

2006 International Motorcycle Safety Conference

“The Human Element”

IHIE GUIDELINES FOR MOTORCYCLING

- Improving safety through engineering and integration.

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INCORPORATED ENGINEERS**



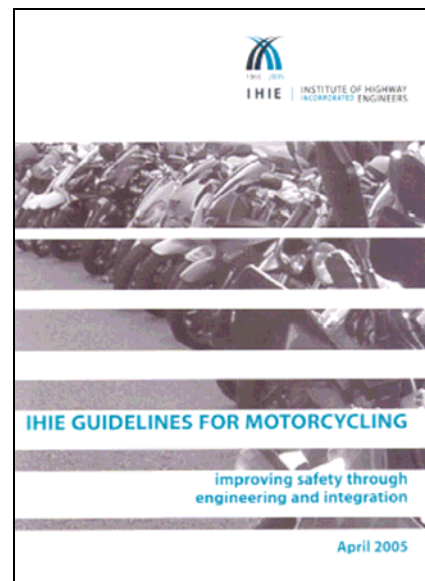
Abstract

IHIE Guidelines for Motorcycling - Improving safety through engineering and integration.

The Guidelines, which are a first in the UK, aim to assist highway and traffic engineers in developing a safer and more motorcycle friendly road environment. Drawing on the combined expertise of engineers, road safety officers and motorcyclists, the Guidelines build on the Government's motorcycling strategy and demonstrate the role motorcycling can play in an integrated transport system.

The Guidelines cover a number of essential topics

- Policy
- Travel Plans
- Road Design
- Road Maintenance
- Parking provision for motorcycles
- Road Safety Campaigns
- Traffic Calming
- Road Safety Audit.



The accompanying CD Rom contains additional resources and includes most of the referenced reports from the UK, Europe and Australia.

IHIE is the professional qualifying institution for incorporated engineers and technicians in highways, traffic, transport and construction, delivering sustainable transport for the UK.

An expert steering group led by IHIE Vice President Tony Sharp with Scott Wilson as editorial consultants compiled the Guidelines.

The innovative nature of the guidelines and their potential to save lives and reduce injury were recently recognised with a Prince Michael International Road Safety Award.

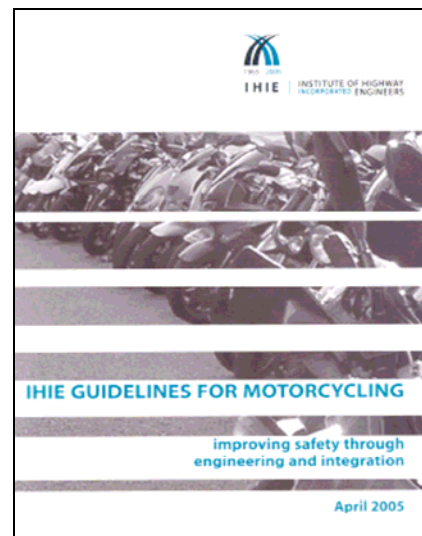
IHIE Guidelines for Motorcycling - Improving safety through engineering and integration.

It was against the significant increase in use of motorcycles (and accidents) that IHIE believed it necessary to produce comprehensive practical guidance on providing a safer and more friendly road environment for motorcycles, mopeds and scooters. The IHIE Guidelines for Motorcycling, *'Improving safety through engineering and integration'*, were launched in April 2005

The Guidelines, which are a first in the UK, drew on the combined expertise of engineers, road safety officers and motorcyclists and give local authority engineers, road safety officers and transport planners, their consultants and contractors, practical advice on how the different characteristics of motorcycling can be recognized and addressed. The Guidelines build on the UK Government's motorcycling strategy, and demonstrate the role motorcycling can play in an integrated transport system

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Motorcycling in a UK context

Throughout the Guidelines we refer to the term 'Motorcycles' but such a term covers mopeds, Scooters through to the largest sports and touring machines. And if nothing else 'Motorcycles' is easier to say than Powered Two Wheelers (or PTW's)!

Motorcycles have been a feature of our roads for well over a hundred years. During that time they have served as a basic mode of transport, an economical alternative to the car, a workhorse and even a lifestyle icon. Their popularity has risen and fallen in concert with a number of diverse social and economic factors.

Motorcycling has always been an inexpensive, environmentally friendly and effective means of transport especially so on today's congested highway networks. At a time when Central and Local Government is wrestling with the problems of increased private car ownership and increased congestion Motorcycles can provide a viable means of congestion and pollution busting transport to many, especially on journeys over, say 5 miles.

Motorcycling also provides, as it has for decades, many with immense pleasure as a leisure activity. It is not a minority interest there are More than 26 million motorcycles in use across Europe, over 1½ million of them in the UK, and it makes a significant contribution financially in Industry, jobs, tourism and tax revenues. (ACEM, 2005)

Recent years have seen an upturn in the popularity of motorcycling, bringing the benefits and dis-benefits of the mode into sharp relief, the most obvious of the latter being safety. In the UK there has been a significant increase in the registration of motorcycles over the last 5- 10 years. The 500cc+ class has seen the most increases but, unfortunately, we have also seen a significant increase in the numbers of motorcycle riders killed and seriously injured. (DfT, 2004a)

The UK governments headline targets for casualty reductions of a 40% in killed and seriously injured over ten years (based on a 1994 – 98 baseline) (DfT, 2000) are on course for all other categories except those for motorcycles, which are increasing. (DfT, 2004b)

A key measure of safety, casualty rates – rider exposure to risk, has, however, shown year on year improvement, falling by 26.7% since 1993.

There are no current targets for casualty rates, but if we use the 94-98 baselines we can see that had they existed, PTW rates would have fallen by 18.1%. The casualty rate fell by 14.6% between 2002 and 2003 alone. Fatality rates have remained essentially constant since 1993 at approx 12% motorcycles. (DfT, 2004c)

However, it is important to remember that those services provided by the motorcycle for over a century are still valid and that being a vulnerable mode is not the same as being an undesirable one.

The UK Government published its motorcycling strategy at the start of 2005 (the first such national strategy in Europe);

The Strategy's central theme being –

' to Facilitate motorcycling as a choice of travel within a safe and sustainable transport framework' (DfT,, 2005)

The strategy identified an absence in specific guidance for highway engineers involved in the design, maintaining and management of the highway network. The IHIE guidelines were designed to complement the Government's strategy and to help raise awareness of practical works that engineers can undertake.

New Highway design and construction largely relies on technical design manuals that in turn are often based on rules set out in statute. Such technical guidelines help engineers focus on specific areas of design and allows them to develop further solutions. A point ably demonstrated if we consider the provision for another vulnerable group of road users, cyclists. Cycle provision is now well covered by such technical guidelines and this has gone some way to the almost uniform consideration of cyclists in the design and maintenance of highways and the significant increase in provision.

There is, however, very little published material for Motorcycle provision for highway engineers to go on. In recent years in the UK there was the MCIA Smart Guide, (MCIA,2000) and the previously unpublished 1999 TRL report 581 'Motorcycle Safety a scoping Study' (Elliot et Al, 1999)

In addition there has been published work on the subject of motorcycle safety in France (The 'SETRA' Guidelines), Norway ('NPRA' Manual) and Australia (The 'AUSTROAD' Guidelines) and the subsequent Motorcycle Notes by Vicroads, the state highway authority for Victoria.

But few of these documents are likely to be known to mainstream engineers and they are unlikely to hunt them out, so if we are to address the subject there is a need for such guidelines!

So who was involved in the Guidelines? An editorial group was established with backing being received from Department for Transport; British Motorcyclists Federation; County Surveyors Society; Transport for London; The Highway Agency and the MotorCycle Industry Association.

As a first stage a scoping study for the guidelines was undertaken by the TRL. (Tilly, Webster & Greenshields, 2004) This involved a literature search of the TRL database and a web based questionnaire to establish target audience and preferred content. This gave us a number of subjects that we could combine under common headings and I'd like to very briefly look at these subject headings.

Chapter 1 Introduction

This is a general chapter which is likely to be read by main policy makers and as such it highlights the significant contribution that motorcycles can make in reducing traffic congestion. It highlights how they can provide mobility for those at a social disadvantage not served by public transport.

But as we are all aware there has been an increase in accidents involving motorcycles and the chapter puts the number of motorcycle accidents into context against increased registrations. It also gives a general indication of the causes for such accidents.

Chapter 2 Policy

All modes of transport have strengths and weaknesses; good practice SHOULD demand, however, the framing and implementation of policies that maximise the strengths and minimise the weaknesses.

Motorcycles have long provided a legitimate, cost-effective and relatively low-polluting form of transport, for commuting, work or leisure purposes. There has been an increase of 45% in the number of licensed motorcycles in the ten years from 1993 to 2002 (DfT, 2003) and, if the experience seen in London following the introduction of congestion charging (where motorcycle traffic grew by 12% yet accidents have fallen) (TfL, 2005) is repeated in other cities, coupled with increasing fuel costs, this growth can be expected to continue.

It also appears that increasing affluence, particularly amongst 30-45 year old males has resulted in them buying motorcycles for leisure purposes. Increased interest in the development of Travel Plans provides opportunities for influencing the role that such 'leisure' motorcycles can play.

Riders of motorcycles are susceptible to serious injury, even in low-speed collisions, yet the specific safety needs of motorcycles with their reliance on an adequate and consistent friction between their tyres and the road surface, are frequently overlooked by policy makers, planners, road designers and maintenance engineers.

The UK Government, by publishing its Motorcycle Strategy has made a promising start by 'mainstreaming' motorcycling. But a significant element of delivering improvements will lie with Local Highway Authorities (who control approx 95% of the roads in the UK) and in particular the next round of Local Transport Plans. (Such plans are the main source of funding for local highway authorities in the UK) Central Government has previously highlighted the role that motorcycles can make in the guidance to such local transport plans. The first full guidance for local transport plans in 2000 made significant steps on including motorcycles (DETR 1999). Unfortunately the

Guidance on the 2nd round of Local Transport Plans (LTP2), which covered Local Transport Plans from 2006, in keeping with less target specific measures, lost much valuable detail. It did, however, acknowledge the increase in motorcycle and the part that motorcycles can play in delivering 3 of the 4 key targets for LTP2; **Congestion; Accessibility** and **Air Quality** . (DfT, 2005)

IHIE support the UK Government's line NOT to be prescriptive in including Motorcycles in LTP2 submissions (which will last for 5 years). The guidelines encourage local authorities to involve users and establish specific motorcycle strategies instead of focusing, as unfortunately for too many local authority do, on the 4th LTP2 Key Target **Road Safety**.

A good example of how policy for motorcycling can address other local authorities concerns is the *Wheels 2 Work* Scheme.

This seeks to provide a solution to transport barriers, with schemes offering individuals their own transport solutions for a short period, until a longer term solution can be found. Solutions offered include loan of mopeds, power assisted bikes and in some cases help to meet car running costs. It provides access to independent affordable transport for those living in areas where public transport links are poor and breaks the transport chain where without a job someone (especially the young) cannot afford to buy a car or motorcycle and without a vehicle of their own they cannot travel to work or take part in working life. There are now more than 50 *Wheels 2 Work* schemes in the UK.

A *Wheels 2 work* toolkit to help more local authorities set up such schemes has been devised and has now been launched to assist those wishing to establish such schemes. (Cadby, 2005)

Chapter 3 Travel Plans

A Travel Plan focuses on encouraging modal shift, to discourage reliance on the single occupancy private car by improving options for travel to the workplace and encourage wider use of sustainable transport. This is often achieved by introducing a combination of incentives and disincentives to persuade and support people in the use of alternative commuter modes.

Increasingly Local Authorities are requiring Travel Plans to be submitted alongside planning applications for developments that are likely to have a significant impact on transport. Tailored to each individual organisation, Travel Plans are an efficient way of managing commuter journeys and business travel and where parking space is at a premium.

Subsidised public transport, Car sharing and cycle facilities are often promoted in such travel plans yet Motorcycles can offer similar benefits to cycle usage but for greater distance of travel more than 5 miles where commuters are unlikely to opt for cycling.

When including motorcycles (and indeed cycles) in travel plans items to consider should include Safe, secure parking; Changing Facilities and Accessibility to the site and Safety. Successful Motorcycle Travel Planners include

Orange Mobile phones in Bristol; Pfizer Pharmaceuticals in Kent; Vodafone in West Berks and Gatwick Airport.

As a specific example of a successful travel plan I'd like to consider GCHQ, Cheltenham. In September 2003, GCHQ moved to new headquarters that replaced more than 50 buildings in and around Cheltenham. As part of its travel plan GCHQ is encouraging more staff to use other forms of transport other than the single occupied private motorcar. Even when finished the new site will see a significant reduction in parking spaces (about 15%) and the centralising of so many offices on one site has, inevitably, led to some traffic delays. Approx 15% of its 4 ½ thousand employees cycle and at least 5% use motorbikes (This is increasing as the benefits of motorcycles become more widely known) In association with Gloucester County Council

motorcycle safety coordinator *Bikesafe* rider assessments were promoted at the site and those cycling and motorcycling benefit from secure, preferential parking; Lockers and showers and the option of an interest free loan to purchase machines and equipment.

All of this work has led to GCHQ winning Ride to work day Motorcycle Friendly Employer award 2004. (Hinds, 2005)

Chapter 4 Road Design and Traffic Engineering

Many of the current highway and traffic engineering practices are suitable for all road-user groups but the particular dynamic stability needs of the motorcycle need special consideration. Some features, benign to other road users, can present a hazard to motorcycles.

Bends

There is anecdotal evidence that riders who are losing control of their machine on a bend tend to 'fixate' on what seems to be the object in their path most likely to hurt them – typically a tree or signpost. The argument goes that, once this 'target fixation' occurs, the rider will usually hit that object. Whether or not target fixation is a genuine phenomenon, research indicates that a significant percentage of motorcycle fatalities involve collision with road side object.

Buckinghamshire County Council have undertaken pioneering work on the treatment of bends with their 'Where You Look is Where You Go' (WYLIWYG). This uses low cost marker posts to provide, often inexperienced, riders with sufficient information on the 'limit or vanishing' points. Since treating one such bend following 3 deaths, 5 serious injuries and 2 slight injuries to bikers during an eight-year period there have been, to date no, further biker collisions on the treated bend. (James, 2005)

Safety barrier

Research has shown that the probability of a falling rider being killed doubles in a collision with safety barrier systems after all it's not the falling off that generally hurts but the coming to a rapid stop!

There is general agreement that whilst more research is required on the effects of different types of fence on falling riders it is the posts used in most systems that cause the most severe injuries to riders when they hit safety fence.

Riders groups often express concern at the perceived dangers of wire rope safety fence (WRSF) but as the government's Advisory Group on Motorcycling concluded this form of safety fence appears, from the limited research completed so far, to be no more hazardous than other types of post-and-rail barrier.

In response to lobbying by motorcycle representative groups, several studies have been carried out internationally on the treatment of guardrailing, and the support posts in particular, and several solutions proposed; a number of which are in use on sections of highway in Europe. Solutions proposed range from a change in their profile of the support post; the use of energy absorbing covering to the addition of a second section of rail below the guardrailing thus reducing the section of posts available to impact against.

The Highways Agency, who are responsible for the UK strategic road network including motorways, has undertaken the retro-fitting of a system designed to protect fallen riders from support posts, 'BikeGuard' ,to some 3 sites in the UK and should be congratulated on this initiative.

The system has been used in Europe for many years and can be fixed to existing barrier with specially shaped brackets that attach to the rear of the barrier rail thus allowing it to perform independently of the barrier during impact. It utilises slotted holes and a hanging bracket to enable horizontal and vertical adjustment. Obviously such works could never be undertaken at all sites where guardrailing is present but in areas when riders are vulnerable, bends etc or where large numbers congregate then such measures should be considered. (Thompson, 2005)

Shared use of bus lanes

A number of local authorities now allow motorcycles to use bus lanes with seemingly. Proposals to introduce shared-use bus lanes will often be met by objections. The arguments usually revolve around conflicts with cyclists, who are usually permitted to use bus lanes, and to a lesser extent reduction in benefits to buses. Concerns may also be raised over possible conflicts with pedestrians. For cyclists the concern would seem to stem from the differential speeds of bicycles and motorcycles; the smaller frontal profile of motorcycles, especially compared to buses, and the higher levels of traffic in bus lanes giving rise to at least the perception of greater risk and a less attractive cycling environment. For pedestrians, higher speeds and lower conspicuity underlie perceived safety concerns.

Experience of shared-use bus lanes in Bristol and subsequent trials by Transport for London (TfL), however, would seem to indicate that shared use of bus lanes can be introduced with little or no detrimental effect for other road users. Interim data from the first 18 months of the TfL trials indicates:

- Reductions in motorcycle accidents between 0% and 31% at the trial sites, with no increase in overall accidents at any site.
- Reductions in motorcycles using general traffic lanes of between 31% and 40% at the trial sites. (There being no adverse effect on bus journey times)
- In surveys 44% of cyclists reported that collisions and near misses they experienced when using bus lanes involved cars- this increased by 1% during the trial, and compared with 3% involving motorcycles, which again increased by 1% during the trial. The number of cars illegally using bus lanes fell during the trial, probably due to increased enforcement.

The shared bus lane trials have taken place against a background of the introduction of the London Congestion Charge, which as stated previously has shown an increase in motorcycles within the charge zone, along with a reduction in motorcycle accidents (TfL 2004).

The Government's Motorcycle Strategy recognises that *"although these studies have not finally concluded, the evidence so far suggests that there are no apparent safety disbenefits from allowing motorcycles to use bus lanes"* and the Department for Transport will include consideration of the position on motorcycles as part of the review of its Local Transport Note 1/97 'Keeping Buses Moving' in the light of the results of the research.

Shared use of Advanced Stop Lines (ASLs)

The use of Advanced Stop Lines (ASLs) for cyclists at signal junctions is now widespread. They are intended to provide a safe location for waiting cyclists, especially those wishing to make a right turn at a junction.

The shared use of specifically designed ASLs by cyclists and motorcyclists could provide similar benefits to motorcyclists as those experienced by cyclists:

- They offer a head start over other traffic, reducing the potential for conflict especially where turning movements are possible.
- They allow motorcycles to be visible away from and in front of other traffic.
- There is an obvious potential safety benefit to cyclists themselves. Motorcycles are generally capable of greater acceleration than other motor vehicles; the risk of conflict is that much greater if motorcycles are placed directly behind them.

However, cycling representatives have raised concerns, arguing that the shared use of ASLs would detract from the convenience and safety of making a trip by bicycle and that the facilities would no longer be being used for the purpose for which they were intended. This implies that motorcyclists are less vulnerable than cyclists and do not need priority measures.

Such concerns led to trials in the London Borough of Newham of shared use of ASLs. These trials, monitored by the Transport Research Laboratory (TRL), have included attitudinal surveys both before the installation of the facilities and after, and a video survey. The surveys showed significant illegal use of ASLs by a range of vehicles including motorcycles. Conflict between

pedal cycles and motorcycles was not, however, identified as a problem although the trial sites only provide a limited range of conditions and there were few right turning maneuvers.

The trials have highlighted a number of design issues regarding the shared use of ASLs, especially the provision of separate filter lanes for motorcycles providing direct access to the protected area. There were particular concerns with motorcyclists rejoining other traffic as the signals change.

The early results of these limited trials have been encouraging:

- Before the trial of the shared use of ASLs a majority of motorcyclists (77%) and cyclists (51%) were supportive of motorcyclists using ASLs.
- After implementation 73% of motorcyclists thought the layout was an improvement along with 48% of cyclists.
- 80% of cyclists surveyed thought that the layout was better or unchanged and only 5% believed it had become worse.
- Across all sites the number using the new ASL filter lane “after” was greater than the number that filtered on the outside “before”.
- The number of motorcyclists filtering between the nearside kerb and queuing traffic fell from 13% to 6%.
- There was no change in the number of cyclists managing to reach the front of the traffic queue.
- The percentage of motorcyclists managing to reach the front of the traffic queue rose from 40% ‘before’ to 53% ‘after’.
- Conflict between motorcyclists and cyclists did not arise.
- Overcrowding was not an issue.
- Motorcyclists would tend to wait on the right hand side of the ASL reservoir, cyclists on the left. Conflict could arise, however, between left turning motorcyclists and right turning cyclists. This was not an issue as the majority of movements were straight ahead.

In view of the limited number of trial sites included in this study and the limitations on layout and traffic mix, there is a clear need for further trial sites, with local authorities being encouraged to apply for trial sites in their areas. In doing so the following points should be considered:

- A consistent approach should be adopted on a route so that both cyclists and motorcyclists know they share the facility and so that drivers will expect motorcyclists to filter to the ASL.
- Motorcyclists are more likely than cyclists to access the feature from other than the nearside position. Access from the offside is feasible, given appropriate signing to inform all drivers and riders. The positioning of road-centre street furniture needs careful consideration in order to avoid last minute steering/braking corrections from riders.
- Adequate and prominent advance signing is needed to alert both riders and drivers of the facility.
- Supplementary surface signing should be used sparingly - previous advice above about surface treatment and road markings is relevant.
- All non-standard signs and markings require special authorisation from the appropriate authority. (Tilly & Huggins, 2003)

Chapter 5 ~ Parking

Parking provision is an important tool in local highway authority transport policies, as traffic management and crime reduction. It is also one of the most fundamental requirements for any motorcycle user. Motorcycle parking can be provided on-street or off-street, in surface parking or multi-storey parking. Commercial site operators as well as local authorities, employers, retailers, and colleges can provide it, although not many do. As motorcycling continues to grow, it would have been hoped that with increase in the number of motorcycle registrations the provision of safe useable parking would have kept pace but unfortunately not.

So demand for parking has outstripped supply in many cases, especially during peak periods. A

recent study of the London Congestion Charging area for Transport for London found motorcycle on-street parking occupancy to be at 33% over-capacity. (Brown 2005)

Leading to the suggestion that some local authorities in London may even be seeking to remove motorcycle parking as a form of restraint on motorcycle use.

A number of other authorities have started to produce maps showing motorcycle bays but my own belief is that whilst well intentioned this largely misses the point. Even if we set aside the difficulty of using such maps on a motorbike, car drivers and cyclist don't need such maps there being an expectation that there will be facilities available for them at or near their destination.

What is needed is an increase in clearly signed, well-designed parking. Such an argument will often be countered by the claim that there is 'no demand' for such plentiful dedicated parking whilst accepting the argument of 'suppressed demand' when providing for secure cycle parking. Good, well-designed motorcycle parking will lead to responsible usage and a demand for more of the same.

Chapter 6 ~ Road Maintenance

Many of the problems faced by road users have root causes that can be traced back to decisions made at an early stage in the process of infrastructure provision. A good quality surface makes for a safer, more pleasant experience for all road users; **it is an essential requirement for motorcyclists.**

Factors affecting motorcyclists include: skid resistance; surface contamination and debris; drainage gullies; utility covers; road markings and road studs. All of which should be considered from a motorcycle-inclusive viewpoint. Similarly, poorly installed or maintained bridge joints, especially longitudinal ones, which can act like tramlines to motorcycle wheels, need to be maintained adequately. A focus on planned maintenance that accounts for the needs of motorcyclists will always be more desirable than even the best reactive fault-reporting system.

Service Covers

One of the most regular problems raised by motorcyclists is that of service covers. Contrary to the view of some motorcyclists Highway Engineers don't deliberately position inspection covers on the 'natural line' for motorcyclist, its just that they don't understand the positioning that motorcycles take up on the road (especially for bends) nor the effect that such iron work or defects in the highway has.

Designers and maintenance engineers should take every opportunity to assess the use of steel service covers in the carriageway and, where re-location is impossible, consider replacement with high skid resistance covers. The most difficult sites are those where the cover lies on the riding line during a change of direction, either turning a corner, rounding a bend or at roundabouts.

In new developments it should be possible for the local authority to advise on the location of covers and specify that they are located in service strips in the verge/footway as opposed to the carriageway. Proposals to position new covers within the carriageway, especially at roundabouts, should be discouraged.

A number of Local Highway Authorities, working with cover manufacturers, are investigating retrofitting 'antiskid' surfaces to covers that cannot be relocated, with one West Berkshire just about to start a small scale trial. (England,2005)

Public Utilities Works

Much of the works undertaken on the UK highway are the responsibility of public utility companies. Whilst there are a number of 'good' companies there are many others whose reinstatements leave much to be desired. This poor reinstatement will be a discomfort to most users but could be lethal to Motorcyclists.

Public utilities use bitumen over-banding to seal cracks and prevent water entering the road construction. BUT they should be encouraged to avoid the use of excessively wide overbanding ; In addition bitumen can be less than adequate in terms of grip, especially, but not **only**, in wet conditions and can contribute to loss of control accidents involving motorcyclists. There are a

number of alternatives reported to have better grip properties and Utilities should be encouraged to use them.

Chapter 7 ~ Road Safety Campaigns

Road safety campaigns are a vital ingredient in the mix of measures needed to improve the safety record of motorcyclists. Rider attitudes play a major role in determining behaviour, irrespective of age or trip purpose.

Any measure designed to modify such behaviour must address these attitudes and take account of the individuality often expressed in choosing a motorcycle as the travel mode. Riders relate better to messages that relate to their own perspective and are likely to ignore 'must do' or 'must not do' approaches.

A good example being the sponsoring of the British Superbike championships by the UK's Department for transport **THINK!** Campaign. Often run in association with local police force *BikeSafe* Rider assessments *this* sponsorship allows access to a significant target audience (attendance at events is often in excess of 20,000).

There are many new and inventive campaigns, many web based and interactive, but there seems to be very little co-ordination of such works. The IHIE believes that Road Safety Education Officers will often spend much valuable time 're-inventing the wheel'. In addition there is little documented evidence of what does and does not work.

Following on from an initiative of the IHIE the UK's Local Authority Road Safety Association (LARSOA) has launched a motorcycle specific campaign section on their web site. This web site has the potential to disseminate good (and indeed poor) examples of Road Safety.

Chapter 8 Motorcycles and Traffic Calming

The majority of motorcycle riders are responsible road users and wish to be treated that way. They have the same polar opinions about traffic calming schemes as other road users, facing the same 'residents-and-road users' dilemma that most people face. If traffic calming is the only way to improve the road safety record of an area then a number of factors need attention; Location; Lighting; Materials & Maintenance. The consequences of poor design and maintenance in this context can be harmful or even fatal for riders, defeating the purpose for which traffic calming was intended. A major problem facing the designer of traffic calming schemes is choosing the location of the devices. The needs and vulnerabilities of motorcyclists should be accounted for along with all the other factors influencing this process.

Contrary to the wishes of some such calming devices shouldn't be removed because they slow traffic, motorcycles included, down. But equally they should be sited far enough away from junctions and bends so that they can be approached with the motorcycle vertical.

Chapter 9 Road Safety Audit

Road Safety Audit (RSA) has existed in the UK since the late 1980s and a mandatory requirement to carry out audits of trunk road and motorway schemes has been in place since 1991. Many local authorities voluntarily carry out such design-independent audits using the UK 'trunk road' standard contained *Highway Design note 19/03*. (DMRB, 2003)

Road Safety Audits are a systematic process for checking safety of new works on roads by experienced, qualified safety engineers. It has always been good practice for safety auditors to take a multi-modal approach to the process, taking special care with safety implications for 'vulnerable' road users; equestrians, cyclists and pedestrians. While not being completely overlooked, motorcyclists have had a lower profile in this 'special care' regime, perhaps because their speeds push them, almost intuitively, into the same camp as twin-track motor vehicles.

This is a serious misapprehension.

The dynamics of motorcycles and the vulnerability of their riders make motorcycling a unique mode in the traffic mix, demanding separate, informed consideration by designers and auditors alike. What is required is to redress an imbalance among RSA practitioners, with little or no experience of riding a motorcycle, of how the balance of risks can shift markedly on two wheels as opposed to four or more.

Progress beyond the Government's Motorcycling Strategy & the IHIE Guidelines.

The IHIE believes it of the up most importance that the Government's lead in publishing its Strategy and the complementing of the same by the Guidelines is now pushed home. A number of, often small, local authorities have carried out innovative works (more often than not because the officer at the root of the solutions is a motorcyclists!) Engineers now have to be bold and innovative with their designs supported, but not constrained, with before and after data.

Central Government needs to support such work by funding trials and carrying out research, feeding into the next edition of the guidelines to be published on the web.

The *BikeSafe* rider assessment has been re-launched and expanded to all UK police forces but it needs to be fully supported financially by central government and local authorities alike

What is needed at this time is a lead from Government to encourage Local authorities to take the particular concerns and problems of motorcyclists on board. If this lead is established then Local Authorities might consider the appointment of officers dealing specifically with motorcycle issues to act as 'champions'.

Such an idea should not be foreign to local authorities almost without exception they have established such officers to deal with the other 'vulnerable' users Pedestrians and Cyclists.

Lets not forget though, that when all's said and done despite our best efforts, there will always be times when motorcyclists, no matter how highly trained, have trouble interfacing with the road environment.



The IHIE have established a Yahoo discussion group where engineers and end users can exchange ideas, solutions to problems etc.

http://autos.groups.yahoo.com/group/ihie_guidelines/

Copies of the guidelines are available priced \$ 90 from the IHIE www.ihie.org.uk

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The IHIE

The IHIE is the professional qualifying for incorporated engineers and technicians in highways, traffic, transportation and construction, delivering sustainable transport for the Engineers and Technicians. It has been a licensed institution of the Engineering Council for thirty years.

The 3000 incorporated engineers and technicians of the IHIE work in Central and Local Government, Consulting Engineers and supplying contractors.

Incorporated Engineers and technicians are the 'day to day' highway engineers designing, installing, operating and maintaining the highway network. As such our members deal with all aspects of highway design and management including Highway design, Traffic engineering and management, Materials & Soils engineering, Traffic control, Transportation & Highway Maintenance.

Highway Engineering is now more than ever more than just about building roads.

Today's Highway professionals need to be more prepared to engage the public and work with colleagues in other disciplines, to challenge and promote alternative forms of travel, to address social deprivation and to question existing designs and innovate other solutions.

The IHIE by representing its members, providing courses and conferences and publishing guidelines hopes to be able to equip engineers with the skills and tools they need.

The Institute is well known for its training courses, and specialist qualifications in development control, traffic signing and signal control. In addition to the IHIE Guidelines for Motorcycling the IHIE published the industry-standard *Home Zone* Design Guidelines in 2002 and launched the UK home zones website with Department for Transport backing on 17 November 2005.

The IHIE is a signatory of The European Road Safety Charter. The charter is one of the main European Commission initiatives to reach the overall objective of halving the number of road fatalities in Europe by 2010.

The IHIE is also a member of the CIC Construction Industry Standards Committee developing vocational qualifications;

The IHIE is a partner in the new Engineering and Technology Board promoting engineering; A partner with ICE and IStructE in the Joint Board of Moderators which accredits built environments, engineering degrees, HNDs etc.and a strong advocate of WISE, (Women Into Science and Engineering)

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