

The Motorcycle Safety Levy: Providing an integrated program to improve motorcyclist safety

Nicola Fotheringham, VicRoads

A Motorcycle Safety Levy was introduced in Victoria in 2002 in recognition of the vulnerability of motorcyclists and their over-representation in road trauma statistics. The Levy is added to the Transport Accident Commission insurance premium on motorcycles of 126cc capacity and over, and is included with motorcycle registration renewals. The Levy enables the implementation of a program of road safety initiatives that address the key issues causing trauma to motorcyclists but do not meet funding criteria under State and Federal road safety programs. Since implementation of the Levy, alongside the *arrive alive!* Road Safety Strategy, motorcyclist fatalities have decreased in Victoria, whilst increasing across the rest of Australia.

A strategic framework to guide expenditure of Levy funds was developed with input from Monash University Accident Research Centre, motorcycle safety professionals, and members of the Victorian Motorcycle Advisory Council (VMAC). One of the most important initiatives to be funded by the Levy is road improvements at blackspot locations. However, the Levy is also being used to develop and implement education, training and research projects. These non-road projects are expected to provide improvements in rider safety over the longer term. Projects focused on education or training include research into motorcycle protective clothing and development of a star rating system, investigation of rider hazard perception and response skills, and the development and evaluation of an on-road assisted ride program. Other projects aimed at enhancing knowledge of motorcycle safety to better inform decision making include a motorcycle exposure study and research into the role of speed and speeding in motorcycle crashes.

This paper will provide an overview of the program of non-road projects funded by the Levy and discuss the expected benefits for motorcyclist safety in Victoria.

Introduction

Motorcycle (including scooter) riding are becoming increasingly popular as both a mode of transport and a recreational activity within Victoria. Motorcycle sales and registrations have been increasing steadily and this trend is not expected to slow (FCAI, 2007). Motorcycles are seen by many as efficient transport modes that can reduce traffic congestion and are more economical and environmentally friendly than cars. However, motorcyclists are over-represented in road trauma statistics. In Victoria, motorcyclists comprise 3% of all vehicle registrations but 14% of fatalities and 14% of all serious injuries.

In 2002, in response to the increasing numbers of a motorcyclists being seriously and fatally injured, the Victorian Motorcycle Road Safety Strategy (2002-2007) was introduced.

Furthermore, in October 2002, a Motorcycle Safety Levy was incorporated into the Transport Accident Commission (TAC) premium on motorcycle registrations. The aim of the Levy is to enable a greater level of funds to be directly spent on improving motorcycle safety. Levy funds allow expenditure on a program of road safety initiatives that address key issues causing trauma to motorcyclists. This includes improvements to high risk roads which are not always prioritised for funding under State and Federal funding for road programs.

This paper will provide an overview of the non-road Levy funded program and describe some on the non-road projects that have been funded by the Levy. It will then discuss the expected and potential benefits for motorcyclist safety in Victoria.

Discussion

1. Rationale for the Levy - Motorcycle Crashes in Victoria

Many positive achievements have been made over recent years to reduce the number of serious casualties on Victorian roads. In particular, reduced speed limits, improved vehicle design and safety features, and changes to infrastructure such as wire rope barriers and blackspot programs have reduced both the crash risk and injury severity for vehicle occupants.

However, motorcyclists have not benefited to the same degree by these developments. The unprotected nature of motorcyclists makes them vulnerable to injury in the event of a crash. In Victoria, between 2001 and 2005 there were 244 fatalities, 4321 serious injuries and 5542 other injuries to motorcycle riders and their pillion passengers. The average number of annual fatal and serious injury crashes per 1,000 registered motorcycles for the period 2001 to 2005 was 8.82. It has been estimated that motorcycle crashes cost Victoria an average of \$372 million per year (Styles et al., 2007).

Over the past ten years in Victoria there has generally been an increasing trend in both the number of motorcycle registrations and the number of serious casualties to motorcyclists (Figure 1). Whilst the number of registrations has been increasing steadily, the number of serious casualties peaked in 2002 before decreasing between 2002 and 2003. Since this time, the numbers of serious casualties are slowly rising again, however, they have not yet returned to the level reached in 2002.

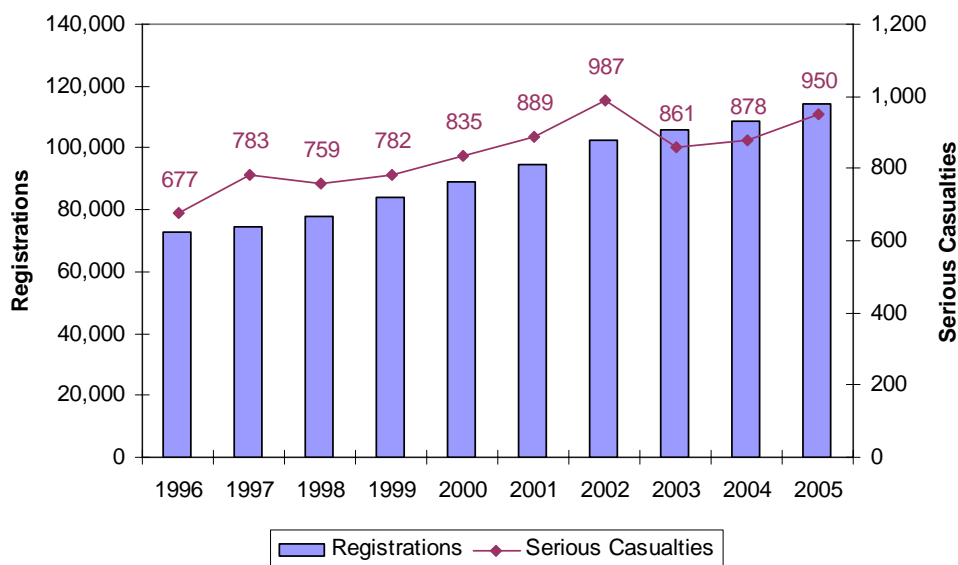


Figure 1. Motorcycle rider serious casualties and registrations in Victoria (1996-2005).

2. The Motorcycle Safety Levy

The Levy is included as part of the TAC premium on new motorcycle registrations and registration renewals. (TAC is the compulsory third party personal injury insurer for transport accidents in Victoria.) At present, a Levy of approximately \$56 is applied to motorcycles registered for on-road use that are of 126cc capacity and greater. The amount is revised according to the consumer price index (CPI) change each year. The Levy does not apply to 'recreation registered' motorcycles or special category motorcycles such as vintage registrations.

Between October 2002 and June 2007, \$19.7 million was raised by the Levy, approximately \$4 million per year. At the end of August 2007, \$18.7 million had been spent on or committed to motorcycle specific road safety initiatives.

Levy funded projects, primarily aligned to the Victorian Motorcycle Road Safety Strategy and the *arrive alive!* Road Safety Strategy have contributed to a 27% decrease in motorcyclist fatalities in Victoria (between 2001 and 2006). At the same time, motorcyclist fatalities across the rest of Australia have increased by 26% (Figure 2).

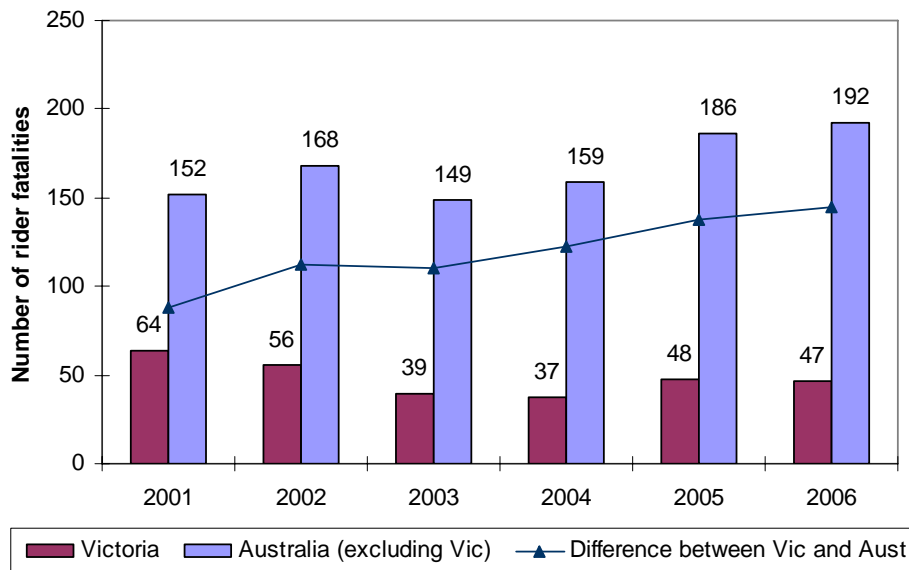


Figure 2. Comparison of motorcyclist fatalities in Victoria with the rest of Australia (2001-2006)

Private operators who register more than one motorcycle in their name are required to pay the Levy for each motorcycle. However, from 1 January 2008, any motorcyclist with multiple bikes registered in their name will only be required to pay the Levy for one motorcycle (this does not apply to companies registering multiple bikes). This change will make it more equitable for motorcyclists whilst still ensuring that the program of motorcycle specific road safety projects can continue.

3. Process for Developing a Program of Motorcycle Safety Initiatives

A strategic framework to guide expenditure of Levy funds was developed with input from the Monash University Accident Research Centre (MUARC), motorcycle safety professionals, and members of the Victorian Motorcycle Advisory Council (VMAC). The VMAC is comprised of individuals from motorcycle rider groups, manufacturers, retailers and rider training organisations as well as VicRoads, the Transport Accident Commission (TAC), the Victoria Police, Royal Automobile Club of Victoria (RACV) and MUARC. The VMAC meet regularly to provide advice to the Victorian Government on motorcycling issues.

The framework was developed through a process of:

- reviewing motorcycle crash data, safety issues and trends;
- identifying a range of approaches to address key issues; and
- assessing the benefits that could be gained from each measure, their estimated costs, and the likelihood the measure would be funded from sources other than the Levy.

Subsequent workshops were conducted with motorcycle safety experts and members of the VMAC to identify the most valuable projects consistent with the strategic framework. Each of the project ideas were then scoped and costed, with projects presented individually to the VMAC for endorsement prior to seeking the approval of the Minister for Roads and Ports.

Table 1 below shows the four priority areas identified in the strategic framework and the funds committed or spent to date in each area. One hundred and forty eight projects have been approved for funding by the Levy to date. Of these 123 were on-road projects and 25 non-road projects. Of the four key areas identified for Levy expenditure, three have had a significant number of projects conducted. To date, no enforcement projects have been funded by the Levy.

Table 1. Funds committed or spent for each of four priority areas of strategic framework (at 26 September 2007).

<i>Priority Area</i>	<i>Funds Committed / Spent (%)</i>
Education	19
Engineering, Technology & ITS	74
Enhanced Information for Decision Making	7
Enforcement	0

4. The On-Road Levy Program

The on-road program addresses the engineering and technology component of the strategic framework. Under the Motorcycle Blackspot Program 112 high risk locations for motorcyclists have been treated over the past five years. A preliminary evaluation conducted by MUARC found an indicative 38 per cent reduction in motorcycle casualty crashes for the first 51 sites treated under this program.

Other on-road projects have included research into perceptual countermeasures for motorcyclists, evaluations of the Motorcycle Blackspot Program and the Statewide Blackspot Program in relation to benefits for motorcyclists, and trials of motorcycle friendly roadside products, different types of barrier protection and vehicle activated signs.

5. The Non-Road Levy Program

The majority of the projects that comprise the non-road Levy funded program are identified in Table 2.

Table 2. Key non-road projects and the strategic areas and motorcycle safety issues they address.

<i>Strategic Component</i>	<i>Motorcycle Safety Issue</i>	<i>Project</i>
<i>Education</i>	Inexperience or lack of recent experience	<ul style="list-style-type: none"> • Hazard Perception and Responding by Motorcyclists • Development of a Pilot Training Course for Returning Riders • Redevelopment of the Motorcycle Knowledge Test

		<ul style="list-style-type: none"> • Redevelopment of Vic Rider Handbook • Great Ocean Ride DVD • Assisted Rides Project
	Intersection crashes, failure to see motorcyclists	<ul style="list-style-type: none"> • Associative Learning Project (Training Car Drivers to Give Way to Motorcyclists)
	Vulnerability to injury	<ul style="list-style-type: none"> • Protective Clothing Research • Communications Strategy for Protective Clothing
<i>Enhanced Information for Decision Making</i>	Under-reporting and bias in motorcycle crash statistics	<ul style="list-style-type: none"> • Motorcycle Exposure Study • Scooter Crash Involvement • Enhanced Crash Investigation • Enhancing Emergency Response for Motorcyclists - Investigation
	The role of speed and speeding	<ul style="list-style-type: none"> • Role of Speed and Speeding in Motorcycle Crashes Research
	The safety of off-road riding	<ul style="list-style-type: none"> • Off-road Riding Injuries • Benefits of Providing Off-Road Riding Facilities
<i>Engineering, Technology and ITS</i>	Road surface and environment hazards	<ul style="list-style-type: none"> • Review of Engineering Maintenance Practices • Communications Strategy on Motorcycle Safe Maintenance Practices
<i>Enforcement</i>		<ul style="list-style-type: none"> • Enforcement and Community Policing (proposal currently under development)

This paper will now describe some of the key non-road projects in more detail.

Education

Hazard perception and responding project. The time taken to respond to hazards is strongly associated with crash involvement (Quimby et al., 1986). Hazard perception training if found to be effective has, therefore, been identified as one of the key components that should be incorporated into a motorcycle training program (Haworth & Mulvihill, 2005). Earlier stages of this project have involved a review of the literature on hazard perception and responding and an examination of the best training methods for teaching motorcycle rider's hazard perception and responding skills. The current stage of the project involves the use of research and training motorcycle simulators to determine the critical aspects of hazard perception and how riders with different levels of experience anticipate and respond to hazards. Preliminary findings have indicated that 'motorcycle riders were faster to respond to road-user-based hazards, and detected a greater number of these hazards than car drivers' (Hosking et al., 2007). The study will result in an improved understanding of hazard perception and response skills. The findings will be used to guide the development of training and testing materials aimed at improving hazard perception and responding in riders.

Protective clothing project. Wearing protective clothing has been found to be very beneficial in preventing and reducing minor and more serious injuries in riders (ACEM, 2004). However, many motorcyclists do not wear sufficient protective clothing to protect them

in the event of a crash (DeRome, 2006). Scooter riders are of particular concern, tending to wear little if any protective clothing. With the increasing popularity of scooters, such behaviours are likely to result in many injuries to riders that could easily have been prevented. This project will involve three stages. The first stage reviewed the literature on the key types of protective clothing, its features and effectiveness, and developed possible models for a safety 'star rating' system for protective clothing. The second stage involved market research to determine motorcyclists' attitudes and behaviours in relation to protective clothing and investigated the acceptability and potential features of a 'star rating' system for motorcyclists and scooter riders. The third stage which is yet to be commenced will look at the feasibility issues associated with such a system. It is expected that a star rating system would enable consumers to easily identify and purchase items of protective clothing that will better protect them from injuries in the event of a motorcycle crash.

Assisted rides project. The effectiveness of motorcycle rider training has often been questioned, with international research suggesting that it is, at best, only slightly beneficial (Haworth & Mulvihill, 2005). However, inexperience has been identified as a key factor that contributes to motorcycle crashes. Therefore, more effective types of training or rider instruction that will improve rider safety are sought. There are a number of assisted ride programs currently operating such as BikeSafe UK, the Yarra Ranges Instructed Rides Program and a number of similar on-road programs run by training providers in Victoria, Queensland and Tasmania. These programs aim to provide riders with feedback to improve their on-road riding skills and techniques. This project has so far reviewed the current programs available in Australia and overseas and market tested different groups of riders to determine the best model for an assisted ride program. The next stages will involve the development, trial and evaluation of an assisted ride program. It is anticipated that an effective assisted ride program could be targeted at inexperienced and returning riders to improve their on-road riding skills and behaviours and hopefully reduce the likelihood of participants being involved in a crash.

Redevelopment of the rider handbook and motorcycle knowledge test. The Levy has also funded the redevelopment of the Victorian rider handbook and the motorcycle knowledge test. The rider handbook provides the latest information based on motorcycle safety research and the key knowledge competencies a rider needs to be safe on our roads. The information contained in the handbook is subsequently tested by the motorcycle knowledge test before a novice rider can gain their motorcycle learner permit. The knowledge test is currently being redeveloped using the latest psychometric methodologies to ensure the test is reliable, valid and equitable for all applicants. Test items have been

prepared in consultation with training providers and motorcycle representatives and then trialled with learner permit and motorcycle licence applicants.

Enhanced Information for Decision Making

Motorcycle exposure study. Whilst the exposure of drivers has traditionally been measured using kilometres travelled, vehicle registrations and licences, these measures are unreliable for motorcyclists. Without accurate and reliable measures of exposure, any change in crash numbers for motorcyclists over time can be difficult to interpret. This study is seeking to improve our understanding of the exposure of motorcyclists on Victorian roads. The study involves a multi-pronged approach including: an analysis of traffic count data on selected Victorian roads; a follow up survey of motorcyclists involved in a household travel and activity survey being conducted by the Department of Infrastructure to identify their pattern of riding; and an online survey of motorcyclists recruited from a range of sources and conducted over different seasonal periods to investigate the riding patterns and profiles of Victorian motorcyclists. It is anticipated that measuring motorcycle exposure using a range of different methods will result in a more complete understanding of the profile of Victorian riders, the types of bikes they ride, the frequency of riding and time spent travelling on motorcycles, and the most popular routes ridden.

Off-road riding. Off-road motorcycling is an activity that has been increasing in popularity in Victoria over the last few years. However, the extent and nature of off-road riding injuries and risks associated with off-road riding are not well known. Two research projects have been conducted to date to better understand off-road riding injuries. The first was an analysis of off-road riding fatalities and injuries using hospital admission and presentation data as well as data held by the Australian Bureau of Statistics. The study found males comprised the greatest number of off-road injuries, with riders aged 20-24 the most common age group injured, and rural youth over-represented in off-road riding injuries. A more recent study investigated the feasibility of other sources of information to fill in the remaining knowledge gaps on off-road riding injury and has identified potential data sources for future investigation. A forthcoming project will investigate the benefits and feasibility of establishing off-road riding facilities.

Other projects to enhance information. Some future projects that will enhance information about motorcycle crashes include an investigation into the role of speed and speeding in motorcycle crashes and investigation into the involvement of scooters in crashes. These projects have only recently commenced and findings are not expected until 2008. These studies both aim to better understand motorcycle crashes and the outcomes will be used to guide future policy decisions on motorcycling issues.

Engineering, Technology and ITS

Communication strategy for improving maintenance practices. Motorcycles and scooters are much more sensitive to changes in the road surface than other road users. Therefore, road and roadside design, construction and maintenance are particularly critical to this road user group. Road works can also provide particular hazards to motorcyclists and need to be carried out in a way that minimises and preferably avoids any adverse impact on their safety. Earlier stages of this project involved a review of current maintenance practices and road design guidelines with respect to motorcycle safety, and consultation with motorcyclists to identify road related issues of concern. The current stage has involved developing a communication strategy that identified the most effective manner for communicating the key motorcycle safety issues. The project will result in training materials and tools including a training DVD that will be used to train engineers and managers involved in the design, construction and maintenance of Victorian roads.

Enforcement

To date, no enforcement projects have been funded by the Levy. However, a number of enforcement and community policing initiatives are currently being developed and will be considered in the near future for Levy funding and for their potential to benefit motorcyclist safety.

Centre of Excellence

As can be seen from the breadth of programs described above, the introduction of the Levy in Victoria has resulted in a significant number of motorcycle specific research projects. This has placed a greater demand for motorcycle safety researchers that have the research and program evaluation skills as well as sufficient resources to take on motorcycle safety projects. The scale of research requirements and the need for more accurate and detailed information in relation to motorcycle trauma has led to a proposal for the establishment of a dedicated research facility with a major focus on motorcycle safety and transport. The potential for such a centre is currently being investigated.

6. Expected and Potential Benefits of the Levy

The Motorcycle Safety Levy has provided for an extensive program of motorcycle specific safety initiatives that would not have otherwise been achievable in Victoria. It has enabled many key issues to be addressed over the past 5 years and substantially added to the road safety programs already being conducted by VicRoads, the TAC, Victoria Police, local government and community road safety committees. While these road safety organisations continue to drive activities addressing motorcycle safety, the resources provided through the Levy has enabled a much greater number and breadth of projects to be undertaken.

The Levy has provided a number of other benefits for motorcyclists in Victoria. The Levy has given motorcyclists a greater opportunity to raise and discuss issues of concern to motorcyclists with the Victorian Government and VicRoads through the VMAC. The Levy has also raised the profile of motorcycle safety and motorcycling as a component of the transport mix. As an example, the next Victorian Motorcycle Strategy, to commence in 2008, will be a combined safety and transport strategy and will seek to address issues relevant to providing for motorcyclists as part of the transport system alongside improving their safety. The development of the next strategy is currently underway.

Conclusions

The Motorcycle Safety Levy has provided for an extensive motorcycle specific road safety program in Victoria. Whilst the benefits of the on-road program are already being seen, the benefits of the non-road program are expected to be more influential over the longer term. The recent announcement of the indefinite continuation of the Motorcycle Safety Levy in Victoria will ensure that many more motorcycle specific safety projects will be funded over the coming years and enable motorcycle safety in Victoria to continue to improve.

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