



RSA

NATIONAL MOTORCYCLE SAFETY ACTION PLAN

The Road Safety Authority
April 2009

Údarás Um Shábháilteacht Ar Bhóithre
Road Safety Authority

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Summary

This report sets out a Motorcycle Road Safety Action Plan for Ireland. It covers the period 2009 – 2012. The Action Plan is a requirement under Action 80 of the Road Safety Strategy 2007 – 2012.

The issues identified, subsequent targets set, and 78 separate actions set out to address these have been informed by the results of an in-depth analysis of motorcycle collisions over the period January 1997 to December 2006, and are supported by research and best practice from countries in the European Union and beyond.

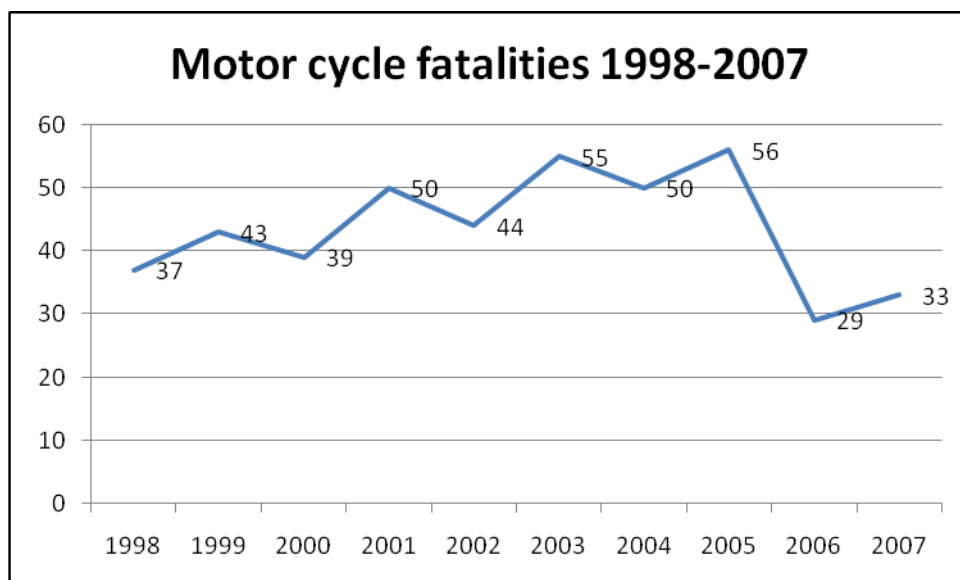
All targets have been set against a 2004-2006 baseline, with completion in the year 2012. Where relevant, existing national targets on reducing fatalities and injuries have been adapted for motorcycle road users.

Consultation Process

This document seeks to obtain the input and views of a broad range of stakeholders on the enhancement of motorcycle safety on Irish roads through the development of a fully integrated Motorcycle Safety Action Plan. We wish to hear from motorcyclists, drivers, interest groups and others who may have views, advice and suggestions as to how policy can be developed so as to:

- reduce the incidents of deaths and injuries to motorcycles
- support the development of motorcycling as a safe and viable means of mobility
- attain and surpass international best practices in the area of motorcycle safety

The consultative process will commence on 1st May 2009 and last 8 weeks until 26th June 2009 and you are invited to contribute by commenting on individual aspects of the Action Plan and/or making a formal submission. You may e-mail your comments to motorcycleactionplan@rsa.ie or post them to Driver Education and Research Unit, Road Safety Authority, Moy Valley Business Park, Primrose Hill, Ballina, Co Mayo. Please mark the envelope "Motorcycle Action Plan"



Introduction

1.1 Why we need a National Motorcycle Safety Action Plan

- 1.1.1 The Road Safety Strategy 2007-2012 was published in October 2007, and provides a summary of general collision statistics and trends, and comparisons with other European Union (EU) Member States.
- 1.1.2 Best practice countries in the EU have achieved a reduction to 50 road deaths per million of the population per annum and are already committed to improving this position by a further 20%. Ireland currently ranks 9th out of 25 countries in the EU, with an annual rate of 78 deaths per million population¹. To join best practice countries in the next 5 years the Road Safety Strategy must reduce annual deaths to between 50 to 60 deaths per million, and the first specified target contained in the National Road Safety Strategy (2007-2012) is to:
- 'Reduce fatalities to no greater than 60 fatalities per million by the end of 2012 and 50 or fewer in the following years with demonstrable downward reductions in each year of this Strategy'.*
- 1.1.3 Although motorcyclist fatalities accounted for approximately 10% of all fatalities in 2007, this percentage was significantly higher in the three of the four preceding years² and so reducing, and maintaining, a low level of fatalities among motorcycle users will do much to contribute to achieving this national target.
- 1.1.4 Thus, the requirement for a dedicated Motorcycle Safety Action Plan was identified, and was included in the Action Plan³ in the Road Safety Strategy (2007 – 2012) with the specified objective to:
- 'Research, develop and publish a national motorcycling safety strategy incorporating best practice engineering, education and enforcement issues'.*
- 1.1.5 The National Road Safety Action Plan set out a timetable for achieving this objective by the end of the first Quarter in 2009.
- 1.1.6 The critical success factors for the implementation of a road safety strategy are listed in Appendix A. These factors are also applicable to the implementation of the Motorcycle Safety Action Plan.

1.2 Background

- 1.2.1 Motorcyclists are vulnerable road users. In 2007, 33 motorcyclists were killed and a further 410 were injured⁴ on Ireland's roads, accounting for 10% of all fatalities, and almost 5% of all casualties resulting from road collisions in the country. This is of particular concern since motorcycles accounted for less than 2% of all licensed vehicles in the Republic in that same year⁵.
- 1.2.2 The trend in total number of motorcycles registered in Ireland since 1998⁶ reveals that in recent years that there was a slowing down in the growth of motorcycles followed by a slight increase in recent years, as seen in Figure 1.1

¹ Source: Road Collision Facts 2007

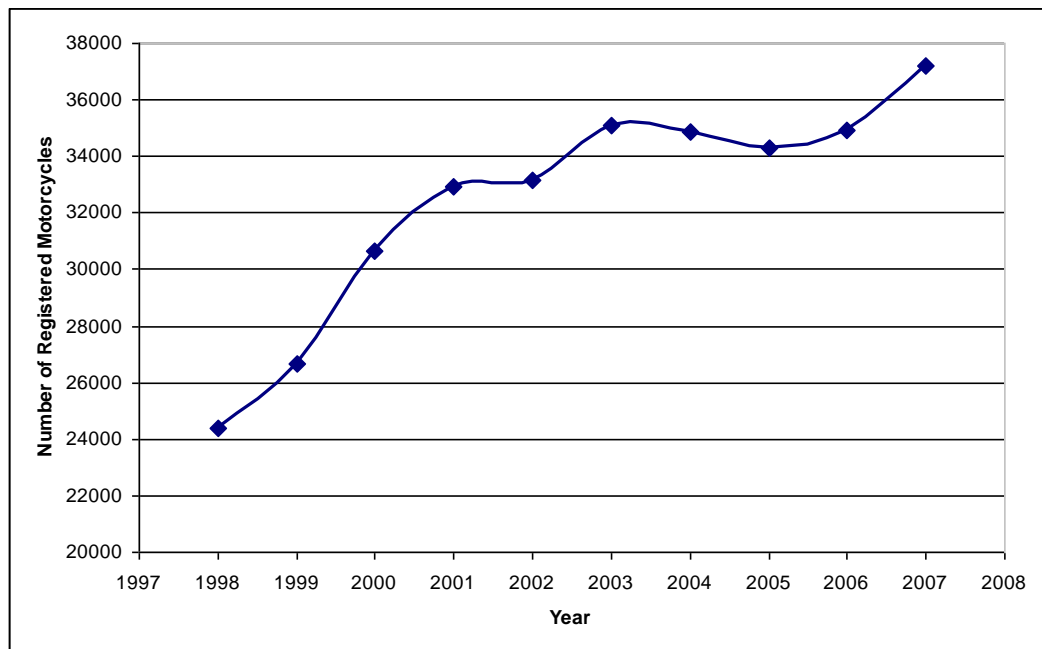
² The figures are 16.4% in 2003, 13.6% in 2004, 14.1% in 2005 and 8% in 2006

³ Action No 81, Other Road Safety Measures

⁴ Source: Road Collision Facts 2007. For a further elaboration of the figures, see National Motorcycle Safety Strategy, Technical Report, which complements this document.

⁵ Source: Road Safety Strategy 2007-2012

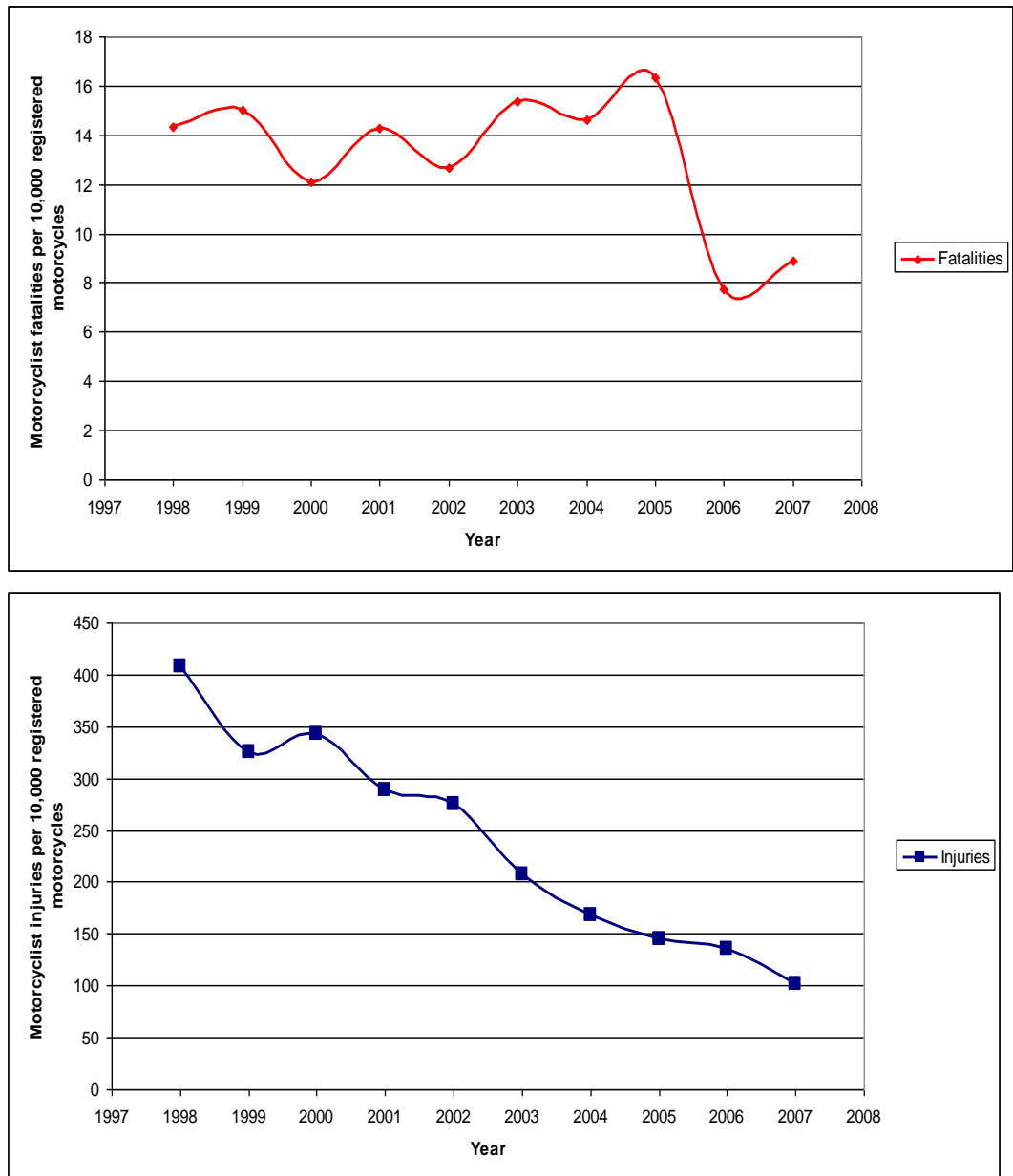
⁶ Note that figures for 1997 were unavailable

Figure 2.1: No. of registered motorcycles in Ireland over time

1.2.3 This trend contrasts with the motorcyclist fatality and injury rates per 10,000 registered motorcycles in Ireland over the same period, as seen in Figure 1.2:

- Slight upward trend to fatalities to 2005 followed by a sharp dip at 2006;
- Marked downward trend in injuries throughout the period.

Figure 2.2: Trend in motorcyclist fatality and injury numbers per 10,000 registered motorcycles

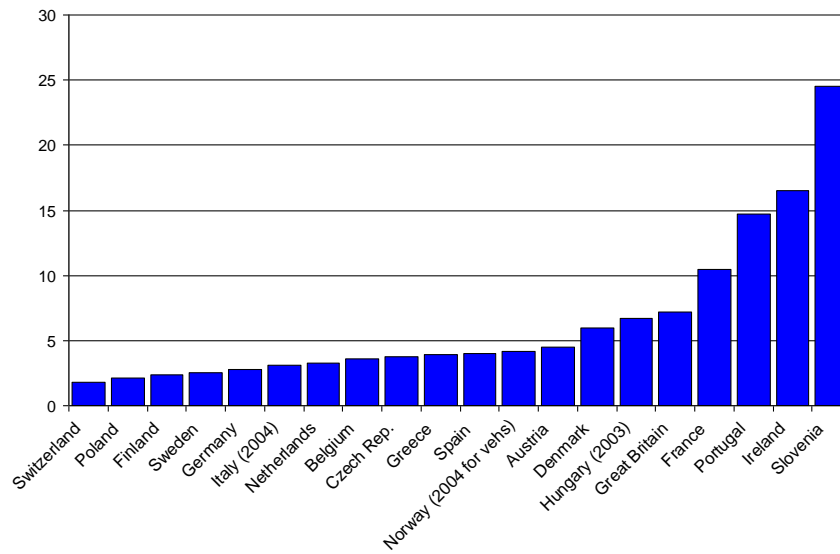


1.3 Ireland's position in the EU

- 1.3.1 Ireland's Road Safety Strategy reports that the motorcyclist fatality rate in Ireland is the highest in Europe. According to OECD figures, a motorcyclist is two to three times more likely to be killed in Ireland than in other European countries⁷
- 1.3.2 In terms of fatality rates *per 10,000 registered motorcycles*⁸, Ireland was found to have the second highest rate amongst the twenty countries compared. This is shown in Figure 1.3, below.

⁷ Source: Road Safety Strategy 2007 – 2012, p. 77.

Figure 2.3: Motorcyclist fatality rates across the EU per 10,000 registered vehicles



Source: http://www.erso.eu/knowledge/content/45_poweredtwowheelers/moped_and_motorcycle_fatality_rates.htm⁹.

⁸ Note: this was reported at http://www.erso.eu/knowledge/content/45_poweredtwowheelers/moped_and_motorcycle_fatality_rates.htm as the rate per 10,000 vehicles.

⁹ The rates for mopeds and motorcycles were provided separately in the above source but are combined here. Note also that the rates may have been calculated for different years, depending on when data was available.

2 Motorcycle Safety Action Plan

2.1 Key Issues from Casualty/ Collision Analysis

- 2.1.1 The Technical Report that is available at www.rsa.ie provides a more detailed presentation and analysis of motorcyclist casualties and collisions occurring on Ireland's roads between 1997 and 2006, together with a review of the international literature and Best Practice.
- 2.1.2 A number of issues emerged from the collision and casualty analysis which have been used to inform and guide the specific actions set out in this National Motorcycle Safety Action Plan, as follows:

Who are the motorcyclists most likely to be injured

- Males in the age group 17-39 have the highest casualty rates¹⁰.
- Males in the age group 20-24 have the highest fatality rates¹¹.

When Are Motorcyclists More Likely To Be Killed or Injured?

- Weekend days have higher collision numbers than week days
- The summer months of May and September show the highest motorcyclist collision numbers (with the months of June, July and August also showing high numbers but dipping below the peaks)
- 27% of motorcyclist collisions occurred between 4pm and 7pm
- 32% of all motorcyclist fatalities occurred during the hours of darkness
- Peaks occur in the morning and evening peak hours during weekdays

Where Are Motorcyclists Being Injured?

- 71% of motorcyclists were killed or injured in built-up areas in the ten years to 2006
- The number of motorcyclists killed on two-way carriageways showed an upward trend until 2006.
- 65% of motorcycle collisions occurred away from junctions in 2006.

What Happened?

- In the majority of the motorcycle casualties analysed, the contributory actions were not recorded.
- In collisions where the contributory factors of motorcyclists were recorded, these were:
 - 'exceeded safe speed limit',
 - 'went to wrong side of the road'
 - 'improper overtaking'
- 14% of motorcyclist casualties resulted from collisions involving other vehicles driven unaccompanied learner drivers.

2.2 Report Structure

- 2.2.1 The Motorcycle Safety Action Plan sets out the intentions of the Road Safety Authority (RSA) to improve the safety of motorcycling and hence reduce casualties. The issues to be addressed are presented in terms of the traditional four E's of road safety - Education, Enforcement, Engineering and Evaluation - together with a 'fifth E' of Equipment (and technology). They are covered in the following chapters:
- Chapter 3: Engineering, Traffic Management and Planning

¹⁰ per 100,000 population per annum

¹¹ per 100,000 population per annum

- Chapter 4: Equipment and Technology
- Chapter 5: Enforcement
- Chapter 6: Education, Encouragement and Promotion
- Chapter 7: Monitoring, Evaluation, and Review

2.2.2 The specific Targets and Action Plan by which the Action Plan will implemented are contained in Chapters 8 and 9 respectively, and together, these seven chapters comprise Ireland's first National Motorcycle Safety Action Plan.

3 Engineering, Traffic Management and Planning

3.1 Overview

- 3.1.1 71% of motorcycle casualties in Ireland occur on roads in a 'built-up' environment and 65% of motorcycle collisions occur away from junctions. There is a need to increase awareness of road traffic engineers of the special needs of motorcyclists in relation to road design and maintenance. Methods of improving the safety of motorcyclists require careful research to ensure that the safety of other road users is not compromised.
- 3.1.2 This chapter sets out the position with regard to:
- Infrastructure/ Road Design
 - Motorcyclists in bus lanes
 - Use of Advanced Stop Lines (ASL's) by Motorcyclists
 - Road Safety Audit
 - Planning Policy Guidelines and Travel Planning

3.2 Infrastructure

Road Design / Surface Condition

- 3.2.2 In an Australian study¹² which analysed 205 collisions cases, 15% were found in which the road surface had contributed to the collision. In more than half of all cases some site factor (of various kinds, including lack of vision) was involved¹³. The MAIDS¹⁴ study, which involved analysis of 921 collisions involving motorcyclists, reported roadway defects in 30% of all cases, although this did not necessarily mean that the defect contributed to the collisions, but were present.
- 3.2.3 Although there is no specific information available as to the comparative figures for Ireland, the importance of good road design and provision of infrastructure which takes account of the specific needs of motorcyclists as road users cannot be ignored.
- 3.2.4 The European Motorcycle Industry has prepared 'Guidance for Powered two-wheeler Safe Road Design'¹⁵. This is an inventory of aspects that are relevant for (the safety of) powered two-wheelers with attention to road design (e.g. roundabout design, broader lanes on certain urban road to enable safer passing), road maintenance, traffic engineering and traffic management, and includes such factors as surface grip and consistency and bends. Surface grip and consistency variations can affect motorcycle stability when leaning, braking or accelerating, which can in turn lead to loss of control, particularly on bends in the road.
- 3.2.5 ***The Motorcycle Safety Action Plan will seek to encourage reference to European documents and inventory checklists by designers and contractors when designing and constructing new roads or improvements to existing roads.***
- 3.2.6 The Motorcycle Safety Action Plan will promote good practice in road design and maintenance by highway authorities and supports further research into the subject

¹² Haworth et al, reported on ERSO website

¹³ See Technical report for details.

¹⁴ Motorcycle Accident In-Depth Study, 2004. Available at: <http://www.maids-study.eu/>.

¹⁵ Available at http://acem.eu/media/d_ACEMinfrastructurehandbookv2_74670.pdf

including the production of an updated Guidelines for Pavement and Maintenance Works¹⁶ and other relevant guidance.

- 3.2.7 The positioning of manhole and other statutory undertakers' plant items could also result in destabilisation of motorcycles where manhole covers with inadequate skid resistance are located in the carriageway. Poor road maintenance resulting in potholes in the carriageway can also be hazardous for motorcyclists.
- 3.2.8 For existing road infrastructure, such faults or issues may not be immediately apparent or easily identifiable to transport professionals.
- 3.2.9 *The Motorcycle Safety Action Plan therefore supports the introduction of a reporting system whereby motorcyclists can alert the appropriate authority to the presence of safety issues such as potholes.***
- 3.2.10 *The Motorcycle Safety Action Plan supports the policy that all new manhole covers should be provided with at least the minimum 'polished skid resistance value for manhole covers'.¹⁷***

Safety Barriers

- 3.2.11 The design of guard railing has traditionally been geared towards the prevention of car/ object collisions rather than collisions involving motorcyclists.
- 3.2.12 The Institute of Highway Incorporated Engineers (IHIE)¹⁸ has reported that although some studies indicate that certain types of barrier may be of greater risk to motorcyclists (unprotected posts where motorcyclists have become detached from their vehicles, from projections associated with barriers, or from sliding beneath barriers), the general conclusion is that further research is needed into the effects on safety of different designs of safety barriers with regard to motorcyclists.
- 3.2.13 On sections of motorway in the UK¹⁹, the Highways Agency has installed BikeGuard which is a new safety barrier system consisting of a metal panel fixed onto the upright barrier support posts. This safety feature helps to protect motorcyclists who fall from their bikes.
- 3.2.14 *The Motorcycle Safety Action Plan will seek to ensure that motorcyclists' safety is taken into consideration when safety barriers are installed or maintained and will aim to comply with the standards set out in TD 19/07²⁰ and BD 52/07²¹ or similar..***

Lighting And Drainage

- 3.2.15 Provision of adequate lighting and drainage are also important elements of safe road design. Ponding in icy conditions can be particularly dangerous for motorcyclists and in the absence of adequate lighting provision motorcyclists may be unable to see the detail of the road surface, thereby increasing the potential for them to overrun a hazard or misunderstand the road layout. In the three years to December 2006, 15% of all motorcyclist casualties in Ireland occurred during the hours of darkness in well lit areas, and so the issue of lighting is an important one.
- 3.2.16 *The Motorcycle Safety Action Plan will promote improvements to lighting in areas where a high percentage of motorcyclist casualties have been identified or locations with similar characteristics to those at which collisions have occurred.***

¹⁶ National Roads Authority, January 2007.

¹⁷ <http://www.ihie.org.uk/gateway/2008/04/17/uploads/Riders%20Grips%20with%20Manhole%20Covers%2008.02.15.pdf>

¹⁸ IHIE Guidelines for Motorcycling, version 1.1

¹⁹ M27 and M4

²⁰ Safety Barriers, National Roads Authority, Volume 2 Section 2 Part 8A NRA TD 19/07

²¹ The Design of Road Bridge Parapets, National Roads Authority, Volume 2 Section 3 Part 3 NRA BD 52/07

- 3.2.17** *The Motorcycle Safety Action Plan will also endorse regular and proactive street inspections in order to provide a rapid response to rectify blocked gullies giving rise to ponding and to repair street lighting.*

3.3 Motorcyclists in bus lanes

- 3.3.1 The principle of whether motorcyclists should be permitted to use bus lanes has been considered for a number of reasons. Currently, during congested periods motorcyclists filter or pass to the right of stationary traffic. This can present the following problems:
- Potential conflict with oncoming traffic
 - The risk of colliding with the opening door of a driver or passenger if passing close to the stationary traffic
 - Potential conflict with pedestrians crossing through stationary traffic
- 3.3.2 Whilst permitting motorcyclists to use bus lanes could reduce the risk of conflict with oncoming traffic, objections to the idea of motorcyclists using bus lanes have also been raised - principally by cyclists who maintain that they will experience increased conflict or that they will feel threatened by additional fast-moving vehicles in the bus lane²². To a lesser extent there is potential for conflict with pedestrians as a result of the potentially higher speeds of motorcyclists and lower complicity. It has also been suggested that the presence of motorcyclists could reduce the benefit to buses.
- 3.3.3 The use of bus lanes by motorcyclists has been implemented in Bristol and trialled by Transport for London. Interim data from these trials is summarised below²³:
- Reductions in motorcycle collisions between 0% and 31% at trial sites with no increase in overall collisions at any site
 - Cyclist collisions and near-misses with motorcyclists increased by 3% during the trial.
- 3.3.4 The initial indications are that **the overall safety benefits of permitting motorcyclists to use bus lane lanes are not statistically significant.**
- 3.3.5** *The Motorcycle Safety Action Plan supports the continued monitoring of the results of future studies into the benefits and costs of motorcycles using bus lanes, prior to making informed policy decision with regard to this practice.*

3.4 The Use of Advanced Stop Lines (ASLs) By Motorcyclists

- 3.4.1 Advanced Stop Lines (ASL's) are increasingly being provided at signalised junctions to provide a safer place for pedal cyclists to wait for a green signal, especially when they are turning right. Potentially, the benefits to motorcyclists of using Advanced Stop Lines may be similar to those of pedal cyclists:
- They may offer a head start over other traffic
 - They may allow motorcyclists to be visible away from and in front of other traffic
- 3.4.2 Trials of shared use Advanced Stop Lines have been undertaken by the London Borough of Newham²⁴. A survey conducted before the trial introduction showed significant illegal use by a range of vehicles, but initial results of these limited trials have been encouraging:
- Prior to implementation, the majority of motorcyclists (77%) and cyclists (51%) were supportive of the idea of motorcyclists using ASL's

²² Since the deregulation of the taxi industry, the numbers of registered taxis have increased significantly, and therefore the numbers of vehicles using bus lanes has increased proportionately.

²³ Motorcycle Guidelines, Chapter 4 2005 Institute of Highways Incorporated Engineers

²⁴ (Tilly, A and Huggins, P 2003), reported in Motorcycle Guidelines, 2005 Institute of Highways Incorporated Engineers

- After implementation 73% of motorcyclists and 48% of cyclists considered the layout an improvement
 - Conflict between cyclists and motorcyclists did not arise as motorcyclists tended to enter from the offside and gather to the right of the ASL, while cyclists generally entered from the nearside and waited towards the left
 - The percentage of motorcyclists reaching the front of the queue of traffic increased from 40% to 53%
- 3.4.3 However, these trials were limited, and involved mainly 'ahead' traffic and further research is therefore required, along with consideration of appropriate and adequate signing and road markings, prior to achieving safe and widespread implementation of shared-use ASL's.
- 3.4.4 Furthermore the findings of research carried out on trials of motorcyclists using ASL's in the UK may not necessarily be entirely relevant here. While motorcyclists in the UK may queue in an orderly fashion on the approach to an ASL, the same does not necessarily apply on Irish roads.
- 3.4.5 ***The Motorcycle Safety Action Plan will review future trials and their results prior to developing a firm policy on shared-use ASL's.***

3.5 Road safety audit

- 3.5.1 The requirements of a road safety audit are outlined in National Roads Authority Design Manual for Roads and Bridges Vol. 5 Sect 2 Part 2: NRA HD19/04 – Road Safety Audits and Vol 5 Sect 2 Part 3: NRA HA42/04 – Road Safety Audit Guidelines. There are four stages involved²⁵. When a road safety audit is undertaken at any of these stages, the safety of all modes of transport is considered. As vulnerable road users, the aspects of design likely to affect motorcyclists may be different from those affecting other motorised road users, and care should be taken to ensure that these are not overlooked.
- 3.5.2 The dynamics of a motorcycle are very different to that of a four-wheeled vehicle and therefore it is important to consider the following factors when undertaking Road Safety Audits:
- The line taken by a motorcyclist through a bend or a junction may differ from that taken by other road users, and should therefore be free from items which may reduce skid resistance (such as service covers and gully gratings)
 - Road markings should be laid to the relevant skid-resistant specification as they may become slippery when wet
 - The requirement for a clear zone around bends (free from unprotected street furniture and sign clutter and occupied by safety barriers which are motorcycle-friendly).
 - The potential for unpredictable surface irregularities in the form of poor surface 'tie-ins', badly designed or poorly located traffic calming features, areas likely to retain surface detritus and poorly designed drainage provision
 - The awareness of the importance of consistent skid resistance.
- 3.5.3 ***The Motorcycle Safety Action Plan will ensure that issues of concern to motorcyclists are considered in all road safety audits undertaken on Ireland's roads and that the outcomes of these audits are monitored.***

²⁵ Stage F – Route Selection Stage, prior to route choice, Stage 1 – Completion of preliminary design prior to land acquisition procedures, Stage 2 – Completion of detailed design, prior to tender of construction contract, and Stage 3 – Completion of construction (prior to opening of the scheme to traffic wherever possible)

4 Equipment and Technology

4.1 Overview

4.1.1 This chapter considers aspects of motorcycle design and the technology available to improve safety for motorcyclists and includes the following sections:

- Vehicle design
- Protective clothing
- Visibility and daylight running lights
- Fuel Spillages

4.2 Vehicle design and Testing

Motorcycle Design

- 4.2.2 Good machine design can reduce injuries. The European Motorcycle Accident In Depth Study (MAIDS report), which investigated collisions involving motorcyclists in five European Countries, focused on collating data from collisions relating to the physical design of the vehicle(s) involved in the collision as well as contributory factors and the resultant casualties of the collision. The Advisory Group on Motorcycling (AGM)²⁶ considered that the results of this research could provide useful insights and supporting information on the main areas to improve safety.
- 4.2.3 A safety rating system, similar to that used for new cars (EuroNCAP), could be a useful tool providing the consumer with information regarding the safety of individual vehicle designs.
- 4.2.4 From June 1999, new motorcycle types or models became subject to a new system of 'European Whole Vehicle Type Approval' (EWVTA) which:
- Harmonised construction requirements and standards throughout the EU and;
 - Requires independent approval and verification through government agencies
- 4.2.5 Successful braking without losing control is often more difficult for motorcyclists than for drivers of four wheeled vehicles, due to the former being more difficult to balance, and because such vehicles often have separate rear and front brake controls²⁷
- 4.2.6 In a special study on the role of braking in collisions, Sporer²⁸, used a sample of 502 injury collisions in 2001-2002 in Germany. It was estimated that between 10-15 collisions may have been avoided, and a further 30 would have resulted in less serious injuries if the rider had been able to use an anti locking brake system (ABS), as use of such brakes was considered to have reduced collision speeds and lessened the risk of loss of control. However the introduction of anti-lock braking systems on motorcycles which can help improve stability of the vehicle has been restricted due to cost.
- 4.2.7 ***The Motorcycle Safety Action Plan will support European initiatives to improve motorcycle design and braking systems***

Motorcycle Testing

- 4.2.8 Currently, motorcycles are not required to be tested in an scheme equivalent to the National Car Test, NCT.

²⁶ source: <http://www.dft.gov.uk/pgr/roadsafety/drs/cyclingandmotorcycling/sorygrouponmotorcyclingf4638.pdf>

²⁷ source: ERSO website: Powered Two Wheelers - Use of Powered Two Wheelers

²⁸ source: ERSO website: Powered Two Wheelers – Prevention of Accidents – Braking a PTW

4.2.9 Most car failures in the NCT are for maladjusted headlights. Anecdotal evidence suggests that many modified bikes may have inadequate lighting. This is of particular relevance given that 32% of all motorcyclist fatalities occur during the hours of darkness.

4.2.10 *The Motorcycle Safety Action Plan supports the introduction of an NCT type initiative for motorcycles.*

Car Design

4.2.11 Changes in car design can have had a positive impact on occupant safety. However, in some cases, the impact on the safety of motorcyclists has been called into question. One particular aspect of car design which has affected the safety of motorcyclists is the increased width of the windscreen pillars which has enlarged a driver's blind spot. This problem is particularly concerning at junctions where traffic merges making cyclists and motorcyclists temporarily invisible to car drivers.

4.2.12 A broader potential problem is the increase in the use of vehicles with an increased height bonnets (Sports Utility Vehicles) and greater mass. Although the sales of these vehicles is possibly in decline at present (since oil prices have become higher and more volatile), the RTA research literature shows that collisions involving SUVs cause more deaths and serious injuries among pedestrians and cyclists as well as drivers and occupants of smaller vehicles²⁹. It is also likely that such designs will have a negative impact on the severity of injuries sustained by motorcyclists involved in such collisions³⁰.

4.2.13 In recent years there has been a tendency for some car manufacturers to incorporate concentric circular lamps in rear light clusters with rear lights and brake lights surrounding the indicator lamp. At night, and particularly when it is raining, the amber indicator lamp is masked by the surrounding glare of the red rear or brake lights. This makes it difficult for following vehicles to interpret a driver's actions and puts motorcyclists (and other vehicles) at risk when considering a passing manoeuvre of the slower vehicle.

4.2.14 Window tinting can reduce a driver's visibility in certain driving environments and this has the potential to decrease road safety. The loss of any potential eye contact between the driver of window tinted vehicles and other road users represents a safety risk. This is particularly the case for motorcyclists (and cyclists) who depend more than other car drivers on making eye contact with the driver.

4.2.15 *The Motorcycle Safety Action Plan aims to follow-up research into the impact of the use of larger vehicles, the impact of thicker windscreen pillars, the possible hazards of rear light clustering arrangements in car design and the use of tinted windows on motorcyclist safety, prior to formulating policy on this aspect of car design.*

4.3 Protective Clothing

4.3.1 Helmets are designed to reduce the likelihood of head injury when a motorcyclist is involved in a collision, and the wearing of items of protective clothing such as heavy boots, leathers and gloves can lessen the severity of contact injuries (such as scratches and skin damage), and therefore should be encouraged. The defensive riding mindset begins when the rider puts on protective clothing. This mind-set, along with appropriate PPE, training, etc. is what protects the rider on the road.

²⁹ See for instance DE Lefler & HG Gabler (2004) in Accident Analysis and Prevention: 36, 295-304, 'The fatality and injury risk of light truck impacts with pedestrians in the United States'.

³⁰ Note that at present SUVs are classified as cars on collision database, which means that no statistical data can be provided about trends in crashes involving these vehicles.

- 4.3.2 On the basis of four studies, Elvik & Vaa³¹ estimated the effectiveness of protective clothing in reducing injuries, and concluded that the use of protective clothing reduces the probability of minor injury in a collision by 33-50%. This applies to the use of gloves, boots and clothing. Thus, it may be concluded that protective clothing may offer some degree of protection to motorcyclists in the event of a collision.
- 4.3.3 *The Motorcycle Action Plan will encourage retailers, trainers and user-groups to recognise and promote the importance of wearing protective clothing to help to reduce the seriousness of injury.***
- 4.3.4 *The Motorcycle Safety Action Plan will endeavour to produce changes in Road Traffic legislation to allow Gardaí to prosecute riders who are not appropriately dressed – (e.g. in shorts and sandals).***
- 4.3.5 *The Motorcycle Action Plan proposes the removal of VAT on approved high visibility clothing, upper and lower body protective clothing and boots and gloves.***
- 4.3.6 Based on a study of injuries sustained by motorcyclists in the Strathclyde region of Scotland³², the Transport Research Laboratory estimated that improvements in helmet design could reduce motorcyclist fatalities in Great Britain by 20%. The UK has led a European research project to improve the minimum standards of helmets and visors. A new safety rating system for helmets has been successfully launched there.
- 4.3.7 Further studies support this, and indicate that head injuries would have been much more frequent if helmets had not been worn³³.
- 4.3.8 VAT on items is subject to European Union regulation. VAT is chargeable on the purchase of motorcycles, security equipment, training, protective clothing and replacement helmet visors. It is not chargeable on motorcycle helmets in the UK however it is charged at 21.5% in Ireland³⁴.
- 4.3.9 *The Motorcycle Safety Action Plan will support the enforcement of helmet wearing among all motorcyclists.***
- 4.3.10 *The Motorcycle Safety Action Plan will support the reduction of VAT charges on motorcycle helmets to encourage motorcyclists to wear appropriate protective helmets.***

4.4 Visibility/ daytime running lights

- 4.4.1 Motorcyclists may be more difficult to see because of their relatively small frontal area (compared to cars and other vehicles),³⁵ which could reduce safety for these vulnerable road users. Indeed, 68% of collisions in Ireland in the last three years occurred during daylight hours when visibility was good.
- 4.4.2 Two means by which the conspicuity of motorcyclist may be improved include the wearing of high visibility clothing, and the use of daytime running lights by motorcyclists.

High visibility clothing

- 4.4.3 The recent surveys commissioned by the Road Safety Authority and conducted across the Irish Republic have reported high visibility clothing wearing rates of approximately 40% by motorcyclists. It is notable however that there are significant variations between the larger cities where wearing rates are higher and regional

³¹ ERSO website

³² Tomorrow's Roads - Safer for Everyone, 2007. UK Department for Transport

³³ ERSO website

³⁴ Conversation with the Motorcycle Action Group in Ireland on 26 Nov 2008

³⁵ IHIE Guidelines for Motorcycling

towns where rates are substantially lower. In addition the surveys have identified that, on average, almost 50% of high visibility clothing is obscured, for example by a "back-pack".

4.4.4 *The Motorcycle Safety Action Plan will seek to address the variation in wearing rates and improve overall rates, especially outside the larger cities and to reduce the incidence of obscured high visibility clothing.*

4.4.5 *The Motorcycle Action Plan proposes the introduction of regulations for the mandatory wearing of high visibility upper body clothing with full sleeves for rider and pillion passenger.*

Daytime running lights (DRL)

4.4.6 Some EU Member States have mandatory requirements for motorcyclists to use dipped beam lamps while other countries have mandatory provisions for all vehicles. The European Commission has decided to introduce dedicated Daytime Running Lights (DRLs) on all new types of motor vehicles from the year 2011 onwards³⁶.

4.4.7 The use of dipped headlights by motorcyclists can help to improve the conspicuity of motorcyclists during the day time, but this cannot always be seen to be the case.³⁷

4.4.8 The effects of headlights and reflective/fluorescent clothing in practice have been studied in a case control study in New Zealand with 463 collision cases from 1993-1995 and 1,233 controls. The relative collision rate was corrected for other factors such as age and experience of the rider and found to be 27% lower for motorcycles with the headlight on during daytime and 37% lower for riders with reflective or fluorescent clothing.³⁸

4.4.9 Bijleveld used collision statistics from Austria and calculated a saving of 35% of collisions between car and motorcycle during daylight after the introduction of compulsory use of headlights by motorcyclists (compared to a situation with 0% use)³⁹, which suggests that this practice could improve safety for motorcyclists.

4.4.10 *The Motorcycle Safety Action Plan will seek to continually monitor the assessment of safety benefits of daytime running lights for motorcyclists and will liaise with user group representatives and manufacturers to gather evidence for and against the introduction of such measures in the Irish Republic.*

4.5 Fuel spillages

4.5.1 In March 2000, the EC Fuel Tank Directive was amended with new measures aimed at reducing fuel spillages. The role of fuel spillages in motorcycle collisions requires further investigation; however there is continuing concern amongst motorcyclists regarding the effect that these spillages have on increasing the potential for loss of control.

4.5.2 The UK is working with the 'Kill Spills' organisation responsible for an annual award scheme recognising companies that seek to minimise fuel spillages. 'Kill Spills' has reported a reduction in the number of spillage collisions but this may be due to awareness and not less spillage. The organisation has produced leaflets warning of the potential dangers of fuel spillages and these have been widely distributed.

³⁶ http://www.rsa.ie/NEWS/News/Daytime_running_lights.html The RSA ran a campaign on DRL in October 2008, in the run-up to the bank holiday weekend.

³⁷ ERSO website: cites several cases with varying results.

³⁸ ERSO website

³⁹ http://www.erso.eu/knowledge/content/45_poweredtowheelers/conspicuity_devices.htm

4.5.3 *The Motorcycle Safety Action Plan will seek to ensure that the safety implications of fuel spillages for motorcyclists are well publicised.*

5 Enforcement

5.1 Overview

- 5.1.1 In order to be effective, enforcement needs to be intelligence-led and targeted. It should be consistent and transparent so as to achieve the most satisfactory result; proportionate to the risks to individuals, property and the degree of seriousness of the offence, and if effectively and consistently applied may ultimately change road user behaviour and attitudes. A key measure of success in enforcement is achieving increased levels of compliance with road traffic law⁴⁰.
- 5.1.2 The Penalty Points System has been introduced in stages in the Republic since October 2002⁴¹, with the aim of influencing and improving the behaviour of all drivers. There are currently 41 penalty point offences,⁴² broadly grouped into five categories (speeding, insurance, careless driving, national car testing and seatbelt violations). Of these, all but the last category are applicable to motorcyclists.
- 5.1.3 This chapter considers several aspects of enforcement, namely:
- Speed Issues
 - Alcohol and Drug Impairment
 - Licensing issues
 - Motor tax evasion
 - Uninsured Riders
 - Persistent Offenders

5.2 Speed Issues

- 5.2.1 The Road Safety Strategy has set out speed limit compliance related targets which have been derived from a review of compliance levels in best practice countries in the EU. Based on the results of the RSA Free Speed Survey 2006 and international practice, is the aim to increase compliance with speed limits on urban national roads (of 50km/h) from 18% to 60% or better by 2012.
- 5.2.2 Up until 2008 the free speed surveys, carried out annually by the NRA and subsequently the RSA, did not include motorcyclists. The 2008 surveys did not exclude motorcyclists. However the methodology used did not target motorcyclists specifically. Therefore the sample size for motorcyclists is small and it is not possible to draw firm conclusions about the levels of compliance with speed limits by motorcyclists.
- 5.2.3 ***The Motorcycle Safety Action Plan will research best practice in order to identify viable survey methods to record and report motorcycle speeds and hence quantify and assess the level of non-compliance.***
- 5.2.4 ***The Motorcycle Safety Action Plan will support the undertaking of speed surveys at known motorcyclist collision sites where speed was known to be a contributory factor, and to implement measures to address this as appropriate.***
- 5.2.5 A study performed by ICF Consulting prior to the EU enlargement in 2004⁴³ suggested that good enforcement practices could prevent 5,800 road deaths resulting annually from speeding across the EU countries.

⁴⁰ Road Safety Strategy 2007-2012

⁴¹ Governed by the Road Traffic Act 2002

⁴² website: www.citizeninformation.ie

⁴³ Best Practices in Road Safety – Handbook for Measures at Euro Level, 2007 Supreme.

http://ec.europa.eu/transport/roadsafety_library/publications/supreme_d_handbook_for_measures_at_the_european_level.pdf

5.2.6 Intelligent Speed Adaptation (ISA) ISA is a general term for a mechanism which aims to increase speed limit compliance through raising awareness of the speed limit, and physically restricting the speed of the vehicle if necessary. A recent report produced by the University of Leeds⁴⁴ predicted that ISA can have a large effect on future collision numbers and particularly on the more severe crashes. However this report did not focus on motorcycles.

5.2.7 *The Motorcycle Action Plan will review research into this new technology as it emerges, and will take particular interest in its compatibility with motorcycles.*

5.3 Alcohol and Drugs Impairment

5.3.1 Irish Research⁴⁵ indicates that almost one in three⁴⁶ drivers / riders involved in fatal road collisions in 2003, where alcohol was a factor, were motorcyclists. This figure is marginally higher than in Australia and Finland where alcohol is a factor in 25% of fatal crashes⁴⁷.

5.3.2 In addition, the average age of a motorcyclist killed in an alcohol-involved collision in Ireland in 2003 was only 31 years: six years younger than the average age of killed car-drivers. In July 2006 Mandatory Alcohol Testing (MAT) was introduced in Ireland, and it has become a criminal offence to refuse to provide a sample⁴⁸.

5.3.3 *The Motorcycle Safety Action Plan supports the reduction of the legal BAC for drivers and will encourage the targeting of motorcyclists in any national or local campaigns to discourage drink-driving, and in any enforcement activities.*

5.3.4 Further and more reliable statistics on the incidence of drink/drug riding are needed, as is further examination of the toxicology reports of road traffic collision victims.

5.3.5 *The Motorcycle Safety Action Plan will seek to improve the recording and monitoring of motorcyclist collisions resulting from excess alcohol or drug intoxication.*

5.4 Licensing Issues

5.4.1 From 1 July 2008, under legislation passed as part of the 'Graduated Driver Licensing System', learner motorcyclists are required to display an 'L' plate to give greater awareness to other vehicles that the rider is a learner driver and extra caution should be exercised. The newly introduced legislation also makes it an offence for a learner permit holder to carry a passenger on a motorcycle.

5.4.2 In addition, learner drivers (of vehicles other than motorcycles) are no longer permitted to drive unaccompanied. The collision analysis revealed that the trend in the number of motorcyclists injured each year in collisions involving unaccompanied learner drivers of other vehicles is decreasing. In 2006, 59 motorcyclists were injured by unaccompanied learner drivers compared to 157 in 2002.

5.4.3 Thus, it may be concluded that this change in legislation is having a positive effect on motorcyclist safety.

⁴⁴ Speed Limit Adherence and its Effect on Road Safety and Climate Change, October 2008, University of Leeds.

⁴⁵ Road Safety Strategy, 2007-2012

⁴⁶ 27%

⁴⁷ Alcohol in Fatal Road Crashes in Ireland in 2003. Population Health Directorate, Health Service Executive October 2006.

<http://www.rsa.ie/publication/publication/upload/Alcohol%20In%20Fatal%20Road%20Crashes%20in%20Ireland%202003.pdf>

⁴⁸ Rules of the Road 2007 RSA

- 5.4.4 ***The Motorcycle Safety Action Plan requires the rigorous enforcement of new legislation with regard to unaccompanied learner drivers and learner riders carrying passengers.***

5.5 Motor tax evasion

- 5.5.1 Motor tax statistics indicate that there is around 25% evasion amongst motorcyclists in the UK⁴⁹, and it is possible that riders with a propensity for such violations may also be more likely to be a danger to themselves (through being less likely to maintain their vehicle?) and others (through increased potential for behavioural violations such as speeding?). Evasion of motor tax has always been significantly higher for motorcycles than most other classes of vehicle⁵⁰.
- 5.5.2 For comparison, it should be noted that in the UK, Continuous Registration (CR) was introduced to help reduce motor tax evasion. Under CR all sellers including dealers should ask for proof of identification to satisfy themselves that the buyer is who they claim to be. Continuous Registration was designed to encourage vehicle keepers to notify DVLA immediately of any changes in keepership and to penalise those who were late in relicensing their vehicles or those who delayed relicensing. Intensive media campaigns were used to highlight the changes in the rules of motor tax evasion.
- 5.5.3 ***The Motorcycle Safety Action Plan will seek to quantify the level of motor tax evasion in Ireland initially, and to review this prior to formulating further actions with regard to improving safety for motorcyclists.***

5.6 Uninsured riding

- 5.6.1 These recommendations for responding to uninsured riding can be categorised into four main groups:
- Education and publicity
 - Data accuracy
 - Procedures and products
 - Legislation and sanctions
- 5.6.2 ***The Motorcycle Safety Action Plan will support publicity and enforcement aimed at young male riders and those in other rider categories (e.g. “born-again” bikers) to increase awareness of the consequences of riding whilst uninsured and will work closely with the insurance industry to ensure an efficient exchange of information relating to uninsured vehicles⁵¹.***

5.7 Persistent Offenders

- 5.7.1 An Garda Síochána play a crucial role in encouraging safer driving through strict enforcement and their visible presence can act as a deterrent to those drivers who overlook their responsibilities on the road.
- 5.7.2 As well as the obvious dangers caused by careless or reckless driving, riders who exceed the speed limit or drive in a dangerous manner can be particularly intimidating to other vulnerable road users.

⁴⁹ Interim Report of the Advisory Group on Motorcycling

⁵⁰ The Government's Motorcycle Strategy 2005, UK DfT

⁵¹ It is understood from conversations with Sergeant Gavin Dunphy (on Wed 21/Jan/2009) in the Garda National Traffic Bureau, that it is not possible to acquire information on the numbers of uninsured *motorcyclists* that received charges, summonses or fixed charge penalties for uninsured vehicles in a given year. The numbers available are not broken down per vehicle type. Figures relating to motor tax evasion are not kept by An Garda Síochána but need to be sought from the Revenue Commissioners.

- 5.7.3 There should be an emphasis on securing compliance through education, encouragement and advice. Pre-court interventions such as 'Rider Improvement Schemes' provide an opportunity to direct offenders towards formal training.
- 5.7.4 ***The Motorcycle Safety Action Plan will seek to encourage enforcement which specifically addresses those drivers who persistently offend.***
- 5.7.5 ***The Motorcycle Safety Action Plan will support the establishment of a post-conviction training programme for persistent offenders and motorcyclists convicted of drunk and drugged riding. This will be done in consultation with An Garda Síochána and the Courts Service.***

6 Education, Encouragement and Promotion

6.1 Overview

- 6.1.1 The promotion of road safety through education, encouragement and promotion helps to ensure that a wide variety of road-user groups are targeted. The Motorcycle Safety Action Plan aims to target those road users affected by collisions involving motorcyclists (most often car drivers) as well as motorcyclists themselves.
- 6.1.2 This chapter examines
- Education through rider testing and training
 - Encouragement and Promotion through targeted publicity campaigns to raise awareness

6.2 Rider testing and Training

- 6.2.1 Motorcycles are less stable, less visible, and have different braking systems to those of other vehicles, and so may be potentially more dangerous for young, inexperienced road users to ride safely. In addition, they are likely to be cheaper to purchase and run than cars, making them more attractive to younger road users. There is therefore a need for specialist rider training and testing for motorcyclists.
- 6.2.2 The Road Safety Authority set itself a target to be met within the period of the Road Safety Strategy 2007-2012 which involves ensuring that 100% of all new learner permit holders in the motorcycle category undertake the compulsory basic training, and to maintain this thereafter. The compulsory training scheme developed by the Road Safety Authority for novice motorcyclists in Ireland will involve Approved Driving Instructors giving specialist training in line with an agreed syllabus to novice riders.
- 6.2.3 Specific measures with regard to training and testing of motorcyclists can include the following.⁵²
- *To improve training and testing for all learner drivers*
 - *To provide guidance for people returning to motorcycling after a break*
 - *To ensure the quality of instruction*
 - *To help drivers become more aware of the vulnerability of motorcyclists”*
- 6.2.4 The number of motorcyclist casualties aged between 25 and 59 has shown a steady increase in Ireland between 2002 and 2006, and so the development of training for returning motorcyclists may be particularly relevant here.
- 6.2.5 Although not specifically targeted at a particular age group, ‘BikeSafe’ is an initiative operated by police forces working in partnership with the motorcycling community to reduce motorcyclist casualties. Low cost assessment rides and rider skills workshops are offered to motorcyclist across the country via the BikeSafe website. ***The Motorcycle Safety Action Plan will seek to achieve and maintain a level of 100% participation in a programme of Compulsory Basic Training by motorcyclists***
- 6.2.6 ***The Motorcycle Safety Action Plan will support the promotion of the voluntary sector in the provision of high quality rider training.***
- 6.2.7 ***The Motorcycle Safety Action Plan will support the establishment of a nationally recognised post-test or advanced riding standard, to be developed in consultation with key stakeholders including training organisations and An Garda Síochána.***

⁵² Based on those in Road Safety Strategy (Tomorrow’s Roads – Safer for Everyone (2000)

- 6.2.8** *The Motorcycle Safety Action Plan will work towards the establishment of FETAC⁵³ accreditation for both motorcycle training courses (beginner, test standard and advanced) and motorcycle instructor training courses.*
- 6.2.9** Currently no difference is made between motorcyclist casualties occurring whilst working (such as food delivery agents or couriers) and those travelling for non-work purposes, and so the relative likelihood of involvement in a collision cannot be quantified.
- 6.2.10** *The Motorcycle Safety Action Plan will support the development of Work Related Vehicle Safety⁵⁴ (WRVS) practices to promote safer riding by commercial riders.*

Motorcycle Maintenance on CBT Courses

- 6.2.11** The fundamentals of motorcycle maintenance should be explained and demonstrated during CBT. This could be supported by a workshop type roadshow / promotions / competitions, at the annual motorcycle show, big bike racing events, etc.
- 6.2.12** *The Motorcycle Safety Action Plan will support the further development of and participation in motorcycle maintenance courses.*

6.3 Encouragement and Promotion

- 6.3.1** Publicity and other campaigns can be used to raise awareness of issues specific to the safety of motorcyclists, and could be considered to fall broadly into two categories:
- Those aimed at motorcyclists
 - Those aimed at other road users likely to **encounter motorcyclists**

Campaigns Aimed at Motorcyclists

- 6.3.2** *Between 1997 and 2006, 40% of motorcyclist fatalities were single vehicle collisions⁵⁵ and so the need for specific campaigns targeting motorcyclists themselves is vital.*
- 6.3.3** Motorcyclists in Ireland have been shown to be more likely to be involved in collisions at weekends and during the warmer months, with casualty and fatality rates highest in males aged between 17 and 39. Thus, the effectiveness of campaigns may be increased if campaigns are aimed at this age group.
- 6.3.4** *The Motorcycle Safety Action Plan will focus on campaigns which match the profile of known casualty groups and seasonal trends.*
- 6.3.5** It may also be beneficial in influencing rider behaviour and in encouraging them ride more carefully to raise awareness of particular locations where collisions involving motorcyclists have occurred, and of the types of locations which are of particular risk to motorcyclists (such as sharp bends). The introduction of signage/information may prove to be beneficial.
- 6.3.6** *The Motorcycle Safety Action Plan will support the introduction of campaigns which aim to raise awareness of areas where collisions involving motorcyclists have occurred.*

⁵³ the Further Education and Training Awards Council – www.fetac.ie

⁵⁴ WRVS includes "Workplace Transport Safety" (defined as the Management of hazards and risks associated with any vehicle or piece of mobile equipment that is used by an employer, employee, self-employed person or visitor in a work setting) and "Work Related Road Safety" (defined as the Management of hazards and risks to persons engaged in or affected by work-related driving or work activities on or near a road. From a presentation given by Ms. Deirdre Sinnott McFeat, HSA, on Work Related Vehicle Safety on 25/March 2009.

⁵⁵ Table 16, Motorcyclist Road Collision Casualties 1997-2006

- 6.3.7** *The Motorcycle Safety Action Plan will continue to support existing campaigns to promote safer riding practices including hazard perception*

Campaigns Aimed at Other Road Users Likely to Encounter Motorcyclists

- 6.3.8 It is crucial that all road users are made aware of the presence, behaviour, needs and vulnerability of motorcyclists. The behaviour of the two road user groups cannot be treated in isolation, however, as the non-standard behaviour of motorcyclists (faster acceleration and overtaking, driving on the offside in queuing traffic) may be unexpected to other road users.
- 6.3.9 Ensuring that the message is successfully reaching the target group is critical and one UK local authority has sought to draw attention to the likely presence of motorcyclists and their status as vulnerable road users through the distribution of leaflets at petrol stations (locations where other vehicles congregate).
- 6.3.10 An Garda Síochána can play an important role in the dissemination of information relating to road safety and the possible consequences of dangerous driving as they come into contact with road users in the course of their work. Possible activities could include the passing of information to cautioned riders and drivers on the dangers and potential consequences of poor driving/ riding practices.
- 6.3.11** *The Motorcycle Safety Action Plan will support the inclusion of motorcyclists awareness elements in campaigns aimed at all road users.*
- 6.3.12** *The Motorcycle Safety Action Plan will welcome innovative avenues for the dissemination of publicity materials aimed at reducing motorcyclist casualties.*

7 Monitoring, Evaluation and Review

7.1 Introduction

- 7.1.1 The Motorcycle Safety Action Plan will have a limited shelf-life. Its contents are based upon contemporary research using data that are currently available in Ireland and findings of published studies world-wide. However, the area of road safety in general is continually evolving. Additional data relating to travel patterns, collisions and road user behaviour is being collected and analysed providing a greater understanding.
- 7.1.2 As part of this Action Plan actions regarding monitoring, evaluation and review must be put in place to prepare for the next strategy.
- 7.1.3 **Monitoring** is needed to ensure that existing data gathering processes are continued to ensure robust time-series datasets can be assembled and trends plotted and analysed. In addition, data gathering processes should be improved to include other important factual information which may help to give a deeper insight into safety issues.
- 7.1.4 **Evaluation** is needed to assess carefully the effectiveness of actions. Therefore, where possible, the costs and outcomes of policies, campaigns and schemes currently being applied, or due to be applied, as part of this Action Plan should be assessed and conclusions drawn.
- 7.1.5 Finally, informed by the monitoring and evaluation and by inevitable future changes in government policy due to wider influences it will be necessary to revisit and **review** the Action Plan in future years.

7.2 Monitoring

Collision And Casualty Data Collection

- 7.2.2 The RSA acknowledges the importance of effective monitoring of progress towards defined targets, the review of actions, and the evaluation of the effectiveness of specific measures, in order that the priority of the components of the Action Plan may be revised over time to best meet a changing need.
- 7.2.3 Key to this is the recording of relevant and accurate collision and casualty data, and the RSA will seek to work with An Garda Síochána and other agencies with a view to improving collision recording.
- 7.2.4 ***The Motorcycle Safety Action Plan will support the work of An Garda Síochána and local authorities in improving the detail, accuracy and reliability of motorcyclist collision and casualty data.***
- 7.2.5 The involvement in collisions by riders of different types and sizes of motorcycle or moped is known to vary, and yet there is currently no means by which comparative rates can be assessed in the Republic of Ireland. Obtaining this knowledge would assist in the more appropriate targeting of training and publicity resources towards those who likely to benefit most.
- 7.2.6 Detailed crash statistics will be vital in informing future policy. Besides age, machine capacity and type, cooperation will be needed from local authorities and insurance companies in building up a profile of the *prior training* received by those killed in motorcycle crashes. Since there is, on average only 40 incidents annually, this information should be easily collectable. The Irish Insurance Federation should be

contacted on an annual basis to capture statistics on injuries suffered by and caused by uninsured motorcyclists.

- 7.2.7 Statistical analysis of injuries suffered. The benefits of such future analyses can inform future policy in the context of car design, road design, the use of personal protective equipment and rider training. This could be performed in association with the HSE.
- 7.2.8 It is understood⁵⁶ that it is not possible to acquire information on the numbers of uninsured *motorcyclists* that received charges, summonses or fixed charge penalties for uninsured vehicles in a given year. The numbers available are not broken down per vehicle type. Figures relating to motor tax evasion are not kept by An Garda Síochána but need to be sought from the Revenue Commissioners.
- 7.2.9 *The Motorcycle Safety Action Plan will support moves to improve casualty data collection to include information on the engine size of motorcycles involved in collisions and to include information on uninsured riding and motor tax evasion.***

Rider Performance

- 7.2.10 It will be important to obtain accurate information on the number of riders who complete Compulsory Basic Training (CBT) and other driver training/ testing
- 7.2.11 ***The Action Plan will seek to obtain accurate information on the number of riders who complete Compulsory Basic Training (CBT) and other driver training / testing***

7.3 Evaluation

- 7.3.1 The Action Plan will also encourage Local Authorities to collate information on road lengths by road class, in order to calculate the relative collision rates and the effective identification, targeting and monitoring of links with above-average motorcyclist collision rates.
- 7.3.2 The Action Plan will also encourage Local Authorities, through the preparation and publishing of annual Road Safety Plans, to undertake 'before and after' studies of schemes implemented, in order to build a local, data-led database for identifying the range of measures most likely to be effective in reducing motorcycle casualties and injuries within the Irish road environment.
- 7.3.3 With regard to speed and alcohol-related collisions, the Action Plan will seek to improve the linking of details of these incidents to the collision records in order to improve analysis capabilities and ease of monitoring of the effectiveness of enforcement campaigns.
- 7.3.4 The collision analysis indicated that the majority of motorcycle collisions occurred on two way single carriageway roads, but this is to be expected, as the majority of roads are likely to be in this category. However, the number of motorcycle fatalities on two-way single carriageways was increasing until a dramatic drop in 2006.
- 7.3.5 *The Action Plan will seek to undertake further analyses of this dramatic decrease using detailed collision data. The aim of these analyses would be to identify contributory factors and to sustain the decrease.***

7.4 Review and Further Consultation

- 7.4.1 The Motorcycle Safety Action Plan is a working document, designed to adapt and change in response to feedback from ongoing work on the Action Plan, as well as

⁵⁶ See footnote #56.

from external influences such as new technological advances, the results of research and the implementation of new legislation.

- 7.4.2 It is very important for there to be ongoing consultation on the Motorcycle Safety Action Plan with rider groups, motoring organisations, motorcycle industry representatives, An Garda Síochána and other bodies. The Action Plan must be accepted by all stakeholders and for there to be shared ownership of it.
- 7.4.3 ***The RSA will seek to continually monitor the outcome of national and international research and new innovations in international best practice, in order to ensure that these are incorporated into the action plan for the benefit of motorcyclist casualty reduction.***
- 7.4.4 ***The performance towards targets for casualty reduction, and the review of the characteristics and numbers of collisions and casualties among motorcyclists will be undertaken and published annually, in order to identify and react to emerging trends in a timely manner.***

8 Targets

8.1 Overview

- 8.1.1 The four primary aims of the Motorcycle Safety Action Plan have been identified as follows:
- To reduce the number of motorcycle fatalities;
 - To reducing the total number of motorcycle casualties (minor, serious).
 - To reducing the number of motorcycle casualties expressed as proportion of total road casualties.
 - To reduce the number of casualties in built up areas
- 8.1.2 In so doing, the successful implementation of this Action Plan will contribute to the success of the Road Safety Strategy in achieving measurable safety improvements in Ireland over the period 2007-2012.
- 8.1.3 A wide range of complementary actions and methods to achieve motorcycle casualty savings are set out in this Motorcycle Safety Action Plan. It focuses on methods for reducing motorcycle casualties by concentrating on measures to improve:
- Road design and maintenance
 - Education and training
 - Motorcycle equipment
 - Enforcement
 - Evaluation
- 8.1.4 All of the above are known to be key factors in influencing motorcycle casualty numbers and severity.
- 8.1.5 It is planned that the setting out of a co-ordinated, multi-dimensional strategy, directed towards the identified areas of greatest concern will help us contribute to achievement of national casualty reduction targets, and motorcycle casualty targets specifically.
- 8.1.6 This Action Plan covers the period 2009-2012, and the overall targets have been set in accordance with World Health Organisation /EU-wide target of: **a reduction in road deaths by 50% by the year 2010 from a base of 2001**. This target has then been adjusted appropriately for the timescale of this Action Plan.
- 8.1.7 Furthermore, injury targets have been set in accordance with the RSA Road Safety Strategy 2007-2012 target of: 25% reduction in injuries (from the baseline average of 2004-06) to 2012.
- 8.1.8 The targets arrived at in the following sections are deemed to be challenging but realistic based on current and recent trends. Graphical representations of the targets, along with the methods of calculation for each, are included in Appendix B.

8.2 Specific Targets

Reducing Motorcycle Fatalities

- 8.2.1 Fatalities have been increasing gradually since 1998 with the exception of 2006. An ambitious target of a 57% in the reduction in motorcycling fatalities has been set in order to ensure that the wider EU target is achieved within the lifetime of this Action Plan.

SPECIFIC TARGET

- *To reduce the number of motorcycle fatalities by 57% (or better), from a base of the 2004-2006 average of 46 per annum, to 20 by 2012.*
- and
- *To reduce the number of motorcycle fatalities, expressed as per 10,000 registered motorcycles, by 57% from a base of the 2004 – 2006 average of 14 per annum to 6 per annum by 2012.*

Reducing Motorcycle Injuries

- 8.2.2 Ireland's target for injuries of all road users is to achieve a 25% reduction in overall injuries by 2012. This target is supported in the Motorcycle Safety Action Plan at a level of 25%. The number of motorcycle injuries has been declining approximately linearly since 2000 and if this trend continues the target of reducing the 2004-2006 average of 558 to 419 is challenging but achievable.

SPECIFIC TARGET

- *To reduce the number of injuries by 25% (or better) by the year 2012, from a base of the 2004-2006 average of 558 motorcycle injuries per annum to 419⁵⁷ NOTE THAT IT WAS 410 IN 2007.*
- and
- *To reduce the number of motorcycle injuries, expressed as per 10,000 registered motorcycles, by 25% (or better) from a base of the 2004 – 2006 average of 150 to 95 per annum by 2012.*

Reducing Motorcycle Casualties in Built-up Areas

- 8.2.3 Currently, 71% of motorcycle casualties in Ireland occur on roads in a 'built-up' environment, and so the potential for reducing casualties through the implementation of targeted road safety engineering measures, street lighting improvements, and crossing provision and upgrades would be expected to be high.

SPECIFIC TARGET

- *To reduce the number of casualties occurring in built up areas by 30% (or better) by the year 2012, from a base of the 2004 -2006 average of 372 motorcycle casualties per annum to 260 per annum.*

Visibility

- 8.2.4 The Action Plan encourages high visibility enforcement in locations where there are known motorcycle collision issues.

⁵⁷ Note: In 2007 there were 410 motorcycle injuries which was significantly different compared to the previous 3 year average of 558 injuries.

SPECIFIC TARGET

To improve surveyed wearing rates of high visibility clothing to 75% overall.
To reduce surveyed rate of obscured high visibility clothing to 25% overall.

9 Action Plan

- 9.1.1 A hierarchical table of specific actions linked to each of the five areas of Engineering, Equipment, Enforcement, Education and Evaluation is presented on the pages which follow.
- 9.1.2 The implementation of the Motorcycle Safety Action Plan will be overseen and monitored by the Road Safety Authority through the Road Safety Strategy.

Table 9.1: Action Plan : Primary Actions

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
1. (1)	<p>This Action Plan seeks to reduce the proportion, number and severity of motorcyclist casualties occurring on Ireland's Roads by 2012 through co-ordinated and multi-disciplinary programmes relating to Engineering, Equipment, Enforcement, Education and Evaluation as follows:</p> <ul style="list-style-type: none"> ▪ To reduce the number of motorcyclist fatalities by 57% or better, from a base of the 2004-2006 average of 46 to 20 by 2012 ▪ To reduce the proportion of motorcyclist fatalities from the 2004-2006 base of 12%, to 7% or better by 2012 ▪ To reduce the number of motorcyclist injuries by 25% or better by the year 2012, from a base of the 2004-2006 average of 558 motorcyclist injuries per annum to 419. 				

National Motorcycle Safety Action Plan

Table 9.2: Action Plan : Engineering, Traffic Management and Planning

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
Roads Planning and Design / Road Safety Engineering					
2.	Review and update Irish Road Design Standards, Traffic Management Guidelines, and Codes of Practice for Highway Maintenance Management so that they reflect the most current and considered thinking and advice on motorcycle safety.				
3.	Liaise and work with professional institutes (such as Engineers Ireland) and universities to ensure that roads and traffic engineering courses reflect best international practice / current thinking on safe designs and policies for motorcyclists.				
4.	Continue to ensure, through the Road Safety Auditing processes, that issues concerning motorcyclist safety are considered and incorporated into the design of safety and road improvement schemes. Consider the proposal that for larger schemes or those likely to attract significant numbers of motorcyclists, the audit team includes a member who is either a motorcyclist or has particular knowledge of motorcyclist safety issues.				
5.	Review the existing standards of retro-reflectivity and skid resistance of road markings, with particular consideration for motorcyclists. Refer to best international practice and revise as necessary.				

National Motorcycle Safety Action Plan

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
6.	Identify locations with high frequencies of motorcyclist collisions and implement improvement measures to improve motorcyclist safety.				
7.	Review the operation and layout of signal controlled, crossroads and complex junction layouts with a known motorcyclist collision record.				
8.	Work with Local Authorities to identify locations within built-up areas suitable for implementation of 30kph speed limits.				
9.	Design and implement street lighting improvement schemes in identified locations (or locations with similar characteristics to those) at which collisions involving motorcyclists have occurred.				
10. (52)	Implement 80 safety remedial schemes per annum on national roads with priority given to schemes which maximise collision saving potential for motorcyclists (in addition to those for other vulnerable road users, such as pedestrians).				
11. (53)	Put in place remedial schemes at identified motorcyclist collision locations on non-national roads – the number of schemes per annum dependent on the size of the local authority.				

National Motorcycle Safety Action Plan

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
Roads Maintenance					
12.	Coordinate the establishment of a reporting system in all local authorities whereby motorcyclists (and other road users) can alert the appropriate authority to the presence of safety issues such as potholes. This could be through promoting an "1800 number" and / or an email address through the motorcycling community.				
13.	Work with the relevant authorities to ensure that all man-hole covers provided on public roads have at least the minimum "polished skid resistance value".				
14.	Work with the relevant authorities to ensure that the appropriate structures, procedures and funds are in place to carry out regular and proactive street inspections in order to provide a rapid response to rectify blocked gullies giving rise to ponding and to repair street lighting.				

National Motorcycle Safety Action Plan

Safety Barriers, Motorcycles in Bus Lanes, Motorcycles in Advanced Stop Boxes					
15.	Continue to monitor emerging research on crash barriers and motorcyclist safety. Review existing design guidance and consider issuing interim guidance on crash barrier design (as suggested in Eurorap report of 2008 ⁵⁸).				
16.	Continue to monitor the results of ongoing and future studies (in Ireland and internationally) into the benefits and costs of motorcyclists using bus lanes. Revise, if appropriate, the current policy position.				
17.	Review future trials and the results of studies into the shared use (with bicycles) of advanced stop lines by motorcycles.				

⁵⁸ http://www.eurorap.org/library/pdfs/20081202_Bikers.PDF. Summary on Page 4

National Motorcycle Safety Action Plan

Table 9.3: Action Plan: Equipment and Technology

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
Vehicle Design and Testing					
18.	Monitor and support EU initiatives to improve motorcycle design and braking systems.				
19.	Introduce an NCT equivalent for Motorcycles.				
20.	Monitor and review existing and emerging research into the impact of the use of larger vehicles (such as Sports Utility Vehicles) on motorcyclist safety – and the safety of other vulnerable road users prior to formulating a policy on this aspect of car design.				
21.	Monitor and review existing and emerging research into the impact of thicker windscreen pillars, the use of tinted windows and possible hazards of rear light clustering arrangements in car design on motorcyclist safety, prior to formulating a policy on this aspect of car design.				
Protective Clothing					
22.	Continue to support the enforcement of helmet wearing among all motorcyclists. (See also the sections below on enforcement and education)				
23.	Support the reduction / removal of VAT on motorcycle				

National Motorcycle Safety Action Plan

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
	helmets so as to further encourage motorcyclists to wear them.				
24.	Support collaborative initiatives by user groups, trainers and motorcycle (equipment) retailers promoting the correct fitting of helmets.				
25.	Monitor future research on safety helmet design and introduce, as appropriate, new technical standards for helmets which would protect motorcyclists better.				
26.	Consider the introduction of a Safety Helmet Assessment and Rating Programme that reflects the performance of each helmet model following a series of advanced laboratory tests and rates helmets from 1-5 stars ⁵⁹ .				
27.	Re-examine current and emerging research on safety visors with a view to formulating legislation which would prohibit the use of visors that transmit less than 50% of visible light ⁶⁰ .				

⁵⁹ <http://sharp.direct.gov.uk/> SHARP is the Safety Helmet Assessment and Rating Programme - it's the new helmet safety scheme for motorcyclists. The SHARP website enables riders to more easily select a helmet which matches their needs. It provides consumers with an independent assessment of the safety performance of helmets sold in the UK. The SHARP RATING reflects the performance of each helmet model following a series of advanced laboratory tests and rates helmets from 1-5 stars.

⁶⁰ <http://www.dft.gov.uk/pgr/roads/vehicles/vssafety/motorcyclehelmetsvisorsandgo4563?page=3>

Motorcycle helmets, visors and goggles - useful information: "Visors that transmit less than 50% of visible light do not fully comply with any of the standards above and can not legally be used on the road." Need paragraph in main body of strategy (plus Technical Report – Literature Review chapter) so that this isn't the first time the reader encounters this point.

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Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
28.	Support the reduction / removal of VAT on approved high visibility clothing, upper and lower body protective clothing and boots and gloves so as to further encourage motorcyclists to wear them.				
29.	Amend Road Traffic Legislation to allow Gardaí to prosecute riders who are not appropriately dressed (e.g. in shorts and sandals).				
30.	Introduce regulations for the mandatory wearing of sleeved high visibility upper body clothing for rider and pillion passenger.				
Visibility / Daylight running lights					
31.	Provide high visibility vests to motorcyclists through promotional efforts with a special focus on regional towns.				
32.	Promote the importance of not obscuring high visibility clothing. Encourage the use of rear-racks or panniers or other means in order to ensure high visibility, especially when viewed from the rear.				
33.	Monitor ongoing and future research into the safety benefits of daylight running lights for motorcyclists, and liaise with user group representatives and other bodies who are for and against the introduction of such practices in Ireland.				
34.	Monitor ongoing and future research into the safety				

National Motorcycle Safety Action Plan

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
	(dis-) benefits of the use of coloured headlamps on motorcycles.				
Fuel Spillages					
35.	Work with the relevant bodies, including the media, to publicise the safety implications of fuel spillages with special attention for motorcyclists.				

National Motorcycle Safety Action Plan

Table 9.4: Action Plan : Enforcement

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
Speed Issues					
36.	Research best practice in order to identify viable survey methods to record and report motorcycle speeds and hence quantify and assess the level of non-compliance.				
37.	Support the undertaking of speed surveys at known motorcyclist collision sites where speed was known to be a contributory factor, and support the implementation of measures to address these – such as a programme of installing vehicle activated speed signs to reduce vehicle speeds at these sites and other sites with high motorcyclist activity.				
38. (26)	Implement a Safety Camera Network which will achieve enforcement, to include the monitoring of motorcycles, in the region of 6,000 hours per month.				
39. (34)	Prepare and publish technical/engineering guidance for setting local speed limits paying particular attention to motorcyclist safety issues.				

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Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
Alcohol/ Drugs Impairment					
40.	Support tougher penalties for motorcyclists (and all drivers) involved in collisions whilst under the influence.				
41.	Seek to improve the recording and monitoring of motorcyclist collisions resulting from excess alcohol or drug intoxication.				
42.	Examine the locations of where motorcyclist deaths and injuries have occurred with a view to increasing the frequency at which random breath testing occurs.				
43.	Design and implement programmes of compulsory re-training for motorcyclists convicted of speed or alcohol-impaired offences.				
Licensing Issues, Vehicle Excise Duty Evasion and Other Driving Offences					
44.	Require the enforcement of new legislation which makes it illegal for learner riders to carry passengers.				
45.	Commission a study to quantify the level of motor tax evasion, and review this prior to formulating further actions with regard to improving safety for motorcyclists.				
46.	Provide or support the provision of publicity aimed at young male riders and other categories of riders (such				

National Motorcycle Safety Action Plan

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
	as those returning to motorcycling) to increase awareness of the consequences of riding whilst uninsured.				
47.	Work closely with the insurance industry to ensure an efficient exchange of information on uninsured vehicles.				
48.	Encourage enforcement which specifically addresses those drivers who persistently offend.				
49.	Establish a post-conviction training programme for persistent offenders and motorcyclists convicted of drunk riding.				

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Table 9.5: Action Plan : Education, Encouragement and Promotion

Action No. (RSS Action)	Measure or Action	Lead Department of Agency	Support Department or Agency	Responsibility	Completion Date
Rider Testing and Training					
50.	Work with the relevant bodies to maintain a level of 100% participation in a programme of compulsory basic training by motorcyclists.				
51.	Promote the participation of the voluntary sector in the provision of high quality rider training.				
52.	Establish a Nationally recognised post-test or advanced riding standard, to be developed in consultation with key stakeholders including training organisations.				
53.	Establish FETAC accreditation for both motorcycle training courses and motorcycle instructor training courses.				
54.	Work with the relevant bodies to develop a comprehensive programme of post-test rider improvement training courses, and particularly those geared towards returning-motorcyclists.				
55.	Liaise with insurance companies and other relevant bodies to promote the provision of discounted insurance for riders undertaking post-test training.				
56.	Address the needs of older riders through, for example, (i) the promotion of voluntary participation in refresher				

National Motorcycle Safety Action Plan

	courses and (ii) compulsory refresher courses for licensed riders who are unable to demonstrate that they have ridden regularly within the preceding 5 year period.				
57.	Develop and support the development of Work Related Vehicle Safety practices to promote safer riding by commercial riders.				
58.	Support the further development of and participation in motorcycle maintenance courses.				
59.	Increase the hazard perception element in learner permit driver training programmes, to specifically include motorcyclist awareness.				
Education					
60.	Work in collaboration with the Department of Education and Science (DoE&S) and the National Council for Curriculum and Assessment (NCAA) to ensure that the development and implementation of a road safety programme for schools as part of Transition Year contains a significant motorcyclist safety element.				
61.	Work in partnership with sporting organisations and community groups to implement community-based road safety programmes which include an element of motorcyclist safety.				
Publicity, Promotion and Dissemination of Information					
62.	Implement an annual programme of co-ordinated				

National Motorcycle Safety Action Plan

	nationwide (multi-) media/ publicity campaigns aimed at motorcyclists which directly target the main motorcyclist factors of motorcyclist collisions, and the most vulnerable groups				
63.	Implement an annual programme of co-ordinated nationwide (multi-) media/publicity campaigns for drivers which indirectly address the main causal factors in motorcyclist collisions, such as alcohol impairment, speeding and unsafe behaviour <i>towards motorcyclists</i> .				
64.	Develop and support nationwide and multi-media campaigns which match the profile of known casualty groups and seasonal trends.				
65.	Continue to participate in national campaigns to provide high visibility wear to motorcyclists, supported by media campaigns to increase wearing rates.				
66.	Undertake a review of the effectiveness of the participation in national campaigns.				
67.	Ensure that safety materials are available in formats and locations which are accessible to target groups of motorcyclists such as young people.				
68.	Ensure awareness of the effects of speed on the likelihood and severity of collisions through inclusion in Driver Theory Tests.				
69.	Undertake a review of road collisions involving motorcyclists and including ethnic groups in such collisions.				

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Road User Attitudes					
70.	Seek to identify means by which driver attitudes and behaviour towards motorcyclists can be modified to increase consideration, and compliance with traffic laws, particularly with regard to speeding and yielding appropriate priority to motorcyclists at junctions				
Communication					
71.	Set up a national forum for Road Safety Officers through which information and experience may be shared on the subject of motorcyclist safety.				
72.	Engage road users through consultation in order to identify the key safety concerns and problems experienced by motorcyclists.				

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Table 9.6: Action Plan : Monitoring, Evaluation and Review

Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
73.	Ensure that the development of a research capability within the RSA includes a specific focus on the causes of motorcyclist collisions, and the effectiveness of measures in reducing such collisions				
74.	Support the Road Safety Strategy in working with An Garda Síochána and local authorities in improving the detail, accuracy and reliability of motorcyclist and casualty data. This could include information on the engine size of motorcycles involved in collisions and information on uninsured riding and vehicle excise duty evasion. This will allow for a more comprehensive analysis of the causes and circumstances of motorcyclist collisions to be met.				
75.	Establish a system to obtain information on the number of riders who complete Compulsary Basic Training and other training / testing.				
76.	Set up a national database to enable monitoring of the effectiveness of schemes that were implemented for the primary purpose of improving motorcyclist safety, and make this available to local authorities and other roads authorities.				

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Action No. (RSS Action)	Measure or Action	Lead Department or Agency	Support Department or Agency	Responsibility	Completion Date
77.	Identify which factor(s) contributed to the dramatic decrease in motorcyclist fatalities on two-way single carriage roads in 2006 ⁶¹ .				
78.	Assist Local Authorities in the setting of local targets for motorcyclist casualty reduction through their Road Safety Plans, and monitor progress towards targets through analysis of the national collision database.				

⁶¹ The collision analysis indicated that the majority of motorcycle collisions occurred on two way single carriageway roads, but this is to be expected, as the majority of roads are likely to be in this category. However, the number of motorcycle fatalities on two-way single carriageways was increasing until a dramatic drop in 2006.

Appendix A – Critical Success Factors

1. Political Commitment

In January 2006 the Taoiseach set up a Cabinet Level Committee on Road Safety chaired by the Minister for Transport and attended by five other Ministers, their supporting officials, the Attorney General, Garda Commissioner and the CEO of the RSA. This structure mirrors political arrangements in best practice countries.

2. Policy Implementation and Collaboration

The RSA is now the primary organisation responsible for advising and evaluating road safety policy. The Advisory Panel to the RSA consists of knowledgeable and experienced road safety practitioners who provide advice and support in prioritising and evaluating policy actions.

3. Garda Traffic Corps

The Gardaí established the Garda Traffic Corps, with the supporting command structure, equipment and resources. The Traffic Corps, dependent on the resourcing of the Medical Bureau of Road Safety (MBRS), ensures the necessary enforcement capacity to achieve increased compliance with road traffic law.

4. Legislation

A significant strengthening of the legislative framework for road safety, including measures such as increased penalties, court fines, disqualification periods and MAT are now in place.

5. Funding

Dedicated funding is available for the work of the RSA, NRA and the Garda Traffic Corps. This brings together the funding for critical road safety interventions over the lifetime of the Strategy. It facilitates best practice in service delivery, transparency in resource allocation and enables quality evaluation.

6. On-going Consultation Process

Building on the success of the initial consultations, the RSA has committed to an on-going consultation process with key stakeholders and other interested road safety practitioners during the implementation of the Strategy.

7. Public Support

Public support for the work of the RSA is measured through attitudinal surveys which demonstrate that 9 out of 10 are in favour of having more enforcement of traffic laws. 9 out of 10 of those surveyed also agreed that penalties for drink driving should be much more severe.⁸

8 Road Engineering

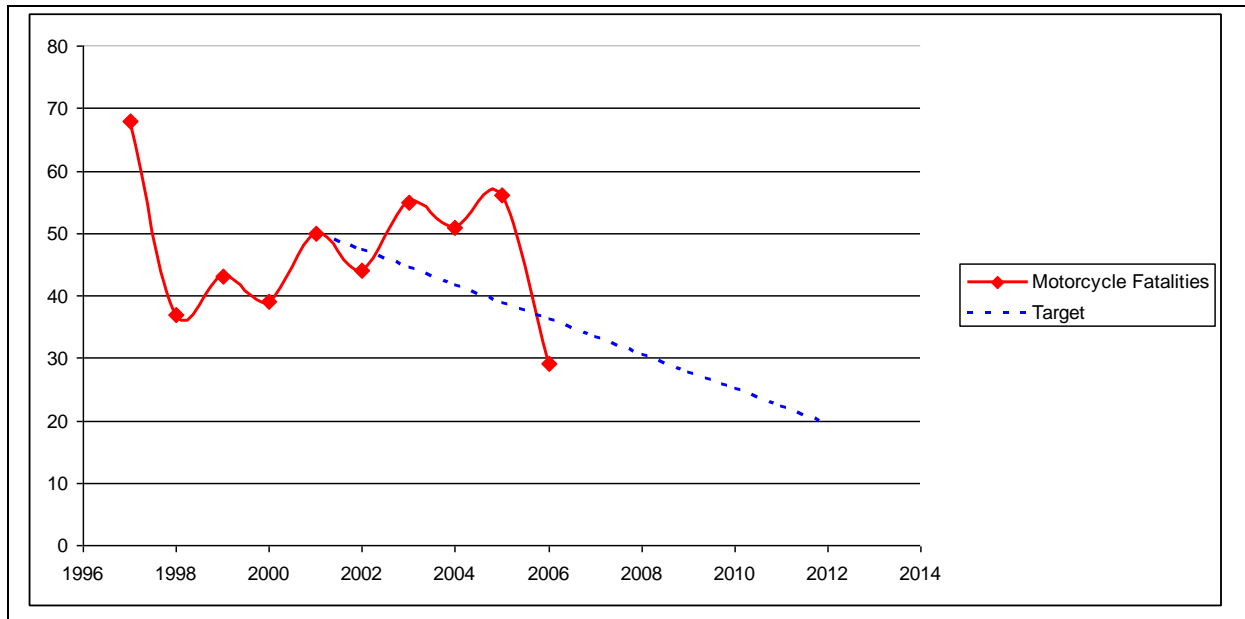
Significant investment has gone into building new roads / motorways and improving existing roads to make them measurably safer and more user-friendly.

9. Media Support

The print, broadcast and electronic media play a critical role in communicating road safety issues and maintaining road safety as a priority social issue in this country.

Appendix B – Derivation of Targets

Figure B 1: Target for the reduction in motorcycle fatalities by 2012



Based on the 2004-2006 average.

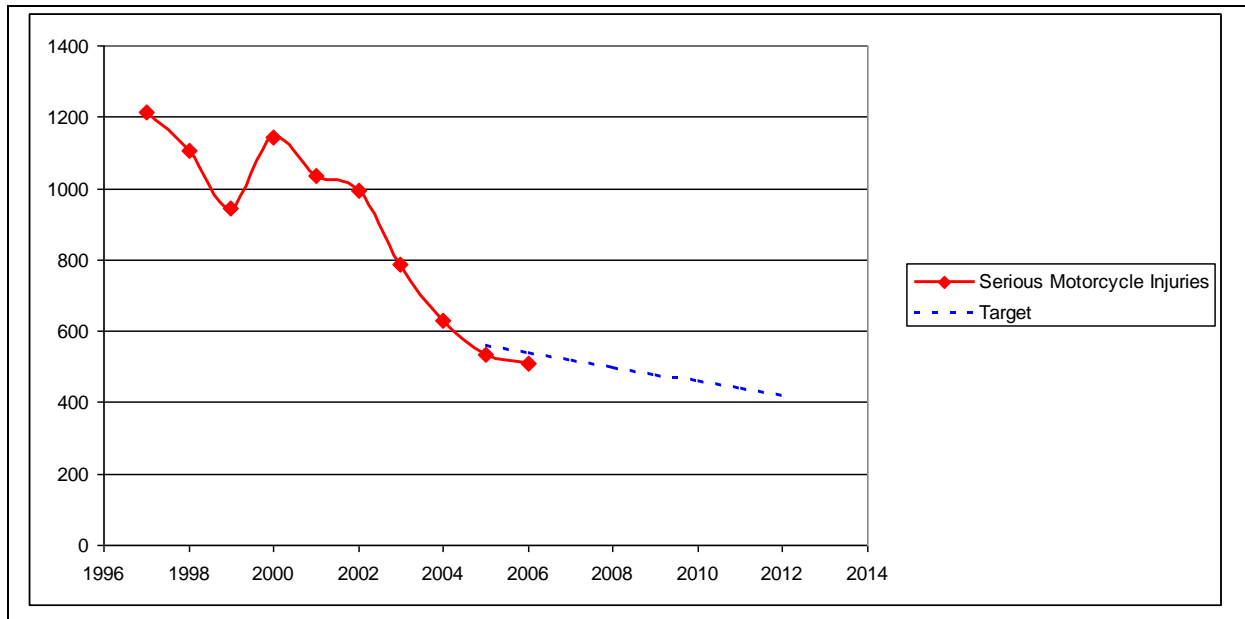
Year	Motorcycle Fatalities	Target
1997	68	
1998	37	
1999	43	
2000	39	
2001	50	50.00
2002	44	47.22
2003	55	44.44
2004	51	41.67
2005	56	38.89
2006	29	36.11
2007		33.33
2008		30.56
2009		27.78
2010		25.00 EU Target
2011		22.22
2012		19.44

Target is based on a baseline of 2001, with a 50% reduction by 2010

This has been projected forward to produce a target for 2012 of a reduction in motorcycle fatalities to 20

This represents a 57% reduction in motorcycle fatalities from the 2004-2006 baseline of 46

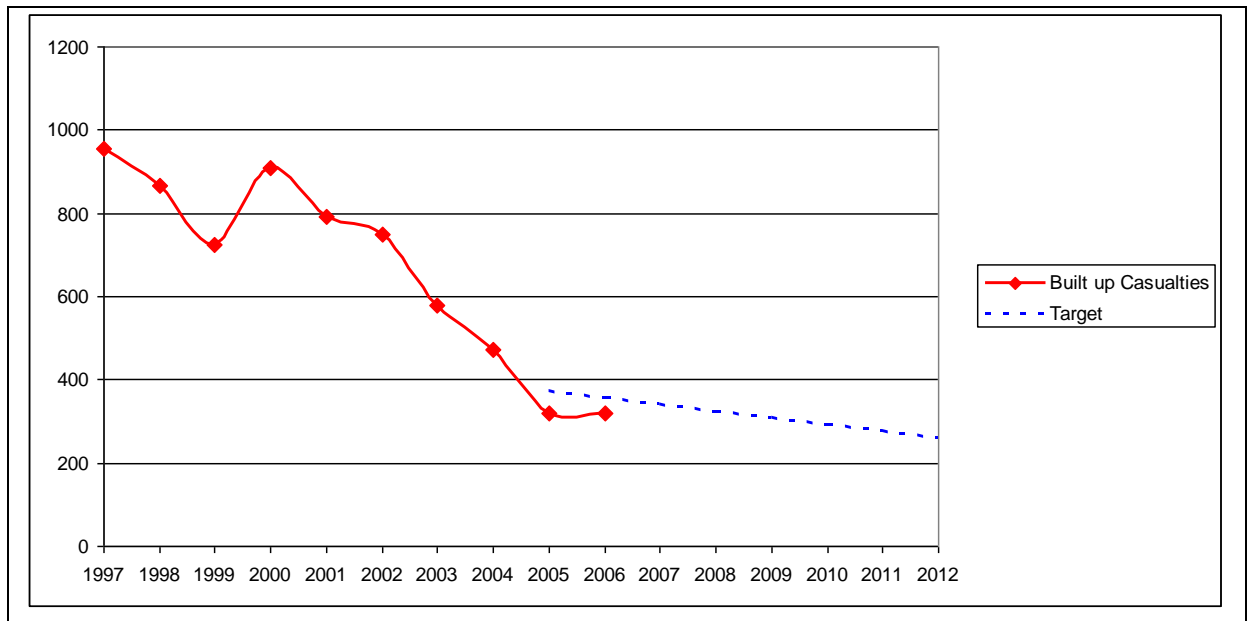
Figure B 2: Target for the reduction in serious motorcycle injuries by 2012



Based on 2004 – 2006 baseline.

Year	Motorcycle Injuries	Target
1997	1215	
1998	1104	
1999	945	
2000	1143	
2001	1037	
2002	994	
2003	786	
2004	630	
2005	535	557.67
2006	508	537.79
2007		517.90
2008		498.02
2009		478.14
2010		458.26
2011		438.38
2012		418.50 National Target
2004-2006 average		558
25% reduction by 2012 :		419

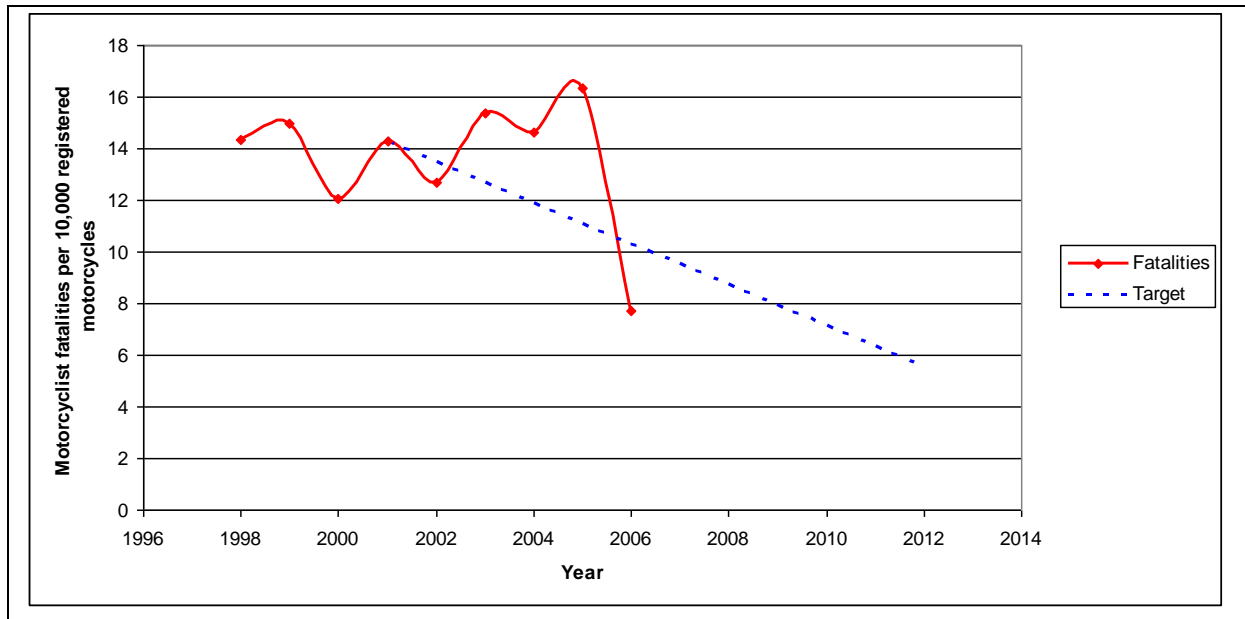
Figure B 3: 30% Reduction in motorcycle casualties in built up areas



Year	Built up Casualties	Target
1997	955	
1998	867	
1999	725	
2000	910	
2001	792	
2002	749	
2003	579	
2004	472	
2005	321	371.33
2006	321	355.32
2007		339.31
2008		323.30
2009		307.29
2010		291.28
2011		275.27
2012		259.26

2004-2006 average **371.33**
Target 30% reduction by 2012 **260**

Figure B 4: Target for the reduction in motorcycle fatalities by 2012 per 10,000 registered motorcycles



Based on the 2004-2006 average.

Year	Motorcycle Fatalities	Target
1998	14	
1999	15	
2000	12	
2001	14	14
2002	13	13
2003	15	13
2004	15	12
2005	16	11
2006	8	10
2007		10
2008		9
2009		8
2010		7 EU Target
2011		6
2012		6

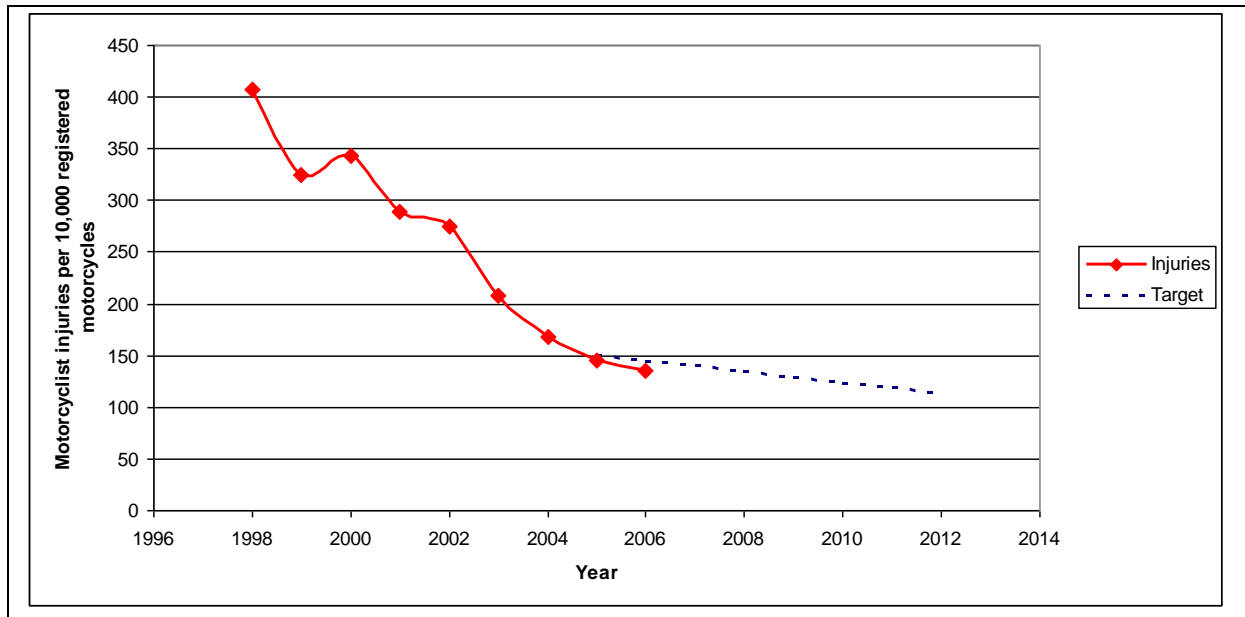
Target is based on a baseline of 2001, with a 50% reduction by 2010

This has been projected forward to produce a target for

2012 of a reduction in motorcycle fatalities to 6

This represents a 57% reduction in motorcycle fatalities from the 2004-2006 baseline of 14

Figure B 5: Target for the reduction in motorcycle injuries by 2012 per 10,000 registered motorcycles



Based on 2004 – 2006 baseline.

Year	Motorcycle Injuries	Target
1998	408	
1999	325	
2000	343	
2001	289	
2002	275	
2003	208	
2004	168	
2005	145	150
2006	135	144
2007		139
2008		134
2009		128
2010		123
2011		118
2012		113 National Target
2004-2006 average		150
25% reduction by 2012 :		113

Working To Save Lives

Údarás Um Shábháilteacht Ar Bhóithre
Road Safety Authority

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