

Mapping the National Standard for Cycle Training against KSI Statistics

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Overview

- The national standard for cycle training (NSCT) is a statement of competent cycling and cycling instruction. It sets out the skills and understanding needed to cycle safely and responsibly and to enable others to cycle. The standard provides the basis for Bikeability cycle training.
- The standard describes the different 'roles' involved in cycling and cycling instruction. Each role is made up of 'units', and each unit has one or more 'elements'. These elements describe competent cycling and cycling instruction in detail.
- The Bikeability Programme is the only approved form of the NSCT. Bikeability's 'Cycle Training Delivery Guide', together with its associated pedagogy underpin the delivery of cycle training by qualified (holds a 1st4sport Level 2 Award in Instructing Cycle Training) and quality-assured Bikeability instructors. This enables participants (of all ages) of Bikeability cycle training to develop the skills and confidence required to cycle confidently, consistently and competently on all roads. The NSCT and the Bikeability Programme are both owned by ATE/DfT and apply a comprehensive approach to cycle training that is well integrated within the wider framework of national standards for road-users.



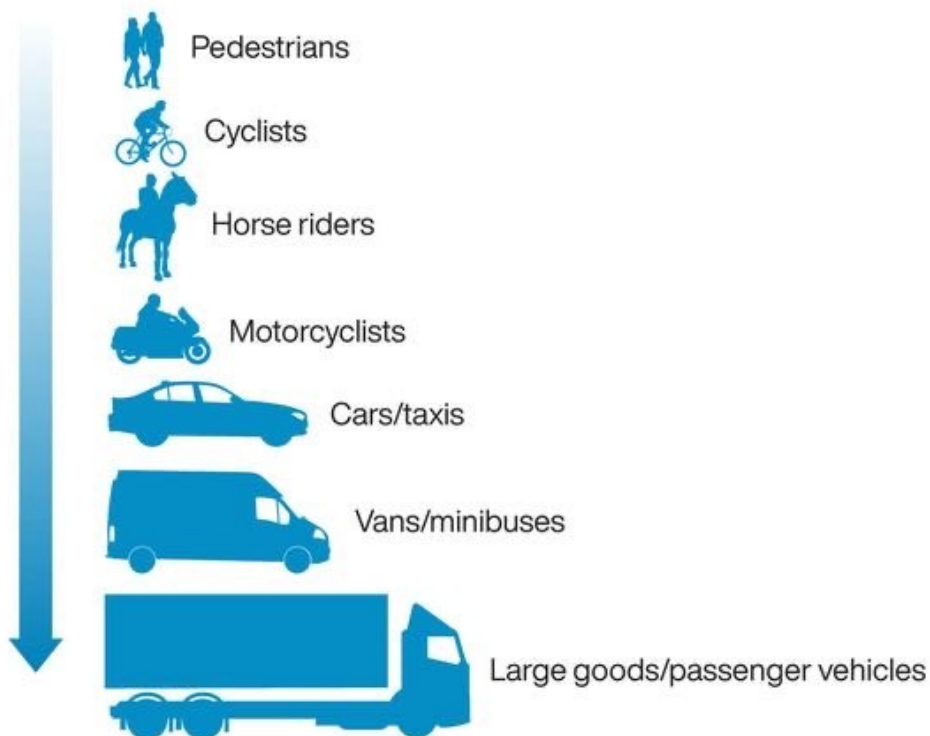
Mapping NSCT roles against KSIs

In this report, components of the NSCT have been mapped against killed or seriously injured (KSI) statistics involving cyclists in Great Britain. The aim of this is to highlight the importance of cycling to the NSCT, all road users' awareness of the NSCT, and to identify any implications this review may have for cycle training.

This report focuses on the NSCT, and therefore the role of the cyclist as a road user. However, all road users have standards to uphold when using the road and importantly, should remain aware that they will inevitably be sharing road space with people using different mobility modes. Every road user is responsible for keeping our roads safe.

Highway Code: new hierarchy of road users

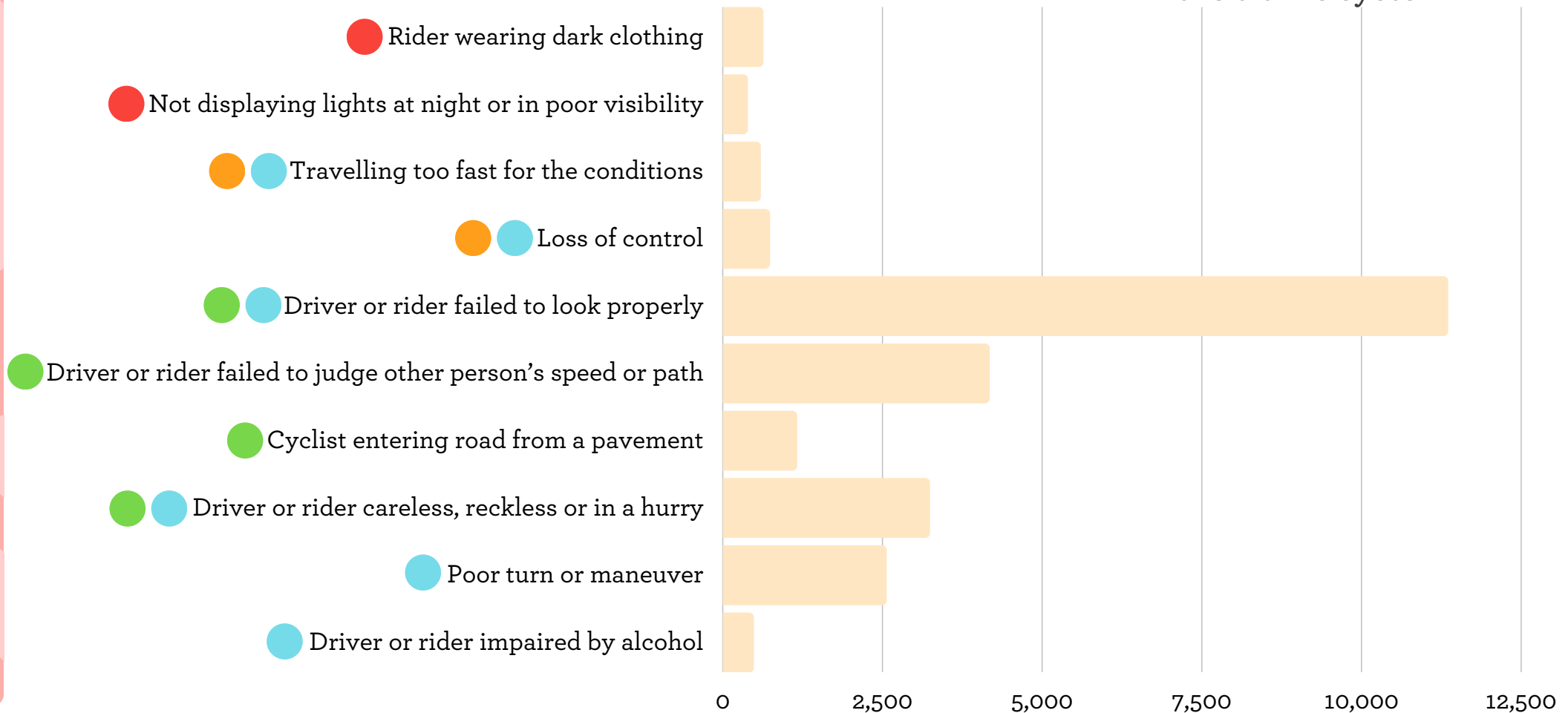
Road users who can do the greatest harm have the greatest responsibility to reduce the danger or threat they may pose to other road users



PA graphic. Source: Department for Transport

Overview of contributory factors to KSIs involving a cyclist, and key associated NSCT role(s)

- NSCT role:
- Prepare for a journey
 - Ride with control
 - Use the road in accordance with the Highway Code
 - Ride safely and responsibly in the traffic system



NSCT role:

Prepare for a journey

"Ensure I have appropriate clothing or accessories to help me ride comfortably and safely; check reflectors and lights are legal, clean and in good working order (if present); understand the legal requirements for reflectors and lights; select and fit lights (if required)."

Dark clothing being worn at night is a common factor in collisions (1). 'Rider wearing dark clothing' was a contributory factor allocated to 627 vehicles involved in fatal or serious collisions with a pedal cyclist according to 2015-2020 national statistics (2). It was found to be the sixth most common factor allocated to pedal cyclists for fatal or serious collisions involving a cyclist in Great Britain (2).

Similarly, 'not displaying lights at night or in poor visibility' was a contributory factor allocated to 385 vehicles involved in fatal or serious collisions with a pedal cyclist according to 2015-2020 national statistics (2). It was found to be the ninth most common factor allocated to pedal cyclists for fatal or serious collisions involving a cyclist in Great Britain (2).

"How changing traffic, weather and lighting conditions, my cycling ability and the cycle I ride, may affect the choice of suitable routes."

The loss of traction of the tyres due to slippery road conditions has been found to be an underreported but frequent cause of single-cyclist, low severity collisions (3).

How this role is embedded in Bikeability cycle training

Bikeability cycle training teaches riders to apply the role 'prepare for a journey', and specifically the elements listed above. It does so through activities with the riders, in particular 'clothing check' and 'cycle check' activities. For example, before every training session (whether off or on road) instructors will ask riders to dress appropriately by considering the weather and visibility to others when cycling. During training, they ask riders to look at their clothing and to comment on its suitability for cycling. Riders then check themselves and each other to ensure that they are all dressed appropriately and are fit to ride.

NSCT role: **Ride with control**

"Control my speed."

Travelling too fast for the conditions is a common factor in fatal collisions involving a pedal cyclist (1). It was found to be a contributory factor allocated to 587 vehicles involved in fatal or serious collisions with a pedal cyclist in Great Britain according to 2015-2020 national statistics (2).

'Loss of control' was the most commonly attributed contributory factor for collisions involving only a cycle (reported in 29 out of 50 of fatal single vehicle cyclist collisions) (RRCGB, DfT, 2017 (1)). Further research has found that accidents involving child cyclists are often the result of riding too fast or losing control (4).



How this role is embedded in Bikeability cycle training

Bikeability cycle training teaches riders to apply the role 'control my speed'. This is embedded in riders' learning when instructors teach and assess control skills at Bikeability 'Level 1'. Specific activities focus on riders developing the skills to be able to stop quickly with control, to make the cycle go where they want it to go, to use their gears effectively, and to share road space considerately with other users. For example, riders are taught to be aware of what to do with their hands, arms and feet, and how they must shift their body weight in order to stop quickly and with control.

During Bikeability Level 2 and 3, instructors are taught to communicate to riders the importance of choosing the right gear (if present) and speed for approaching and negotiating any piece of infrastructure.

NSCT role: Use the road in accordance with the Highway Code

"Maintain a suitable riding position; negotiate road junctions."

'Driver or rider failed to look properly' was a contributory factor allocated to 11,348 vehicles involved in fatal or serious collisions with a pedal cyclist according to 2015-2020 national statistics (2). It was found to be the most common factor allocated to pedal cyclists and vehicles for fatal or serious collisions involving a cyclist in Great Britain (2). This is particularly important when at or approaching a junction. Junctions are particularly associated with cyclist collisions (1). 25% of cyclist fatalities (and 41% of seriously injured) occur at a junction (2).



Riding in the 'primary' road position is one strategy a rider can use to improve their visibility to other road users. This position should be taken at any point where a rider feels that their visibility is important to other road users, and to prevent overtaking where it is not safe. This increases the likelihood of other road users seeing them and responding appropriately.



NSCT role:

Use the road in accordance with the Highway Code

"Apply a systematic routine when changing riding position."

'Driver or rider failed to judge other person's path or speed' was a contributory factor allocated to 4,171 vehicles involved in fatal or serious collisions with a pedal cyclist in Great Britain according to 2015-2020 national statistics (2). It was found to be the second most common factor allocated to pedal cyclists and vehicles for fatal or serious collisions involving a cyclist in Great Britain (2).

In Bikeability cycle training, riders are taught that all routines start with carrying out an observation to ensure that they are aware of other road users around them and their behaviour, and to ensure that other road users are equally aware of them, as the cyclist. After observation, the rider applies a decision-making process as they complete the rest of the routine whilst ensuring that they are always aware of what is happening within their environment, and that they will respond appropriately to other road users' behaviour and identify/mitigate any potential hazards.



"Pass stationary or slower moving vehicles."

Riders should be aware of the hazards, and the appropriate methods when passing stationary or slower moving vehicles. Impacts with open(ing) doors have been found to be an underreported but frequent cause of single-cyclist, low-severity collisions (3).

NSCT role:

Use the road in accordance with the Highway Code

"Go left, right and straight ahead at crossroads and roundabouts; pass and turn left and right into and out of side roads; emerge into the stream of traffic when exiting junctions."

Junctions are particularly associated with cyclist collisions (1). According to 2015-2020 national statistics, 25% of fatalities involving a cyclist (and 41% of seriously injured) occur at a junction (2). The same dataset states that 10.3% of all casualties involving a pedal cyclist occurred at a crossroad, 11.8% of all casualties occurred at a roundabout, and 0.6% of all casualties occurred on a slip road (2). Data also shows that a key contributory factor attributed to cyclist collisions was 'cyclist entering the road from the pavement' (4).

According to 2015-2020 national statistics 38.1% of all casualties involving a pedal cyclist occurred at a T, Y or staggered junction (2). Circumstances of collisions which involved a cycle and car are the car turning right or left with the cyclist travelling straight ahead, and the cyclists turning right while the car was travelling straight ahead, according to an in-depth analysis of cycling casualties in the period 2005-07 (Knowles et al, 2009 in (1)).

How this role is embedded in Bikeability cycle training

Bikeability cycle training teaches riders to apply the 'core functions' throughout all its training, and in a routine where appropriate. This means:

- making good and frequent observations
- communicating intentions clearly to other road users
- choosing and maintaining the most suitable riding positions
- prioritising road use, particularly at junctions

Every on-road activity during Bikeability cycle training teaches riders to think about and apply these functions through routine where possible. Activities that practice integrating this include negotiating junctions, overtaking slow vehicles or parked cars, and passing side roads.

NSCT role:

Ride safely and responsibly in the traffic system

"Apply a systematic routine for communicating my intentions to other road users; identify other road users ahead or behind who need to know my intentions; anticipate the likely actions of other road users ahead and behind; signal my intentions before performing a manoeuvre if necessary; use arm signals, riding position and eye contact to communicate my intentions to other road users; see that other road users have responded to my signals."

Applying a systematic routine is an important practice to ensure that riders remain aware of other road users around them and their behaviour, and to ensure that drivers too are aware of the cyclist. 'Driver or rider failed to look properly' was a contributory factor allocated to 11,348 vehicles involved in fatal or serious collisions with a pedal cyclist in Great Britain according to 2015-2020 national statistics (2). It was found to be the most common factor allocated to pedal cyclists and vehicles for fatal or serious collisions involving a cyclist in Great Britain (2). Between 2014 and 2016, 66% of these failures were attributed to other vehicles and 34% to cyclists (RRCGB, DfT, 2017 in (1)).



A systematic routine involving frequent observation, judgement of possible hazards and the subsequent rider's response, are critical responses to such instances of 'driver failed to look properly' and can be effective at mitigating such casualties.

NSCT role:

Ride safely and responsibly in the traffic system

"Continually scan the riding space ahead and behind, close to the cycle and into the distance; anticipate possible hazards and prepare to respond to them; judge the significance of possible hazards and prioritise my response; respond to hazards effectively; position myself to maximise visibility to other road users."

A rider's spatial awareness, particularly the awareness of vehicles in proximity to the rider is important. Collisions resulting from the cyclist and vehicle travelling in the same direction, specifically, nearside-hook, vehicle lane changing, and overtaking manoeuvres have been found to be underreported but important impact configurations in the area of self-reported cases (3).

Clear communication on the road between cyclists and other vehicles is critical, as is the ability to read and anticipate other road users' intentions. Data shows that the main circumstances of collisions which involved a cycle and car were the car turning right or left with the cyclist travelling straight ahead, and the cyclists turning right while the car was travelling straight ahead (1).

"Identify blind spots for drivers of large vehicles in particular."

Collisions with HGVs tend to have more serious outcomes for the cyclist in comparison to cyclists' collisions with other road users. When a cyclist was killed or seriously injured in a collision where the only other vehicle involved was a large goods vehicle (over 3.5t mgw), it was more likely to be fatal (18% of cyclists' KSI casualties resulting from such collisions were fatal, compared with 2% in all other collisions between a cyclist a single vehicle) according to 2014-16 data (RRCGB, DfT, 2017 in (1)).

Collisions involving HGVs tend to the pattern of an HGV driver turning left with the cyclist travelling straight ahead (1). About one quarter of accidents resulting in serious injury to a cyclist involved an HGV, bus or coach 'passing too close' to the rider (4).

NSCT role:

Ride safely and responsibly in the traffic system

"Give other road users enough time and space to perform their manoeuvres."

Providing other road users with the space and time necessary to perform manoeuvres safely is important. 'Driver or rider careless, reckless or in a hurry' was a contributory factor allocated to 3,236 vehicles involved in fatal or serious collisions with a pedal cyclist in Great Britain according to 2015-2020 national statistics (2). It was found to be the third most common factor allocated to vehicles for fatal or serious collisions involving a cyclist in Great Britain (2).



"Manage my own physical and emotional state."

It is important for riders (and other road users) to assess their own physical/emotional state and its suitability for using the road. 'Driver or rider impaired by alcohol' was a contributory factor allocated to 313 cyclists involved in fatal or serious collisions according to 2015-2020 national statistics (2). 'Driver or rider careless, reckless or in a hurry' was a contributory factor allocated to 3,236 vehicles involved in fatal or serious collisions with a pedal cyclist according to 2015-2020 national statistics (2). It was found to be the third most common factor allocated to vehicles for fatal or serious collisions involving a cyclist in Great Britain (2).

NSCT role: Ride safely and responsibly in the traffic system

"Ride at such a speed that I can always stop with control."

'Loss of control' was the most commonly attributed contributory factor for collisions involving only a cycle (reported in 29 out of 50 of fatal single vehicle cyclist collisions) (RRCGB, DfT, 2017 in (1)). Further research has found that accidents involving child cyclists are often the result of the child riding too fast or losing control (4). 16% of fatal or serious cyclist accidents reported to the police do not involve a collision with another vehicle but are caused by the rider losing control of their cycle (4).



How this role is embedded in Bikeability cycle training

Bikeability cycle training prepares riders to cycle in more complex environments together with a variety of road users. It teaches riders to employ specific strategies and increase their awareness by completing a number of activities. This includes the Bikeability Level 3 activities: being aware of driver blind spots; and sharing space with road users who pull in and out ahead of the rider.

The national standard element 'identify and respond to hazards' is emphasised throughout all on-road activities and is informed by the most important riding behaviour: making good and frequent observations. This is applied at the start of every routine and enables riders to then make independent decisions so that they respond effectively to the situation around them.

Conclusions

This review highlights the importance of cycling in accordance with the NSCT. It has demonstrated areas in which cycling to the NSCT could contribute to the reduction of KSI statistics. When this occurs in conjunction with the upholding of national standards by all road users, we can work towards the elimination of casualties on our roads. However, it is important to acknowledge that data is not currently collected on whether individuals involved in a KSI incident involving a cyclist, have had cycle training. This presents an important area for future data collection.



This review highlights the following key points:

The most common contributory factor assigned to both pedal cyclists and other vehicle types involved in fatal or serious accidents (2015-2020) was 'driver or rider failed to look properly' (almost 3 times as common as the second most common factor). This emphasises the importance of a cyclist's visibility and ability to effectively employ a systematic routine, specifically to anticipate possible hazards, judge the hazard's significance and prioritise their response. Furthermore, it highlights a key area of improvement in driver education.

The second and third most common contributory factors assigned to both pedal cyclists and other vehicle types involved in fatal or serious accidents (2015-2020) were 'failure to judge a person's speed/path' and 'driver/rider careless, reckless or in a hurry'. In addition to the cycling strategies and driver education mentioned in the point above, this further highlights the need to ride at a controllable speed, and to only cycle when in the right physical and emotional state.

Conclusions

Junctions see a high proportion of casualties involving a pedal cyclist. T, Y and staggered junctions see the highest number of casualties of any junction type. It is important that the NSCT guidance concerning safe practice at junctions and when merging with traffic, is followed.

Overall, important rider risk mitigation strategies are:

- Those that enhance rider visibility and make claim to the physical space necessary to keep the cyclist at a safe distance from other road users.
- Those that ensure that riders have continuous awareness of their surrounding road space, and anticipation as to what they could be approaching next.
- A predictable, clear systematic routine, with particular attention paid to its practice at junctions.

The statistics draw attention to the importance of cyclists' ability to practice and perform the NSCT in its entirety when cycling on roads. It also highlights the importance of awareness of and reaction to hazards that are beyond a cyclist's control, involving other road users.

Many but not all incidents involve other road users. Due to the nature of single-cyclist incidents, these are not often reported to the police and therefore statistics for this are not as readily available.



Recommendations

Key recommendations that can be drawn from this review include:

Increase the number of road users who have read and understand the NSCT. The review has demonstrated the value of cycling in line with the NSCT. However, it remains important that other road users understand the reasons as to why cyclists behave the way they do, and what it means to cycle safely. By understanding this, drivers too can adjust their behaviour so that they share the road with cyclists more effectively.

In addition to this, it is important that all road users know of, and understand, the most recent Highway Code, as this reinforces some of the principles of the NSCT. Projects such as 'Cycle Savvy Driving' can be effective at achieving this. However, we also recommend further awareness campaigns from the Department of Transport on the Highway Code.

E.g. <https://www.think.gov.uk/campaign/travel-like-you-know-them/>

Enable all people who want to, to complete all three levels of the Bikeability Core cycle training. To be a confident, consistent and competent cyclist on all roads, riders should understand, demonstrate and practice all roles detailed in the NSCT.

The ethos behind all cycle training should have 'independent decision making' at its heart, which relates to the NSCT criteria of: 'judge the significance of possible hazards and prioritise my response'. In particular, emphasis should be placed on the following two of the 'core functions', which would equip the rider to respond to the situation around them and maximise their visibility:

- Make good and frequent observations
- Choose and maintain the most suitable riding positions



Recommendations

- Ensure that all DfT/ATE funded cycle training is delivered to the NSCT and comes under administration by the Bikeability Trust as guardians of the NSCT and system of curriculum (Cycle Training Delivery Guide), registration, quality assurance and awards.
- Integrate or cross reference between different national standards. Road users would have a comprehensive and holistic understanding of the legal standards and guidance given to different types of road users. This in turn would create a more empathetic road space.
- Active Travel England data mapping to integrate Bikeability delivery data with KSI and accident data.



References

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3. Gildea and Hall (2021) 'Configurations of underreported cyclist-motorised vehicle and single cyclist collisions: Analysis of a self-reported survey'. Available at: [\(PDF\) Configurations of underreported cyclist-motorised vehicle and single cyclist collisions: Analysis of a self-reported survey \(researchgate.net\)](https://www.researchgate.net)
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