries and deaths on Victorian roads are to motorcyclists.

Give motorcyclists space:

- when you pass or overtake
- by never trying to share a lane with a motorcycle or scooter, even if there seems to be enough room
- by allowing at least a three second gap when following behind.

Expect the unexpected:

- motorcycles and scooters may be hard to see or hidden by other vehicles
- they are very manoeuvrable and may seem to appear from nowhere, such as in heavy traffic
- they may look further away than they are, and can accelerate faster than many cars
- they can be easily hidden in your blind spots – always do a head check to be sure when changing lanes
- if you are distracted, such as talking on a mobile phone, the chances are you won't see a rider until it is too late.

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Stock Code Number: 98178 VRPIN: 02116

SHARING THE ROAD
TIPS FOR RIDERS

Here are some ways to reduce the chance of you crashing with another vehicle.

Expect the unexpected and drive defensively:

The best approach is to assume other road users haven't seen you. Ride defensively, within your limits and don't take risks.

- look ahead, anticipate other drivers' actions and be prepared to respond
- watch for the indicator, reversing and brake lights of other vehicles
- look for signs of what a driver may be planning to do, such as:
  – a head check (looking over their shoulder) before a lane change
  – front wheels turned outwards on a parallel parked car about to pull out
- what looks like a safe gap in traffic ahead may close up quickly if a driver makes an unexpected lane change.

Your position on the road is critical:

- always keep a survival space between you and other vehicles, never sharing a lane with another vehicle, even if there seems to be enough room
- change your position on the road to give drivers the best chance of seeing you
- before changing your position on the road, take the time to look all around for other vehicles
- be especially aware of your position in right curves and bends – if too close to the centre line as you lean, your upper body may be hit by a vehicle travelling the other way
- keep at least a 3 second gap behind the vehicle in front – more if the road is wet or slippery
- check indicators are off after changing lanes or turning.

Make sure you can be seen:

- keep out of driver blind spots – stay where you can be seen in their mirrors
- make eye contact with drivers who are turning across your path – remember sometimes they may look, but don't see you
- signal well in advance when you change lanes
- wear highly visible protective clothing and helmet
- ride with your headlight on
- clothing with reflective material can improve your chances of being seen at night
- ride within the speed limit so drivers have a chance to see you.

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Appendix B – Rider Survivor training

The Rider Survivor training was an initiative introduced into the Community Policing and Education Project late in 2010. It involved the development of a training program for motorcyclists that would improve their road safety awareness and road craft. Furthermore, the course was subsidised in order to encourage riders to take the opportunity to undertake the training provided. Riders were required to pay $97.90 for training that would normally cost from $280 to $300.

The Rider Survivor training course was developed by Victoria Police and VicRoads in conjunction with Driver Education Centre of Australia (DECA), who successfully tendered to be the service provider. Vouchers were produced that advertised the training and the subsidy. These were handed out to motorcyclists by Victoria Police members during the educational interventions component of the Project. Initially, the riders chosen to receive the vouchers were those identified by Victoria Police members as lacking in skills or confidence, and who would be likely to benefit from the training. The voucher is shown on subsequent pages.

While the enthusiasm of the riders appeared high, take up of the course was minimal. Investigations by Victoria Police revealed that there were problems with the internet booking system being used by DECA and too restricted a range of dates being available for course bookings. The website was improved, and DECA expanded the number of dates on which courses were offered.

Take-up of the course improved but was still well below expectations. This led to the decision to expand the recruitment of riders for the course. All riders routinely checked by Victoria Police were handed course vouchers. This resulted in an increase in the number of vouchers distributed but little increase in the take-up rate for the course. However, some riders not intercepted by police, particularly novice riders and older 'returning' riders, began contacting Police to see if they could attend the course. Further vouchers were printed but course take-up through these remained low.

In total, 427 vouchers were issued to Victorian motorcyclists. Of these, only 33 riders completed the DECA training. This small take-up of the course despite the determined efforts of Victoria Police to promote the training and the subsidy stands in contrast to the regular claims of riders themselves that training is the key to safety. An evaluation was conducted, in which riders attending the course completed a questionnaire before, and a month after, undertaking the course. However, given the small number of riders who completed the training, the evaluation was abandoned.

Although the evaluation was abandoned, a few figures from the questionnaires administered to riders are worth mentioning. Of the 33 riders, 22 were male and 11 female. Although the minority of riders were female, this nonetheless is an over-represenation of female riders in the sample, suggesting that female riders are more likely to attend a riding course. Over half of the riders (20 of 33) were aged between 41 and 60. Six were aged over 60 and seven were aged less than 40. The most common type of motorcycle owned by the riders taking the course was a sports motorcycle (14 riders), followed by standard (6), cruiser (5) and tourer (4). All but two of the riders had full licences.

As part of the planned evaluation, riders were asked questions testing knowledge from the training course. Questionnaires were filled in before the course and a month after the course (22 of 33 riders completed the post-course questionnaire). One of the questions concerned the area of the body most likely to sustain an impact in a motorcycle crash (legs). The riders could choose from legs, head, arms and back. In both the pre-course questionnaire responses and the post-questionnaire responses, a minority of riders knew the correct answer. Examination of changed responses following the course found that two riders changed their response from an incorrect to correct answer (i.e. demonstrated

learning) but two other riders changed from a correct to an incorrect response (inconsistent with learning).

Riders were also asked questions related to first aid. One of these was concerned with the words comprising the acronym DRABC (danger, response, airway, breathing, circulation). Pre-course, 12 of 33 riders correctly listed the five words. Post-course, 13 of 22 riders correctly listed the five words. When changes in responses were examined, five riders changed from an incorrect to a correct response (suggestive of learning), while one rider changed from a correct to an incorrect response.

Another question testing knowledge imparted during the course concerned when a helmet should be removed from an injured rider (correct answers from a list of seven alternatives: when the rider is unconscious, when the rider's airway may be blocked). Only two of 33 riders knew this before the course. Following the course, none of the 22 riders completing the questionnaire knew the answer. One rider answered correctly before the course but incorreclty after it. The most common incorrect answer was to say that a rider's helmet should never be removed.

As noted earlier, few riders undertook the course and it is difficult to draw conclusions from the limited data available for the evaluation. Even fewer still completed questionnaires both before and after the course. Furthemore, responses to a question asking riders to make any comments they wish to make concerning motorcycling in Victoria elicited comments about the course from a number of riders in the pre-course questionnaire. This was the case only for the first course given but it does mean that, for these five riders, the pre-course questionnaire was likely filled out after the course.

Despite the lack of sufficient quality data to evaluate the course, the small number of findings described here suggest that the course did not improve rider knowledge. It is possible, however, that the practical riding component did have a beneficial effect on riding skills or habits but this could not be assessed.

It has been suggested by a representative of Victoria Police that the DECA training course could be used in Victoria as a diversionary measure for offending motorcyclists. Riders could be required to complete the Rider Survivor training as a condition of getting a licence reinstated. This should only be implemented if a literature review of diversionary education programs suggested that it may be beneficial. Furthermore, if a trial of this type were implemented, it would be important that it be evaluated. It is unfortunate that the use of the Rider Survivor training in the Community Policing and Education Project could not be evaluated so as to provide an indication of its effectiveness for increasing road safety knowledge, awareness and skills.

RIDER SURVIVOR TRAINING

Only $97.90

Hone your riding skills—be one of 150 participants invited to access 8 hours of motorcycle training for only $97.90.

In 2010 there has been a dramatic increase in the number of riders being killed on our roads. This is your chance to improve your survival skills and reduce the risk of crashing.

The Community Policing and Education to Reduce Motorcycle Road Trauma Program started in January 2009 and is just one of the programs aimed at improving safety for motorcyclists. The Motorcycle Safety Levy* —part of the TAC premium you pay with your registration—helps fund these important safety projects.

The training will involve a theory component, a skills session on a training range, and an on-road coaching session, all delivered by professional motorcycle trainers. Group size will be limited to a maximum of five riders per instructor. The training program will be conducted at locations throughout Victoria, depending on demand.

For more information, contact the Driver Education Centre of Australia (DECA) on 1300 365 400 or book online at www.deca.com.au

Please note, this voucher is not transferable and will not be replaced if lost.

** Visit arrivealive.vic.gov.au/levy*

To participate you must:

- ✔ Be nominated by a member of the Victoria Police
- ✔ Hold a current Victorian Motorcycle Licence
- ✔ Present this form, including your name, licence number and the details of the nominating Victoria Police member at the commencement of training
- ✔ Bring a registered, roadworthy motorcycle with full comprehensive insurance to the training
- ✔ Wear appropriate protective gear for the training, including an AS/NZS1698 helmet, eye protection, a motorcycle jacket, pants and gloves, as well as boots that protect ankles
- ✔ Complete two evaluation surveys of approximately 15 minutes each – one completed during the training session, the other completed on-line or by mail a month or two later.

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arrive alive

State Government Victoria

RIDER SURVIVOR TRAINING

Issued by

Name

Rank

Number

Station

Issued to

Name

Licence Number

Rider Survivor training rules and conditions

- Participants must have a 0.00 Blood Alcohol Content.
- Motorcycles must be registered, safe to ride and roadworthy.
- Participants should check their motorcycle's tyre tread depth, tyre pressure, horn, indicator lights, brake light, front brake, rear brake, clutch, chain lubrication and adjustment prior to attending the training course.
- Participants may be excluded from practical exercises if the Trainer considers their motorcycles to be unsafe.
- Participants may be excluded from practical exercises if they aren't wearing appropriate protective clothing and footwear.
- Participants must wear high-visibility safety vests (provided by DECA) during the on-road training component.
- For the safety of all participants, individuals may be asked to leave the course if they don't follow the Trainer's directions.
- Participants are responsible for ensuring their motorcycles and riding gear are insured.
- Participants must book and pay for training in advance. Please note, if you cancel with less than 14 days notice, you will forfeit your course fee.
- The course may be cancelled on days of extreme weather conditions. Participants will be contacted by mobile phone at least an hour prior to the scheduled commencement time.
- **PARTICIPANTS MUST BRING THIS FLYER TO THE TRAINING COURSE AND SURRENDER IT TO THE TRAINER.** Additional fees may apply if the flyer cannot be produced.

Appendix C – Online survey questions

Demographics

Age	_____ yrs
Sex	☐ male ☐ female
Postcode	_____
Employment	☐ full-time ☐ part-time ☐ student ☐ unemployed ☐ retired ☐ n/a
Marital Status	☐ married ☐ separated ☐ divorced ☐ living with partner ☐ single never married ☐ other

Your Motorcycle

What type of motorcycle do you mostly ride?	☐ moped ☐ scooter ☐ trail bike ☐ standard or naked ☐ trike ☐ touring ☐ sports or sports touring ☐ cruiser ☐ other
Is it a LAMS (Learner Approved Motorcycle Scheme) approved motorcycle?	☐ yes ☐ no
What make is your motorcycle?	_____
What is the engine size?	_____ cc
Why did you choose to buy a motorcycle? Choose the two main reasons	☐ cheaper to buy ☐ cheaper to run ☐ cheaper to insure ☐ associated image ☐ spare income ☐ enjoy motorcycle maintenance ☐ avoid congestion ☐ insufficient car parking ☐ independence and freedom ☐ engage in leisure riding ☐ love of motorcycles ☐ enjoy motorcycling

Riding History

What motorcycle licence do you have?	☐ Full ☐ Restricted ☐ P2 ☐ P1 ☐ L ☐ disqualified ☐ never licensed
Are you legally allowed to ride a motorcycle of any power?	☐ yes ☐ no
If disqualified, how long has your licence been disqualified?	_____ years _____ months
How long have you been riding motorcycles on public roads?	_____ years _____ months
Have there been any periods since you were licensed when you were not riding a motorcycle?	☐ yes ☐ no
If so, what's the longest time without riding?	_____ years _____ months
How frequently do you ride in an average week?	☐ every day ☐ 4-6 days ☐ 2-3 days ☐ at least one day ☐ less than one day ☐ never
How frequently do you ride more than 50 km from home?	☐ 3 or more times per week ☐ at least once a week ☐ at least once a month ☐ at least once every 3 months ☐ at least once a year ☐ less than once a year
Have you done voluntary extra training above that required to get a learner's permit or licence?	☐ yes ☐ no

If yes, what was the motivation to do extra training?	☐ purchasing of unfamiliar motorcycle ☐ refresher course after a break from riding ☐ involvement in a crash ☐ self-improvement ☐ other
Number of trips for commuting per month	_____ trips
Number of trips for leisure per month	_____ trips
How often do you ride as part of a group?	_____ times per year
What is the main purpose of group rides?	☐ pleasure only ☐ campaign rides ☐ charity rides ☐ organised visits to motorcycle events ☐ organised visits to non-motorcycle events
What is the main reason for you to take part in group rides?	☐ social interaction ☐ feeling part of a recognised group ☐ having routes chosen by those with more knowledge ☐ demonstrating rider skills ☐ other

Offences

Have you ever been penalised for the following offences?	☐ drink/drug riding ☐ reckless/dangerous riding ☐ riding while disqualified ☐ speeding ☐ other convictions ☐ none
Have you been penalised for any of the following offences in the last 12 months?	☐ drink/drug riding ☐ reckless/dangerous riding ☐ riding while disqualified ☐ speeding ☐ other convictions ☐ none

Crash Experience

Have you been in a motorcycle crash that has injured you or a pillion sufficiently to seek medical treatment (i.e. visit a doctor or hospital)?	☐ yes ☐ no
How many crashes have you been in during the last 3 years?	_____ serious injury crashes (requiring hospital treatment) _____ minor injury crashes _____ property damage only crashes

What happened first in your most recent crash (does not have to have occurred in the last 3 years)?	☐ another vehicle hit your motorcycle while it was parked ☐ your motorcycle collided with a pedestrian ☐ your motorcycle collided with a cyclist ☐ your motorcycle collided with the rear of another vehicle ☐ your motorcycle collided with the side of another vehicle ☐ another vehicle collided with the rear of your motorcycle ☐ another vehicle collided with the side of your motorcycle ☐ there was a collision between your motorcycle and another oncoming vehicle ☐ your motorcycle collided with a roadside object ☐ your motorcycle hit an animal ☐ your motorcycle left the road without colliding with any other object ☐ your motorcycle stayed on the road without colliding with any other object ☐ other
What type of motorcycle were you riding when the most recent crash happened?	☐ moped ☐ scooter ☐ trail bike ☐ standard or naked ☐ trike ☐ touring ☐ sports or sports touring ☐ cruiser ☐ other
What was the purpose of your journey?	☐ Pleasure/leisure purposes ☐ commuting to/from work ☐ riding during the course of my work ☐ other

To what extent do you think you were to blame for your most recent crash?	☐ Not at all ☐ a little ☐ quite a lot ☐ entirely

Crash Causes

Do you agree that crashes involving motorcycles are often caused by the following?	strongly agree	agree	neutral	disagree	strongly disagree
Drivers pulling out in front of motorcycles	☐	☐	☐	☐	☐
Drivers not noticing motorcycles	☐	☐	☐	☐	☐
Motorcycles going too fast	☐	☐	☐	☐	☐
Car drivers driving too fast	☐	☐	☐	☐	☐
Motorcyclists not looking far enough ahead	☐	☐	☐	☐	☐
Car drivers not looking properly	☐	☐	☐	☐	☐
Motorcycles being relatively less stable in an emergency situation	☐	☐	☐	☐	☐
Bad weather	☐	☐	☐	☐	☐
Poor road surface	☐	☐	☐	☐	☐
Poor road line marking or signage	☐	☐	☐	☐	☐

Exposure to police enforcement during the last 12 months

Have you encountered traffic police enforcement in last 12 months?	☐ yes ☐ no
Have you been spoken to by police in the last 12 months about safe riding practices, such as appropriate cornering speed or position?	☐ yes ☐ no
Have you been spoken to by police in the last 12 months about protective or high visibility clothing?	☐ yes ☐ no

Perceived likelihood of detection

Are more Police seen on Victorian roads this year in comparison with the previous year?	☐ yes ☐ no ☐ don't know
Do you think the Police are booking more motorcycle riders on Victorian roads this year in comparison with the previous year?	☐ yes ☐ no ☐ don't know
Do you think the risk of apprehension by the Police increased this year for motorcycle riders breaking traffic laws in comparison with the previous year ?	☐ yes ☐ no ☐ don't know

How often do riders who commit the following traffic offences get caught?	never	hardly ever	occasionally	quite often	frequently	nearly all the time
Speeding	☐	☐	☐	☐	☐	☐
Drink/drug riding	☐	☐	☐	☐	☐	☐
Running a red light	☐	☐	☐	☐	☐	☐
Traveling in emergency/bus lane	☐	☐	☐	☐	☐	☐
Overtaking on double lines	☐	☐	☐	☐	☐	☐
Not wearing a helmet	☐	☐	☐	☐	☐	☐
Illegal parking	☐	☐	☐	☐	☐	☐

Road Infrastructure comments

Which of the following aspects of road infrastructure create the greatest crash risk for motorcyclists? (Choose the top three)	☐ Poorly maintained road surface ☐ Traffic calming devices ☐ Differences in skid resistance due to pavement marking ☐ Poor camber ☐ Poor road line marking or signage ☐ Unsealed shoulders on the inside of curves ☐ Unsealed roads abutting the outside of curves on sealed roads ☐ Slippery surfaces associated with road crack sealing ☐ Poor patching of wheel ruts ☐ Oil in the middle of the road on the approach to intersections ☐ Manhole and trench covers ☐ Roadside hazards (trees etc) ☐ Roadside barriers ☐ Poorly signed road works or incomplete maintenance works

Which of the following metropolitan area roads require the most investment in road infrastructure improvements to aid motorcyclists? (Select two)	☐ Maroondah Highway/Whitehorse Rd; Box Hill to Lilydale ☐ Burwood Highway; Burwood to Belgrave ☐ CityLink; Strathmore to Malvern ☐ Princes Highway/Dandenong Rd; Windsor to Dandenong ☐ Hoddle St/Punt Rd; Clifton Hill to St Kilda ☐ Nepean Highway; Elsternwick to Mornington ☐ Western Ring Rd; Greensborough to Altona ☐ Princes Freeway; Altona to Geelong ☐ Eastern Freeway; Abbotsford to Donvale ☐ Monash Freeway; Malvern to Narre Warren

Which of the following rural/regional roads require the most investment in road infrastructure improvements to aid motorcyclists? (Select two)	☐ Bass Highway; Lang Lang to Philip Island ☐ Great Alpine Road; Wangaratta to Lakes Entrance ☐ Midland Highway; Mansfield to Bendigo ☐ Warburton Highway; Lilydale to Warburton ☐ Great Ocean Road; South coast ☐ Calder Freeway; Woodend to Essendon ☐ Hume Highway; Mickelham to Wodonga ☐ Princes Freeway/Highway; Narre Warren to Bairnsdale ☐ Maroondah Highway; Lilydale to Mansfield ☐ South Gippsland Highway; Dandenong to Korumburra

Safety measures

What are the most important safety measures for a motorcyclist? (Choose the top two)	☐ proper maintenance of your motorcycle ☐ making yourself visible to other road users (e.g. high visibility clothing and daytime headlights) ☐ observing the speed limit ☐ not riding while under the influence of alcohol or drugs ☐ using correct observation techniques ☐ correct positioning of motorcycle on the road ☐ not riding while tired ☐ wearing protective clothing, helmets and boots ☐ advanced training

What are the least important safety measures for a motorcyclist? (Choose the bottom two)	☐ proper maintenance of your motorcycle ☐ making yourself visible to other road users (e.g. high visibility clothing and daytime headlights) ☐ observing the speed limit ☐ not riding while under the influence of alcohol or drugs ☐ using correct observation techniques ☐ correct positioning of motorcycle on the road ☐ not riding while tired ☐ wearing protective clothing, helmets and boots ☐ advanced training

On-road behaviour

When riding, how often do you do the following?	never	rarely	sometimes	often	always
Wear bright/reflective clothing	☐	☐	☐	☐	☐
Use daytime headlights	☐	☐	☐	☐	☐
Wear full armour	☐	☐	☐	☐	☐
Wear protective clothing for your upper body (protective jacket or full body armour)	☐	☐	☐	☐	☐
Wear protective clothing for your lower body (protective trousers or full body armour)	☐	☐	☐	☐	☐
Ride above the speed limit	☐	☐	☐	☐	☐
Ride while feeling tired	☐	☐	☐	☐	☐
Ride while under the influence of drinki/drugs	☐	☐	☐	☐	☐
Misjudge the speed needed to negotiate a bend	☐	☐	☐	☐	☐
When overtaking other vehicles, how often	never	rarely	sometimes	often	always
Are the vehicles travelling at or above the speed limit?	☐	☐	☐	☐	☐
Do you pass two ore more vehicles at the same time?	☐	☐	☐	☐	☐

Are there any other comments you would like to make about issues related to motorcycle riding in Victoria?