

# SUBMISSION OF JOHN FRANKLIN

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## Gloucestershire County Council Road Safety Policy

### Strategy Review 2022 - 2032

#### 1 Foreword

My background as a Cycling Skills & Safety Consultant is described in Appendix A. Suffice to say here that I have been involved in cycling safety issues since the late 1970s at local, national and international levels. My book *Cyclecraft* published by The Stationery Office led to and forms the basis of the UK National Cycle Training standard (Bikeability) and is recommended reading for instructors and trainees. My work as an Expert Witness on cycling has involved the investigation of many hundreds of crashes involving cyclists on and off road and the presentation of evidence to courts and enquiries. I have studied several thousand other crashes to cyclists including around 3,000 in Gloucestershire where I have lived since 1999.

While I am keen to support the general review of road safety policy in Gloucestershire, I concentrate in this submission in particular on cycling safety on which I can claim some expertise.

#### 2 Targets

I support the principle of Vision Zero and note that Gloucestershire has some way to go to achieve its target of a 50% reduction in the number of people killed and seriously injured on Gloucestershire's roads by 2031. For reasons explained subsequently in this submission, I fear that such a reduction may be particularly hard to achieve with regard to cycling casualties without significant changes to council policies.

The consultation document lists the Statutory Duties that apply to Gloucestershire County Council with regard to road safety. I particularly emphasise to the council that

- ◆ Cycles are vehicles with a legal right to use all roads where they are not expressly prohibited. (1878 Local Government Act and subsequent highways acts)
- ◆ It is the duty of highway authorities to "secure the expeditious, convenient and safe movement of vehicular and other traffic" in all road schemes. This is set out in section 122(1) of the Road Traffic Regulation Act 1984 and applies to all users who may legally use the road, thus including cyclists.

Furthermore it is Government policy to encourage cycling to improve air quality, combat climate change, improve health and well-being, address inequalities and tackle congestion on our roads <sup>1</sup>. The Government says that it wishes to empower and encourage local authorities to better protect people when they cycle.

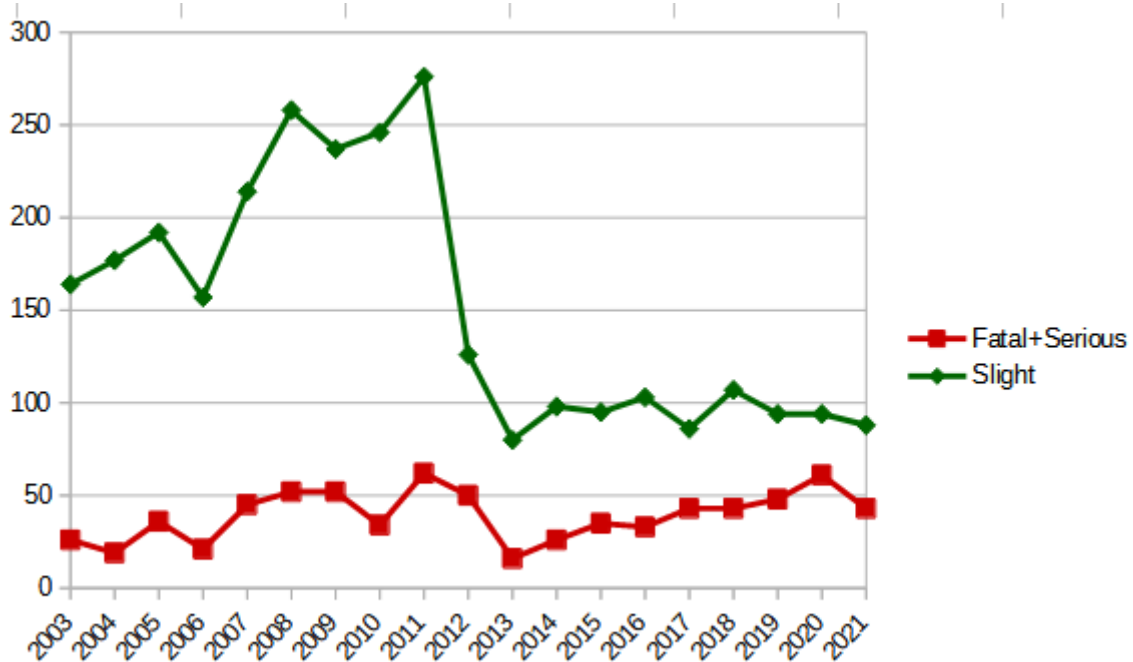
For all these reasons and more, it would not be acceptable if Gloucestershire were to achieve its target of a 50% reduction in serious and fatal casualties if such reductions were not also reflected in cycling casualties. Furthermore cycling must be "expeditious" and "convenient", not unnecessarily restricted, if it is to be popular, growing the activity so that its many benefits for society are realised.

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<sup>1</sup> *Gear Change*. Department for Transport, 2020.

### 3 Cycling casualties in Gloucestershire: the current situation

#### 3.1 Trends 2003 to 2021



For the decade from 2003 the total number of cyclist casualties in Gloucestershire increased from 190 per annum to a high of 338. The number then fell dramatically to the year 2013. Though very welcome if true, there is no obvious reason for such a sudden, sharp decline. Is there a data anomaly? Slight injuries have remained more or less static since that decline.

However, the improvement to 2013 has not been maintained for serious and fatal injuries for which there was a steady increase from 2013 to 2020. It is too early to say if the improvement in 2021 is a reversal of the trend or an outlier.

#### 3.2 Responsibility for cycling casualties

Analysis of Gloucestershire cycling casualties since 2003 suggests that the primary responsibility for crashes was as follows:

Cyclist	27.7%
Other party	55.1%
Shared responsibility	3.8%

This is consistent with other surveys in the UK and abroad which have shown cyclists to be primarily responsible for between one quarter and one third of the crashes in which they are involved.

## 4 Cycling casualties related to infrastructure

With the co-operation of the county council, each year since 2003 I have been able to analyse cycling casualties across Gloucestershire. Whilst inevitably imperfect (I have not had access to personal data for example), I believe that this has enabled me to identify trends in road safety performance. Sometimes it has been possible to augment the council/police data (Stats 19) with information from other sources.

A key parameter in grouping together many crashes has been infrastructure; the type of highway on which crashes have taken place, junction designs, etc. These are important as infrastructure is under the direct influence of Gloucestershire as the highway authority and is where changes to benefit safety can most effectively be exerted.

The following tables summarise cycling casualties from 2003 to 2021 in terms of common infrastructure. They are divided with regard to injury severity.

### Fatal injuries

T-junction	5
Footway	4
Roundabout	3
Pedestrian crossing	2
Cycle lane	1
Bridge	1
Footpath	1
Slip road	1
Total fatal	33
Total assessed	18

### Serious injuries

T-junction	107
Roundabout	67
Footway	60
Traffic lights	26
Cycle lane	23
Pedestrian crossing	18
Crossroads	15
Mini roundabout	11
Cycle track	10
Cycle crossing	10
Shared footway	7
Footpath	6
Roadside furniture	5
Road works	4
Slip road	4
One-way street	3
Cycle facility (misc)	2
Total serious	607
Total assessed	378

## All injuries

T-junction	420
Roundabout	363
Footway	329
Traffic lights	118
Cycle lane	110
Mini roundabout	101
Shared footway	70
Pedestrian crossing	68
Crossroads	65
Cycle crossing	38
Footpath	25
Cycle track	20
Slip road	8
Road works	7
One-way street	7
Roadside furniture	6
Bus lane	3
Bridge	2
Cycle facility (misc)	2
Box junction	1
Barrier / Bollard	1
Level crossing	1
Total injuries	2,923
Total assessed	1,765

It has not been possible to assess all casualties for various reasons, not least the limited data present in Stats19 records. But for each severity more than one half of all casualties have been assessed with reasonable confidence.

It can be readily seen that a limited number of infrastructure types are the locations for large numbers of crashes. In this context, T-junctions, at the top of each list, is misleading. Crashes commonly take place at T-junctions simply because there is a large number of this very common junction type. A count based on an area of north Cheltenham showed that there were 209 T-junctions compared with 3 roundabouts and 4 mini-roundabouts. Relative to frequency of encounter, roundabouts are therefore 45 times more likely to be the location of a cycle crash than a T-junction.

### 4.1 Relative safety of infrastructure

To be able to compare the safety performance of different types of infrastructure requires a knowledge not only of the crashes taking place but also of the amount of cycling undertaken in each environment. Unfortunately, good information about cycling distances ridden in Gloucestershire is not available.

## 4.2 Roundabouts

Roundabouts have a good safety record for motor traffic but not for two-wheeled vehicles. The Transport Research Laboratory (TRL <sup>2</sup>) has shown that cyclists are 15 times more likely to suffer injury at roundabouts than motorists <sup>3</sup>.

TRL has also shown that, apart from grade separation, there is no cycle facility solution to improving roundabout safety for cyclists. In the 1980s TRL carried out various research projects using different types of facility but concluded:

*The current experimental schemes at roundabouts involving special facilities for cyclists have limited applications. There have been some problems with lack of use by cyclists and none of the schemes has shown much potential for accident reduction. Thus a substantial reduction in the risk of accident involvement for pedal-cyclists at roundabouts by introducing special facilities on the carriageway or by diverting cyclists onto the footway does not seem likely at the present time.*<sup>4</sup>

In recent years Gloucestershire has introduced shared footways around some roundabouts but none have proved popular and the number of casualties continues to be high. There are many reasons why this type of facility does not provide an acceptable solution. In terms of safety, there are typically poor sightlines to/from traffic, angles of impact that are more likely to result in serious injury and high speed differentials. There are also practical disadvantages such as loss of momentum and awkwardness of manoeuvre.

Unless Gloucestershire addresses roundabout danger for cyclists it will not be possible to achieve a reduction in injuries, especially serious and fatal injuries. However, new roundabouts continue to be introduced that are causing the injury toll to increase. There is little that most cyclists can do to significantly improve their safety at roundabouts, it is overwhelmingly a matter for the highway authority to address. As grade separation is not a practical option at most places this means that the number of roundabouts must be reduced. If more roundabouts continue to be built then Gloucestershire cannot escape the conclusion that it will have consciously decided to injure more people.

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<sup>2</sup> Formerly the Transport & Road Research Laboratory, TRRL, also referred to as TRL in this submission.

<sup>3</sup> *Accidents at 4-arm roundabouts*, Maycock G, Hall RD, Transport & Road Research Laboratory report 1120, 1984.

<sup>4</sup> *Pedal cyclists at roundabouts*, Layfield RE & Maycock G, Transport and Road Research Laboratory. Transport Engineering + Control, June 1986.

### 4.3 Footways

Footways are a prominent cycling casualty location on a par with roundabouts. Indeed, if footways and shared footways are grouped together (there is little practical difference in terms of risk factors) then they are more often implicated in cyclist crashes than roundabouts.

Shared footways like most other types of cycle facility are not at present used by a great number of cyclists. It is therefore of particular concern that these facilities are so prominent in the casualty statistics.

Pedestrian safety on footways depends critically upon pedestrians' ability to turn, move sideways and stop suddenly, all without losing balance. Cyclists can do none of these things and they also travel faster leaving less time to react to danger. Visibility of traffic approaching from behind is invariably very difficult along footways even if a stop is made, whilst also looking into side roads requires a very large surveillance angle. Foreseeably, many people are caught out and are hurt. The Department of Transport warns faster cyclists not to use shared footways<sup>5</sup>.

Cycling on a footway is almost always less safe than riding on the road but Gloucestershire has introduced a great number of shared footways that encourage unsafe behaviour and continues to do so. Indeed, the shared footway is the most common facility type currently provided by the county. While this practice continues, Gloucestershire can continue to expect footways to be a prominent location for cycling casualties.

### 4.4 Cycle lanes

Gloucestershire does not have many cycle lanes but they are a common place for cyclists to be hurt. This is so nationally. Research has shown that cyclists are 34% more likely to be injured when riding on a road with a cycle lane than on a road without<sup>6</sup>. My own work as an Expert Witness has dealt with many instances of cycle lane casualties with fatalities not being uncommon.

There are two principal causes of these crashes. First, many drivers think they may drive up to the lane line and in so doing impact a cyclist riding in the lane (sometimes with a wing mirror). Without the lane they are more likely to keep further away. Secondly cycle lanes seem to increase the likelihood of left hooks<sup>7</sup> at junctions, motorists passing cyclists and turning without noticing them.

The cycle lane on the A38 south of Tewkesbury is the only one in the county of reasonable quality, being 2 metres wide (with ghost divider) with few unprotected side roads. It may provide some comfort to less confident cyclists although few such people use the road. Generally, however, a wider nearside traffic lane without a cycle lane gives similar advantages without the added danger.

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<sup>5</sup> Annex D of *Adjacent and shared use facilities for pedestrians and cyclists*, Department for Transport, LTN2/04, 2004. The DfT suggests a threshold of 18 mph for not using shared facilities but this is much too high. Anyone who travels at a speed more than 2 to 3 times that of a pedestrian is at seriously enhanced risk.

<sup>6</sup> *Cycling Injury Risk in London: Impacts of Road Characteristics and Infrastructure*. Adams T, Aldred R. *Findings* Dec 2020.

<sup>7</sup> When a driver overtakes and then turns left sharply across the cyclist's path.

## 4.5 Other cycle facilities

Evidence about the safety implications of cycle facilities is very mixed. A review for the Department for Transport could find no clear evidence that cycle facilities improve safety while there was more convincing evidence that some facilities make safety worse <sup>8</sup>.

Research in London <sup>9</sup> showed that segregated infrastructure could be helpful to safety but similar research outside London did not find the same benefits <sup>10</sup>. The latter was particularly critical of cycle lanes and shared footways.

I don't wish to imply that cycle facilities are never useful or safe. It is possible to provide facilities that can much enhance cycle journeys for at least some people and which may well benefit safety if they enable greater hazards to be avoided. But to be useful and safe facilities need to be designed and implemented to the highest standards. They also need plenty of space. It will not usually be possible to provide safe segregated facilities within the boundaries of most Gloucestershire roads.

It should be noted that the statistics provided in this submission do not include any cyclist casualties along the county's three fully off-road cycling routes: the Honeybourne Line in Cheltenham, the Ryeford to Nailsworth railway path or the Tewkesbury to Newtown cycle path. This does not indicate that collisions do not take place along these routes; indeed there is anecdotal evidence to the contrary. However, only motor vehicle drivers are under an obligation to report injury crashes and reports are seldom made to or accepted by the police for off-road routes.

In my opinion the review of Gloucestershire's road safety policy should not assume that cycle facilities are necessarily a means of improving safety for cyclists. It should reflect the concerns about cycle lanes and shared footways and the county's own casualty statistics and urge the highest standards for wherever facilities are introduced. The primary action to improve cycling safety must be to make the roads safer.

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<sup>8</sup> *Collisions involving pedal cyclists on Britain's roads: establishing the causes*. Knowles J, Adams S, Cuerden R, Savill T, Reid S, Tight M. TRL, PPR445. 2009.

<sup>9</sup> *Cycling Injury Risk in London: Impacts of Road Characteristics and Infrastructure*. Adams T, Aldred R. *Findings* Dec 2020.

<sup>10</sup> *Cycling injury risk in Britain: A case-crossover study of infrastructural and route environment correlates*. Kapousizis G, Goodman A, Aldred A. *Accident Analysis & Prevention* <https://doi.org/10.1016/j.aap.2021.106063>. 2021.





## **6 Other factors affecting cycling safety**

### **6.1 Road maintenance**

Cyclists are more affected by bad road surfaces than any other road user as cycles are inherently unstable and any fall is likely to lead to injury. Falls of cyclists due to road surfaces are common, but most are not reported to the police. This may be why there are only 21 instances of surface defects in the Gloucestershire statistics from 2003 to 2021. Surveys outside Gloucestershire based upon hospital records suggest that the actual number is probably much greater than this.

The county council undertakes road inspections routinely and also following reports from the public. However, in making inspections it uses criteria that are based primarily around the characteristics of motor vehicles and for this reason dangers to cyclists are often not addressed.

For example, long, thin cracks in the road surface can trap a cycle wheel while they would be passed over by a motor vehicle without incident. Series of reinstatements can create a surface that is not only very uncomfortable for cycling but which can cause a cyclist to move into traffic. Oblique upstands can easily throw a cycle but they are particularly associated with cycle paths.

### **6.2 Speeds**

High traffic speeds make it particularly difficult for cyclists to interact with other drivers and they also make the consequences of any collision more serious. In urban areas especially, high traffic speeds are a major disincentive to cycle.

There are 20 mph areas in Gloucestershire but implementation is piecemeal. On the other hand cross-city 20 mph areas in Edinburgh have led to substantial reductions in casualties (and a big increase in cycling) and the Welsh Government is making 20 mph the default speed in urban areas.

Gloucestershire should also make 20 mph the default urban speed limit. It could be the most effective way to enable more people to cycle.

### **6.3 Junction design and residential areas**

Most casualties occur at road junctions where there can be opportunities to improve road safety by changing geometric design. Cyclists should not have to ride in the middle of the road to go ahead and traffic signal timings should not encourage drivers to move off fiercely. Cyclists should be exempt from one-way roads where possible to shorten journey times and to make short journeys by bike more viable. This can also have safety benefits.

There are few places in Gloucestershire where rat-runs through residential areas are inhibited with the possibility of providing alternative safe routes for cycling. In the London Borough of Hackney, such measures have enabled the creation of an extensive network for cycling with very few cycle-specific facilities.

## 7 Road safety audits

Major road schemes should be audited at several stages during their implementation to assess their impact on safety. This applies to the safety of *all* road users, including cyclists.

The Society of Road Safety Auditors notes that:

*Road safety audits check that a scheme meets the safety needs of all road users – drivers, pedestrians and cyclists. Special attention is given to whether the needs of vulnerable road users are being met, as experience indicates that highway designs focus largely on motor vehicles.*

The Department for Transport also urges that audits should be used to identify issues that affect pedestrians and cyclists.

Unfortunately, Gloucestershire's record is not good with regard to some of the audits that it has undertaken. Sometimes the safety of cyclists on the road has been completely ignored even when designs have introduced new dangers that greatly increase the risk of serious injury and death for cyclists unable to cope with a new complex traffic situation. Often auditors have assumed that cyclists will use cycle facilities provided, even if these are unsuitable for many people and present serious dangers of their own. Moreover, those cycle facilities are rarely audited with the knowledge required to identify the many hazards that are commonly present.

There is considerable evidence, not least in Gloucestershire, that many cyclists find cycle facility designs unacceptable and often unsafe. This is recognised in the Highway Code where rule 61 notes that:

*Use facilities such as cycle lanes and tracks, advanced stop lines and toucan crossings where they make your journey safer and easier. This will depend on your experience and skills and the situation at the time. While such facilities are provided for reasons of safety, cyclists may exercise their judgement and are not obliged to use them.*

Similarly with regard to roundabouts rule 79 notes that:

*Where a roundabout has separate cycle facilities, you should use these facilities where they make your journey safer and easier although you are not obliged to use them. This will depend on your experience and skills and the situation at the time.*

Safety audits should always assume that cyclists will ride wherever they are legally permitted to do so, which in practice means along all parts of all roads that are not motorways. The audit team should identify all aspects of schemes that might threaten cyclists' safety and bring these to the attention of scheme designers. The safety of cyclists must not be comprised in order to achieve benefits for motor traffic.

Road safety audits are a key tool in achieving better road safety with fewer serious and fatal injuries. They should be exploited to the full for this purpose.

## **8 Cyclist and driver training**

With my background in bringing about the National Standard for Cycling Safety I am naturally supportive of the Bikeability cycle training programme that was created. Experience has shown that most people who undertake it are more confident and safer cyclists and also more likely to continue cycling over time.

Gloucestershire implements Bikeability and I encourage it to continue to do so, widening as much as possible the catchment of people who are able to participate.

However, important though cycle training is, it remains a fact that motorists are twice as often at fault when crashes occur than cyclists. Programmes and publicity campaigns to improve motorists' understanding of how to safely share the roads with cyclists are also therefore required. Moreover, road designs should always enable cyclists to put into practice safe cycling procedures as advocated in the National Standard. This is not the case at present.

Gloucestershire Police has on occasions undertaken proactive monitoring to identify driving behaviour that might be harmful to cyclists. This should be repeated on a regular basis. The police should also accept and act upon reports by cyclists of unsafe behaviour, particularly when supported by third party or video evidence. At present it would appear that Gloucestershire Police is less supportive of safe cycling than some other forces.

## **9 Aggression towards cyclists**

It is the experience of many cyclists that they are increasingly facing deliberate aggression by some drivers of motor vehicles. This can take the form of verbal abuse or the deliberate driving of a motor vehicle into their path. In some cases cyclists have been hit and seriously injured after suffering attack in this way.

One common cause of aggression is where there are cycle facilities that a cyclist chooses not to use. The section on road safety audits above notes that cyclists are not obliged to use any cycle facility but may choose whether or not to do so according to their experience and skills and their judgement of the situation. However, some motorists do not appreciate this and, feeling that cyclists are behaving wrongly by being on the road, seek to punish them.

Some cycle facilities attract very few users (especially shared footways) and most people cycle on the road. It is incumbent upon the county council to recognise, and as far as possible mitigate, the harm that off-road facilities may cause if they result in aggression towards any cyclist. This is a very important aspect of road safety policy.

## **10 Gloucestershire policies and cycling safety**

Although it sometimes claims otherwise, current Gloucestershire County Council policies are not helpful to cycling safety or encouraging cycle use.

Most major road schemes involve large roundabouts at junctions and every such scheme in recent years has led to less cycling and, foreseeably, more casualties. It is not possible to encourage cycling at the same time as promoting more and faster roads and this must be recognised.

Where cycle facilities have been introduced, these have in most cases involved shared footways which are seldom popular and have a poor record for safety. The Cheltenham to Gloucester cycle route, in implementation, presents major concerns over safety with poor visibility a common problem. Cross-county routes such as Bishops Cleeve to Stroud are at best irrelevant to safety; they may make it worse. The strategy review should not assume that these are positive developments.

If special facilities could be useful to some people, much higher standards must be met in their design and implementation. Overwhelmingly, however, much more benefit will come from creating safer roads with less traffic in all communities.

## 11 Conclusions

- ◆ Serious injuries to cyclists in Gloucestershire are increasing and this must be addressed within the road safety review if its aims to reduce serious and fatal injuries are to be achieved.
- ◆ Roundabouts and footways are the principal locations of cyclist injuries of all severities.
- ◆ Apart from grade separation, there is no cycle facility solution to roundabout safety. Danger to cyclists at these places comes from vehicle speeds, complex manoeuvring and large areas of unprotected road space. Improving safety for cyclists necessitates the replacement of roundabouts on busy roads with other forms of junction.
- ◆ New roundabouts should not be introduced anywhere on the general road network. To do so would amount to an acceptance by the county council that cyclists will be injured and undermine its road safety policy.
- ◆ Footways are unsafe places to cycle, whether designated for shared use or not. They should no longer be promoted for cycling and existing shared footways should be undesignated in favour of alternative measures to make the road environment safer.
- ◆ Gloucestershire should acknowledge the evidence about cycle facility safety and ensure that unsafe facilities are not introduced.
- ◆ Better road maintenance, with standards relevant to cycling, should be adopted.
- ◆ Traffic speeds should be reduced with 20 mph the default urban speed across the county.
- ◆ Road safety policy should address the behavioural problems that lead to crashes, especially the failure of some drivers to yield right of way to cyclists. The county should address public misunderstandings about road safety and cycling as necessary.
- ◆ Road safety audits should be undertaken for all changes to the road network that might impact upon safety. The safety of cyclists should always be considered in such audits for all places where they may legally ride. It should never be assumed that all cyclists will use cycle facilities as an alternative to the road. The safety of schemes must not be compromised in order to achieve benefits for motor traffic.
- ◆ Aggression towards cyclists should be recognised as a serious road safety issue. Motorists must never be led to believe that cyclists will not ride on the road if cycle facilities are provided.
- ◆ The road safety review should not assume that current county policies to provide cycle routes are positive developments. An objective appraisal is required.
- ◆ The primary means of achieving better cycling safety should be safer roads.

## Appendix A: Background & Qualifications

- A.1 I am the author of *Cyclecraft*, published 1988, 1997, 2002, 2007, 2014 and 2020 by The Stationery Office, London. This has been widely acknowledged as the definitive guide to skilled cycling technique, equivalent for cycling to the Police Roadcraft manuals. It has been endorsed by the Royal Society for the Prevention of Accidents (RoSPA), the UK Department for Transport (DfT), Cycling UK (UK national cyclists' organisation, formerly CTC), and the principal specialist organisations now delivering cycle training.
- A.2 I have also written *Advanced Cycling* for the Institute of Advanced Motorists for publication as a companion to their Advanced Driving and Advanced Motorcycling books.
- A.3 I was a member of the UK Government/CTC Reference Group that developed the National Standard for Cycle Training and accreditation scheme launched in 2003. The syllabus for the Standard is based largely on the content of *Cyclecraft*, which is recommended reading for all cycle training instructors and trainees. I have myself undertaken training for bodies such as the Police.
- A.4 I was a member of a Department for Transport advisory group that oversaw a 3-year research programme on cycling safety from 2008 to 2010. I was subsequently a member of the Department's national Cycle Safety Forum.
- A.5 I was a member of a Department for Transport working group during the 1990s which studied the assessment of highways through an audit and review procedure, with regard to the safety and convenience of cyclists. This was an important strand in the development of the UK National Cycling Strategy. I have undertaken cycle audits for highway authorities.
- A.6 In 2012/13 I was the principal sub-consultant to Atkins plc in carrying out a review of the cycling proficiency scheme in Northern Ireland for the Northern Ireland Department of the Environment.
- A.7 I have been registered as an Expert Witness on cycling since c.1990. In this role I have been concerned with analysis of the causes of crashes involving cyclists and the presentation of evidence to court and inquiries.
- A.8 I have contributed articles on cycling technique and cycle infrastructure to professional journals and I have contributed papers and given presentations to other forums on diverse aspects of cycling, cycle safety and cycle planning, including the international Velo City conferences and UK national cycle planning conferences.
- A.9 I am a member of an international monitoring group on the use of cycle helmets.
- A.10 I cycle daily, both as my primary means of transport and for leisure. I have cycled throughout the UK and Europe, and in other parts of the world.