

Motorcycle Users' Survey Report

Mirrors, Brakes and Tyres

**The National Motorcycle Council -
Supporting the Government's Motorcycling
Strategy**

July 2007

Forward

Motorcycle traffic increased by an estimated 37%¹ between 1994 and 2004, with people turning to motorcycles to beat congestion and as a leisure activity with people riding for the sheer fun of it. In the light of this increase the Government set up an Advisory Group on Motorcycling (AGM) with representatives drawn from a wide range of stakeholder groups.

The group's work contributed to the development of a motorcycling strategy "*to facilitate motorcycling as a choice of travel within a safe and sustainable transport framework*". The strategy set out to help identify and address the many issues and challenges that motorcycling raises, such as rider safety, vehicle security and design standards.

The motorcycling strategy includes a list of actions that, when implemented, will make a positive difference to motorcycling. Thirteen of these actions apply to environmental, motorcycle and rider equipment issues and were assigned to the Technical, Engineering and Environmental (TEE) sub-group of the National Motorcycling Council (NMC) to review and, where appropriate, develop solutions.

One of the first activities the sub-group undertook was to seek motorcyclists' views and experiences on some of the issues identified in the strategy. Information has been gathered from a rider survey on issues including vision, tyres and brakes, and the results are presented and discussed in this report.

Please note: The results of the rider survey reflect the views of those who completed it and should be treated with caution. Limitations of the methodological approach used are incorporated in Annex 2. The survey was intended to provide initial evidence on key areas of interest and will form part of the evidence package used to inform the group's work on the key actions set-out in the motorcycle strategy.

Summary of Results

Rear View Mirrors

The survey revealed that 58% of the participants had an issue with the rear vision afforded by original equipment mirrors. Subsequent analysis of the motorcycle models involved showed that sports models were the most likely to be effected (49% of cases). Rider comments have suggested that the motorcycle styling might restrict effective mirror positioning.

¹ DfT compendium of motorcycle statistics 2006

Over 40% of riders had tried to improve rear vision by fitting other types of mirror or modifying existing mirrors. This would suggest that the current construction requirements for rear vision do not ensure a sufficient view to the rear for many riders.

The survey also asked questions about riding behaviour and responses suggest that the majority of participants adhere to good riding practice by using regular looks over the shoulder to supplement use of the mirror.

Braking knowledge

The majority of riders (87%) claimed to understand the functioning of advanced braking systems. However, it should be noted that the percentage could be inflated by the lack of responses from young or inexperienced riders. It should also be noted that riders were not asked to validate their answers.

Replacement pad quality

Survey participants appeared to be selecting brake pads based on technical reasons, obtaining them from reputable sources, and in most cases not experiencing any braking problems. The survey did reveal that 70% of riders were fitting brake pads themselves rather than using a motorcycle dealer or qualified mechanic.

Tyres

In general, the participants selected their tyres based on claimed performance and recommendations, purchased them from reputable sources, and had them fitted at established workshops. Although 37% reported “poor wet grip”, poor road surface conditions could be a contributory factor.

Rider comments on cheap tyres from emerging markets suggest that tyre performance should continue to be monitored.

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Introduction

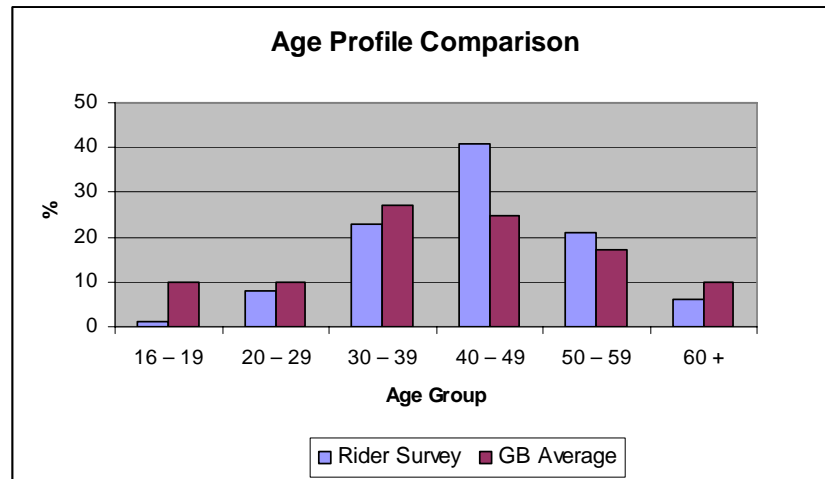
1. The Technical Engineering and Environmental sub-group of the NMC was created to develop solutions for the motorcycle and rider equipment section of the Government's Motorcycle Strategy package of measures.
2. At the inaugural meeting, it was decided that three out of 13 action points required a better understanding from the marketplace before a plan of action could be instigated. It was decided that an initial scoping survey would be conducted to ascertain views on these three issues.
3. The survey set out to begin gathering evidence for several actions listed in the Government's Motorcycling Strategy including.
 - Vision - consider the scale of the problem concerning rear vision, assess the road safety risk and develop appropriate solutions.
 - Brakes - support initiatives to improve knowledge of advanced braking systems and seek to establish the road safety risk from replacement brake linings.
 - Tyres - work with users to review current practice on tyre information and to draw conclusions about what, if any, measures should be pursued. Consider whether tyre approval marking should be an additional requirement for the MOT test, basing any decisions upon evidence of costs and risks to road safety.

Rider Survey

4. The questionnaire, consisting of 20 multiple choice type questions on aforementioned subjects, was published on the Department's web site, distributed by rider groups and advertised in the popular motorcycling press. It ran from October to December 2006 and received over 800 responses - 738 on-line and 110 by post.
5. Details of the participants' age, riding experience and average mileage were included in the questionnaire. The profile of those riders responding to the survey is as follows:
 - Average Riding Experience: 19 years. (Least = 1 Most = 58)
 - Average Annual mileage: 8171 miles. (Least = 1000 Most = 50,000)
 - Average Age of rider: 43 years. (Youngest = 17 Oldest = 75)

- Analysis of the riders' details, indicate an age profile that compares well with the GB national average² rider age profile. However, the 16 to 19 age group was underrepresented at 1% in comparison to the GB average of 10%. Opportunities to gather additional evidence from young and inexperienced riders should be considered.

Representative data - Survey follows the national trend.



Theme 1 - Vision (rear field of view)

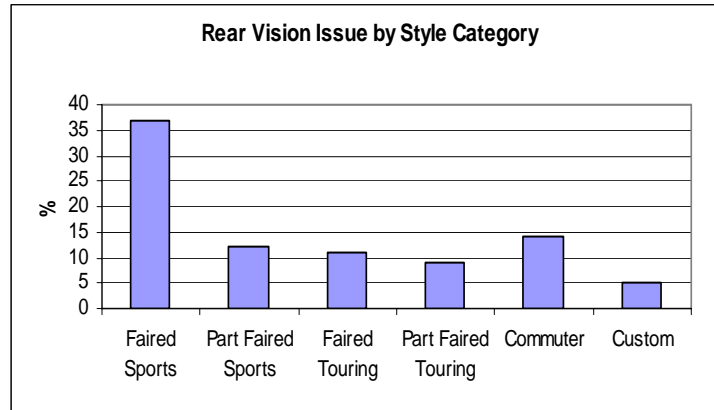
- Good all-round vision is a key factor for all road users. Motorcycles are often used in mixed traffic conditions, for example commuting on a daily basis, but while many riders take great care over their own ability to see and ensuring that they can be seen by others, the factors affecting safety are sometimes beyond their direct control.
- Although it is a requirement for rear view mirrors to be fitted on all new motorcycles, motorcyclists have expressed concern that the positioning of mirrors on some machines provides poor rear vision. This appears to be a greater problem for some motorcyclists and some motorcycle models rather than a consistent problem across all users.

Results

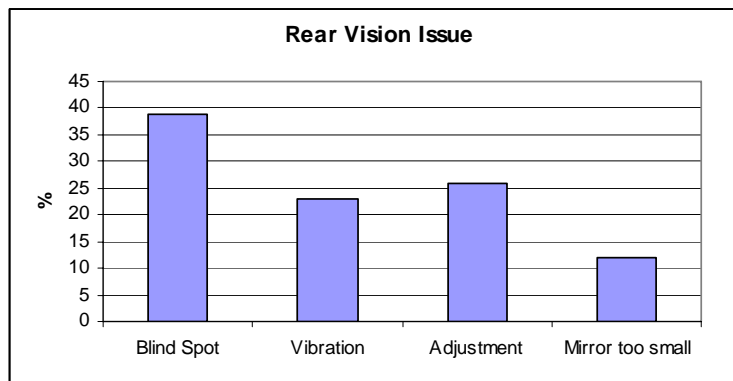
- Approximately 58% of the participating riders had, at some time, experienced problems with rear vision. The chart below shows the main categories of motorcycle with a reported rear vision problem. Faired sports bikes had the highest number of reported problems.

² Source: The National Travel Survey, DfT. 2002 - 2004 average for GB

Motorcycle categories with a rear vision issue



Nature of the rear vision issue



10. The survey also asked questions related to rider behaviour and the use of additional rear observation checks before stating a manoeuvre.
- 43% used mirrors as the main means of vision prior to starting a manoeuvre.
 - 66% regularly used shoulder check rear observation prior to starting a manoeuvre.
 - 72% regularly used life saver rear observation prior to starting a manoeuvre.
11. Approximately 58% of survey participants reported that they had experienced problems with rear vision; this was supported by many comments received (see annex 1). Sports machines, with and without fairings, were by far the model type worst affected by reported poor mirror performance (49%). Although, sports models were probably the most popular type of model used by the contributors, and this could add to the poor showing of these particular models.

12. Riders considered that bodywork, styling and construction restricted a mirror location that affords good rear view. The styling issue appears to have an effect on blind spots, mirror head adjustment and mirror size whilst vibration issues were reported on all model types.
13. The vast majority of riders (94%) who noted a rear vision problem reported that their motorcycle was fitted with original equipment mirrors at the time. A high percentage (41%) of the riders who reported a rear vision problem had tried at some time to improve the situation by fitting an alternative mirror such as a bar-end type or stem extender.

Discussion

14. With regard to achieving a satisfactory overall rear vision, reasonably good practice was shown by the participants. The majority of riders supplemented their use of mirrors with regular shoulders checks, although a significant number used mirrors as their main means of rear vision.
15. The responses suggest that some original equipment motorcycle mirrors do not give the rider adequate rear vision. However, it is difficult to quantify what is acceptable rear vision and, as mentioned by some contributors, this can be affected by the size of the rider and the clothing they wear.

Theme 2 - Brakes

Brake Knowledge

16. The braking performance of all vehicles is fundamental to their safe use on the road. Advanced braking systems such as anti-lock (ABS) and linked or combined systems improve braking by helping drivers retain control in slippery road conditions or assisting with braking distribution. Anti-lock systems are now available on most new cars and heavy vehicles throughout Europe but for motorcycles and particularly those sold in the UK this is not the case.
17. The Advisory Group for Motorcycling's view was that it would like to see wider implementation of these systems, it also recommended that riders would benefit from better training in their use.

Results

18. The survey recorded a good level of brake system knowledge:
 - 88% of participants claimed to understand how a “combined or linked” motorcycle braking system works.
 - 92% of participants claimed to understand how a motorcycle ABS works.

- 81% of participants claimed to understand how a “power assisted or servo” motorcycle braking system works.

19. As shown in the list of sample comments (Annex 1), a number of riders were not in favour of ABS or combined braking. The reasons are included in the rider comments section.

Discussion

20. The vast majority of the participants of this survey claimed to understand how the three main types of system work, however, the following should be noted:

- The riders were just asked to tick an option box and were not asked to validate their answer and so the results could be slightly skewed.
- The rider sample for this survey showed that young and new riders were under represented. This category of rider might benefit most from improved brake system knowledge.
- The type of rider inclined to complete the survey may not be representative of the wider UK rider population.

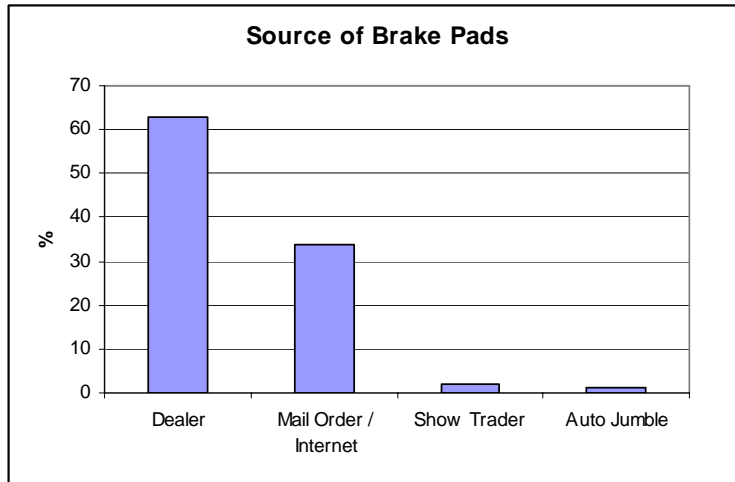
Brake Linings

21. The AGM identified a potential road safety risk should some aftermarket replacement brake linings fail to provide the same level of performance as those fitted when the motorcycle was new. The TEE sub group are not currently aware of any significant road safety risks arising from the supply of aftermarket products but included the issue in this survey to establish the extent of any risk.

Results

22. Approximately 87% of participants had replaced brake pads or linings. Where replacement brake pads or linings had been fitted, 70% replaced the parts themselves whilst 30% used a dealer for the work. A high percentage of participants (87%) had replaced pads/linings and the majority (63%) obtained these from a motorcycle dealer. Most of the remainder were bought via mail order or internet. Casual purchases at auto jumbles or show stands were low.

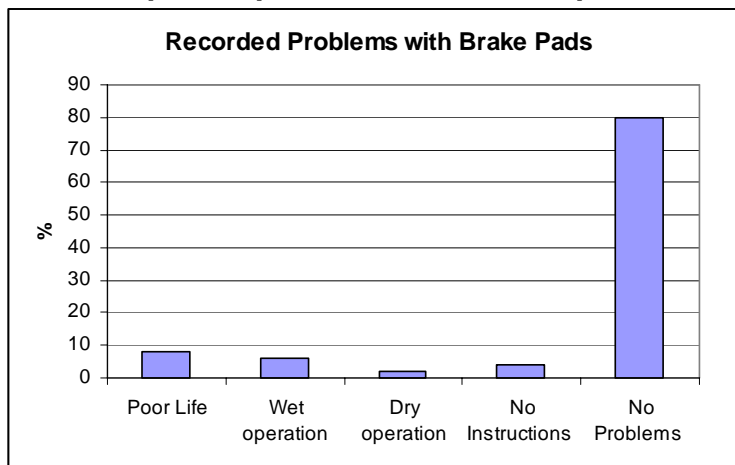
Source of replacement brake pads



23. Of the machines fitted with replacement pads, 50% were fitted with pads of a different type to those originally fitted by the motorcycle manufacturer i.e. “aftermarket”. 45% were Original Equipment parts and 5% were of unknown origin. The most popular reason given for selecting an aftermarket brake pad or lining was improved performance.

24. In general, riders did not report significant quality problems with their brake pads. Poor life was noted by 8% (but pad life depends on type of use), poor wet performance was mentioned by 6% (poor road conditions could be contributory) and only 4% experienced an issue with fitting instructions. 80% of the riders did not report a problem area.

Reported problems with brake pads



Discussion

25. There appears to be little evidence from this survey to suggest that poor quality replacement brake linings present a potential road safety issue.

26. It is encouraging that the participants, in general, used a sensible approach when selecting brake pads. The most popular consideration by far was “claimed improved braking performance wet and dry”. 17% considered price to be an important factor.
27. One aspect that could potentially give cause for concern is that only 30% of riders used a dealer or workshop to have the pads/linings replaced. However, it is possible that the 70% who replace the pads themselves are sufficiently mechanically competent to do so safely.
28. The survey suggests that riders are generally selecting pads for technical reasons, obtaining them from reputable sources and being generally satisfied with overall braking performance.

Theme 3 - Tyres

29. Motorcyclists rely upon various factors in choosing correct and safe tyres for their machines. Tyre retailers and press reviews often advise consumers on the best tyre choice and the type approval mark provides a further level of confidence for purchasers.
30. The Advisory Group on Motorcycling wanted to investigate whether internet purchase represents an increasing proportion of overall tyre sales, and if this could present a risk to road safety.

Results

31. The survey revealed that over 75% of the riders questioned purchased tyres from either a motorcycle dealer or tyre specialist. Internet and mail order accounted for 20% of purchases.
32. The participants were asked to indicate their reasons for selecting a particular tyre; wear / performance, recommendation and specification were reported as the main motivation. Price was identified as a factor in 9% of cases.
33. Participants were also asked to identify issues with replacement tyres:
- 37% of riders questioned reported poor wet grip.
 - 6% reported poor quality fitting.
 - 4% considered that the provision of existing consumer information was insufficient.
34. Almost 75% of the participants entrusted a dealer to supply and fit the tyres to their motorcycle. Although 7% chose to fit the tyres themselves, some or all

of those may be mechanically competent and have access to necessary tools and equipment.

35. When asked to comment on experiences with replacement tyres, the worst feature, poor grip, was recorded by 37% but it should be noted that wet grip can be affected by low friction road conditions caused by metal drain covers, white lining, diesel spillage etc., and this point was made very strongly in many of the rider's comments. 11% of riders complained of poor dry grip but the low friction wet road surface comments could also apply to some extent to a dry surface.
36. A relatively small number commented on poor quality fitting and poor consumer information. Similarly, only 6% claimed to have fitted worn tyres at some time and less than 1% remoulds.

Discussion

37. The findings of the survey appear to show that in the main, motorcycle riders are choosing their tyres for sensible reasons, purchasing them from reputable sources, and getting them fitted by professional fitters.
38. Although a large proportion of participants experienced poor wet grip, this may be associated with the road conditions and not necessarily the quality of the tyre.
39. The survey identified little evidence to support calls for additional tyre requirements to be added to the motorcycle MOT. However, some riders did raise concerns regarding cheap tyres from emerging markets and the lack of consumer information.

General observations

40. The majority of participants took the survey seriously, completing it correctly, and made a substantial number of follow up comments related to the content of the questionnaire.
41. There were a small number (2%) who used the survey to make an unrelated point (e.g. opposition to recent motorcycle legislation) and a similar number whose inputs had to be considered "void". Also, some riders were concerned that this survey would be used to introduce, in their view, unwarranted legislation. However, many supported this survey as they believed it could help motorcycle safety and they wanted to see the outcome.

Annex 1 Rider Comments

Mirrors

I have had rear view problems with every OE mirror on a bike. I have always had to replace and reposition mirror to gain satisfaction.

[OE mirrors] view obscured by rider's shoulder. Longer armed mirror solved the problem.

Sports bikes becoming more streamlined thus mirrors in tight and too short. Telescopic mirror stalks could help

Bike manufacturers are worried that large mirrors would make the bike look ugly. Large mirrors are a priority

As with cars, sometimes a mirror doesn't give adequate vision, e.g. joining a motorway. You must look behind. In the majority of cases, OE mirrors on modern bikes are completely fit for purpose.

I am a trained Police rider. Mirrors are main means of rear vision plus shoulder check and life saver if necessary.

Total awareness is critical not just mirrors. Mirrors are an aid but must be used within their limitations.

Mirror extenders provide perfect vision

The biggest problem is the size of the rider. Big rider equals no visibility on smaller bikes

Poor mirrors are standard on most bikes. There should be a Standard to ensure even large riders get a good rear view, e.g. telescopic mirrors/extensions

Brakes

Braided brake hoses fitted that give improved feel and performance.

ABS could transform safety only if "confidence" training is promoted.

Brake pads are expensive when compared to car pads.

Linked braking is a bad idea. They remove control from the rider who should be trained in effective use of the brakes in all conditions.

Linked braking is a bad idea. It takes away skill element, it cannot cope with the number of braking variables. Even ABS has disadvantages for bikes. On off braking rapidly on slippery surfaces.

Motorcyclists take their safety seriously. They do not compromise with inferior brakes/tyres. A trained motorcyclist can generally brake more effectively than with ABS.

Linked brakes can be dangerous under extreme braking

Linked braking is not a safety aid. Honda X11 caused more problems than it solved.

My scooter has linked, power assisted ABS brakes and so will my next one as they have proved their worth more than once

After market brake specialists supply pads far superior to dealer fitted items as well as braided hoses etc.

Tyres

Problem is not with tyres but with road paint, worn manhole covers, diesel spill, farm mud, etc.

If you corner too fast in the wet, you slide, however good your tyres are!

Sports tyres seem to grip only when warm. Therefore [sports tyres can give] poor performance in some conditions.

Cheap Chinese tyres, couldn't wear them out, lethal in the wet

Early tyres were made of harder compounds which lasted longer, but did not give such good grip.

Supplier only knows about the brand they sell.

OE tyres did not suit my riding style. Changed brand and grip /handling improved.

Consumer info should be improved.

Tyre Dealer damaged a wheel and fitted tyre in the wrong direction.

Poor wet grip on long life tyres. Main dealer fitted tyres badly. Specialist ok.

No advice on running in new tyres given.

Sometimes the feel of the tyre on the road is worse than actual grip available. This is a problem of confidence rather than ability.

Regularly experience poor grip (wet and dry) due to poor repair of roads, spilt diesel road marking, manhole covers.

Policy on tyre disposal is atrocious - fly tipping results. Legislation is outdated re: the legalities of dual purpose tyres. Police do not even seem to know

Available information comes from tyre manufacturer. We need an independent view of the tyres' performance.

I think accidents due to tyre failure caused by rider buying cheap at show or mail order - generally an old model and past it sell by date. Many riders using tyres that have been on their bike for 6 or 7 years therefore aged and harder. Tyre information available is poor and incomplete. Government should supply leaflets to give the correct advice on choosing a tyre

Some companies will only supply and fit tyres to loose wheels. This is a danger when untrained people remove wheels or one has to pay excessive labour rates

Vast improvement in tyres in the past ten years. Poor cold weather grip was a problem - not now

No grip problems - always ride within limits of conditions and machine

General comments

Would like to see more exposure to advanced training - skills obtained through these courses are essential to riding today. Also want to see a decision on motorcycles using bus lanes.

I was amazed at the lack of knowledge by some motorcyclists' regarding maintenance, part selection and general use. This also applies to car drivers and I believe an increase in awareness across the board would be beneficial to all road users.

Questionnaire appears to emphasize bad aspects of poor maintenance. It does not take into account the positive aspects of home maintenance. Hope it is not designed to eradicate non approved workshops or home maintenance for which I would need to pay more money.

I have ridden commuters and sports bikes from the 1970's up to date. Modern brakes and tyres are much better in all conditions. The weak link is the poor road surfaces - maintenance, manholes, white lines, road repairs and diesel spills - nothing is being done.

What is the purpose of this survey? Hopefully no more legislation please.

Is the survey for improved road safety? Motorcyclists are more aware of tyre and brake condition than other road users. A better safety initiative could be aspects such as rider/machine visibility, improved riding ability and awareness by other motorists.

I think the survey is an excellent idea. I hope the information obtained is translated into sensible real world use

Are other surveys planned? I believe they help develop transport policy. Motorcyclists should be considered when roads are repaired. There should be a central body where one could report dangerous practices should as spillage, bad driving, etc., with power to prosecute. Police do not do this

This is the first time I have seen a survey of this type. There should be more consultation like this.

Better mirrors would help everyone, ABS would help most. Linked brakes would help some, servo helps nobody.

Mirrors, brakes, tyres are critical equipment. I base my choice on years of experience. I would be very upset if DfT told me what to fit to my bike

Motorcyclists take their safety seriously. They do not compromise with inferior brakes/tyres. A trained motorcyclist can generally brake more effectively than with ABS. Linked brakes can be dangerous under extreme braking

Today's tyres are excellent and perform well in all conditions. Brakes are also greatly improved. These two factors have been a great contribution to motorcycle safety

Tyres are far too expensive for the mileage they give. (Fifteen times car tyres) thus people are tempted by remoulds. Will the Government do something to stop cheap dangerous helmets being sold in this country

There are limitations with mirrors on all vehicles two and four wheels. Need to understand the limitations. Cannot believe that it is acceptable to expect rider to ride "carefully" for the first 100 miles of fitting a new tyre.

ANNEX II - Limitations of the methodological approach

The results should be read with caution as the methodological approach used to carry out the survey was limited:

- The survey was available for completion on the DfT website which limits access to only those people with access to the internet. The survey was also distributed as a paper copy by rider groups but this would exclude those riders who were not given a copy and those who are not a member of a rider group or attended specific events where the survey was distributed.
- In general, self-completion surveys are biased towards people responding who like doing surveys or who have a strong view on the subject being explored. This can skew the results to be unrepresentative of the rider population.
- Questions within self-completion surveys can sometimes be misinterpreted by the respondent resulting in them providing different answers than they may have given had they understood the question properly.
- No formal, robust sampling or recruitment strategy was used for completing the survey so it is not possible to be confident of the representativeness of the sample that completed it. It may over represent some groups of the population whilst under representing others.