



London Assembly Transport Committee - Motorcycle Safety

RoSPA is delighted to be able to support Transport for London in this valuable piece of work aimed at improving the safety of motorcyclists. We are not in a position to comment on specific roads within the TfL area. Our responses are based on research highlighting best practice in relation to the following topics.

Vulnerability

With motorcyclists not having a protective cage around them, when they are in collision with another motorised vehicle the results can be life changing. In 2014 there were 339 motorcyclist fatalities an increase of 2.4% from 2013.¹ Serious casualties have increased by 8.7% to 5,289 moving it back to the 2005-9 average and the highest rate since 2009. Overall, the total number of motorcycle casualties across all severities was 20,366 in 2014 the highest total since 2009. Within urban areas, such as London a high proportion of crashes happen at or near junctions and involve riders on smaller motorbikes.

Training

Police attending the scene of the incident can record up to 6 factors, which in their opinion, contributed to the crash. In 2011, the most commonly reported contributory factors attributed to motorcycles were 'Loss of control' and 'Failed to look properly', which were both attributed to 16 per cent of motorcycles involved in accidents.

'Look but failed to see' is a phenomena which is widely talked about and research conducted by TRL² identified 4 main occasions when drivers failed to spot motorcyclists at junctions. These were when:

- Drivers simply do not look at all when pulling out of a junction.
- Drivers look, but they don't look for long enough or in the correct places within the traffic scene
- Drivers look adequately, but still fail to detect motorcyclists
- Drivers look and detect oncoming motorcyclist, but fail to access its 'time to collision' correctly.

Experiments conducted by Weare and Parkes³ identified a beneficial effect of 'priming' car drivers to actively look for Powered Two Wheelers in the traffic scene.

This together with the over representation of crashes involving inexperienced motorists both drivers and motorcyclists, highlights the importance of effective post test training schemes. For example, a significant number (around 30 per cent) of non-fatal motorcyclist casualties are younger riders aged up to 25 years old on smaller-engine motorcycles up to 125 cc.

However, an analysis of the effect of motorcycle training on road traffic collisions, undertaken for the Cochrane Collaboration (an international not-for-profit body focussed on delivering high quality evidence for health care) in 2010, found that, most studies suffered from serious methodological weaknesses. Many were non-randomised and controlled poorly for confounders. Most also suffered from detection bias due to the poor use of outcome measurement tools. Small sample sizes and short follow-up time after training were also common.



Due to the poor quality of studies identified, the authors were unable to draw any conclusions about the effectiveness of rider training on crash, injury, or offence rates.⁴ Despite the poor quality of research in to training RoSPA remains very supportive of driver and rider training schemes such as RoADAR and Bike Safe.

Engineering

Fundamental to casualty reduction is identifying common crash causation factors, so that treatable solutions can be employed. Regular searches must be undertaken to highlight motorcycle casualty cluster sites to allow the appropriate engineering measure to be considered as part of either a new safety scheme or the cyclical engineering process. When looking at the road infrastructure the following should be considered:

Visibility

Drivers often do not 'see' motorcyclists because of the relatively small frontal area presented by their machines, the presence of other road vehicles and roadside obstructions. Well-designed and maintained visibility splays at junctions are required so that drivers do not have their sight lines obscured.

Roadside furniture

The DfT has issued guidance on reducing street clutter in Traffic Advisory Leaflet 1/13 'Reducing Sign Clutter'. This aims to maximise safety, improve the appearance of the urban environment and assist mobility and visually impaired people. Limiting the number of roadside objects which motorcyclists can collide with if they leave the carriageway will also reduce the likelihood of injury and should be encouraged. Every opportunity should be taken to review roadside furniture to maximise the safety of vulnerable road users when introducing new schemes or as part of the cyclical maintenance process.

Safety barriers

Traditional designs of roadside safety barriers have received much criticism over the years, particularly from motorcyclist because of the specific risk they pose. Although contributing only 1% of traffic motorcyclists account for 18.6% of fatal safety barrier casualties.⁵ The use and type, of safety barriers used needs careful consideration within the London area.

Priority Junctions and Roundabouts

At priority junctions and roundabouts it is important to optimise sightlines and to provide good braking surfaces for all users. This will mitigate the risk of drivers not responding to motorcyclists' presence even when the latter have priority. The relatively small frontal aspect of motorcycles makes this particularly important as they are more difficult for drivers emerging from side roads to identify.

The use of high friction surfacing at junctions with a history of drivers emerging against priority into the path of motorcyclists should be considered as this will help to maximise the rider's chances of braking safely in the event of a vehicle pulling out of the junction. It is, however, important that the high friction surface be maintained to a high standard, as poor road surfaces can create a danger to two wheel vehicles. The use of different surfaces such as granite sets and the like should be avoided near to junctions.



Thermoplastic markings

Thermoplastic markings do not have the same skid resistance properties as the surrounding road and their skid resistance deteriorates faster than the road surfacing. These are particularly hazardous to motorcycles in the wet. Arrows and destination markings on bends or roundabouts cause concern to riders as the motorcycle may be leaning over, accelerating or braking. Clear advance warning and direction signs should minimise the need for such surface signing. Careful thought should be given before using large areas of hatching.

Utility covers

When redesigning an existing layout consider the position and level of utility covers, especially on bends and within braking or steering areas. Avoid forcing riders to overrun them whenever possible.

If it is unavoidable, use covers with an “in service” skid resistance similar to the surrounding road surface.

Maintenance

Good road maintenance is an essential element within the safety mix. Medium and long term planning is vital as it is important to avoid including design features that require higher levels of maintenance than the road is going to receive in reality as this could lead to future safety problems. An example of this is high friction surfacing which has often been applied to address sites with a history of loss of control collisions. However, if not properly maintained they can create problems for motorcyclists.

It is also important to ensure that vegetation is removed which obscures signs and sight lines that might affect motorcycle safety.

The ICHT has an excellent document on maintenance⁶ this highlights the importance of keeping roads clear of contamination and debris. Diesel on the road can be particularly dangerous for motorcyclists and needs to be removed as quickly as possible. It is, therefore important to have a regime in place where the public can report road defects and where action is prioritised.

Road maintenance policies should be developed that focus on preventative action.

Protective Clothing

Protective clothing is thought to offer the greatest injury reduction in low impact crashes. A cohort study of motorcycle crashes conducted in Australia found that motorcycle protective clothing was associated with a significantly reduced risk of injury in crashes, particularly when body armour was fitted. Compared to those wearing non-motorcycle clothing, motorcyclists wearing motorcycle protective clothing fitted with body armour were significantly less likely to sustain injuries to the protected areas. There was a 23 per cent lower risk of injury associated with motorcycle jackets, 45 per cent with motorcycle gloves and 45 per cent with



motorcycle boots. The risk of any foot or ankle injuries was reduced by 53 per cent by non-motorcycle boots when compared to shoes or trainers, a risk reduction similar to motorcycle boots⁷. The importance of the use of the correct safety equipment needs to be highlighted to London commuters. Although it may not stop the injury from happening in the first place it is likely to reduce the severity of injury sustained.

When considering safety it is also important to consider the subject of conspicuity. A review² regarding interventions to increase motorcyclists' conspicuity and visibility found that:

- There is evidence demonstrating that bright clothing and daytime running lights can improve conspicuity.
- Lighting that accentuates the form of the motorcycle helps observers to determine the time to arrival of the approaching bike (especially at night).
- The evidence indicates that colour can improve the effectiveness of interventions e.g. coloured motorcycle lights improve visibility against surrounding vehicles with white lights.
- Effectiveness can depend on the background surroundings (higher contrast with background improves visibility and conspicuity) and riders should be aware of these limitations.

Campaigns

The combination of effective ETP programmes (Education, Training and Publicity) has widely been recorded as good practice. It is however often difficult to evaluate the effectiveness of both education and publicity interventions. Research conducted for the DfT on the THINK BIKER campaign found that:

- 69 per cent of respondents had seen advertising about motorcyclist road safety in at least one of the sources used in the 'Named Rider' campaign e.g. TV, radio, poster hoarding.
- 17 per cent of respondents spontaneously described aspects of a campaign that could be directly attributed to 'Named Rider' e.g. recall of an ad with signs above motorcyclists.
- 56 per cent of respondents recognised the 'Named Rider' TV ad, and 21 per cent recognised the radio ad.
- 58 per cent agreed that when they see a motorcycle, they think about the person riding it (a significant increase from the 51 per cent at pre-stage).

Motorcyclist campaigns which have a clear safety message, are targeted and use effective communication channels an important element within the casualty reduction toolkit. However, as with all safety interventions, campaigns must be evaluated to ensure that they are delivering cost effective outcomes. For further information refer to: <http://www.roadsafetyevaluation.com/>



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- ¹ Reported Road Casualties in Great Britain Main Results 2014
 - ² Literature review to improve the conspicuity of motorcyclists and help avoid looked but failed to see accidents, S. Helman, A. Weare, M. Palmer, K. Fernandez-Medina, TRL Report PPR 638, 2012
 - ³ EC Project Experimental Studies on powered two wheelers, A. Weare, A. Parkes TRL Report PPR 600, 2013
 - ⁴ Motorcycle rider training for the prevention of road traffic crashes, K. Kardemanidis, A. Martiniuk, R.Q. Ivrs, M.R. Stevenson, K. Thistlethwaite, Cochrane Database of Systematic Reviews, 2010.
 - ⁵ IHE Guidelines for Motorcyclists
 - ⁶ IHE Road Maintenance
 - ⁷ Motorcycle protective clothing: Protection from injury or just the weather? L de Rome, Accident Analysis and Prevention 43, 1893-1900, 2011