

24 Key Points about Cycle Infrastructure Design (CID) for North Yorkshire County Council (NYCC)

Introduction

CID is a genuinely excellent document based on UK and international best practice. Its authors have a deep and thorough understanding of infrastructure for bikes, and they tell you clearly what to do in all situations. We would like NYCC to regard CID as an opportunity, not an irritation. When followed, it will enable local authorities to build first class cycle infrastructure.

It may be more work to create proper, high-quality cycle routes; but it must be rewarding to see people using cycle routes you've built, and the new routes inspiring more people to get around by bike. The alternative – doing (less than) a bare minimum, creating cycle provision that is unsafe or unusable, and watching people ignore it – is pointless.

Local authorities set design standards for their roads. CID is national guidance that provides a recommended basis for those standards, particularly the Core Design Principles and the Summary Principles. NYCC design standards should comply with CID.

Cyclists and pedestrians are 'traffic' within the meaning of the legislation, and therefore the duty to secure expeditious and safe movement for all traffic applies to them as well as motorised traffic.

1) Cycling should be placed at the heart of the transport network

In the Foreword (p3), the Minister with responsibility for cycling states:

'Cycling must no longer be treated as marginal or an afterthought. It must not be treated as part of the leisure industry but as a means of everyday transport. It must be placed at the heart of the transport network, with the capital spending, road space and traffic planners' attention befitting that role.'

That means a change in approach is needed in North Yorkshire, to place cycling at the heart of the transport network. The budget allocated to cycling should reflect its position at the heart of the transport network, and more priority must be given to it in road schemes.

2) Designers of cycle and walking schemes should have experience and training

This will enable designers of cycling and walking schemes to effectively apply the guidance, and use the Cycling Level of Service tool (CLOs, Appendix A) and Junction Assessment Tool (JAT, Appendix B) tools. Note that only schemes with a minimum CLOs score of 70%, and no JAT Critical Fails, will be funded.

Training could include the Highway Engineers' Professional Certificate & Diploma in Active Travel.

[Question 1: how many NYCC Highways officers have the Certificate & Diploma in Active Travel?](#)

[Question 2: how many officers have read the new CID?](#)

Also, all designers of cycle schemes must experience the road as a cyclist. 'Ideally, all schemes would be designed by people who cycle regularly. But in every case, those who design schemes should travel through the area on a cycle to understand how this feels – and experience some of the failings described above, to understand why they do not work. The most effective way to gain this understanding is to get out and cycle the route and observe users' behaviour' (Summary Principle 20, p13).

3) Inclusive Design

The concept of Inclusive Design runs through CID. There is a duty on public sector authorities under the Equality Act 2010 to make sure infrastructure is accessible to all.

'The built environment should be accessible to all, including young people, older people, and disabled people. The concept of 'inclusive design' underpins the document...Design should begin with the principle that all potential cyclists and their machines should be catered for in all cycle infrastructure design.' (Para 1.4.1, CID)

Design should be for all types of people and all 'cycle vehicles'. Figure 5.2 has the cycle vehicles and their dimensions. This is part of that illustration.

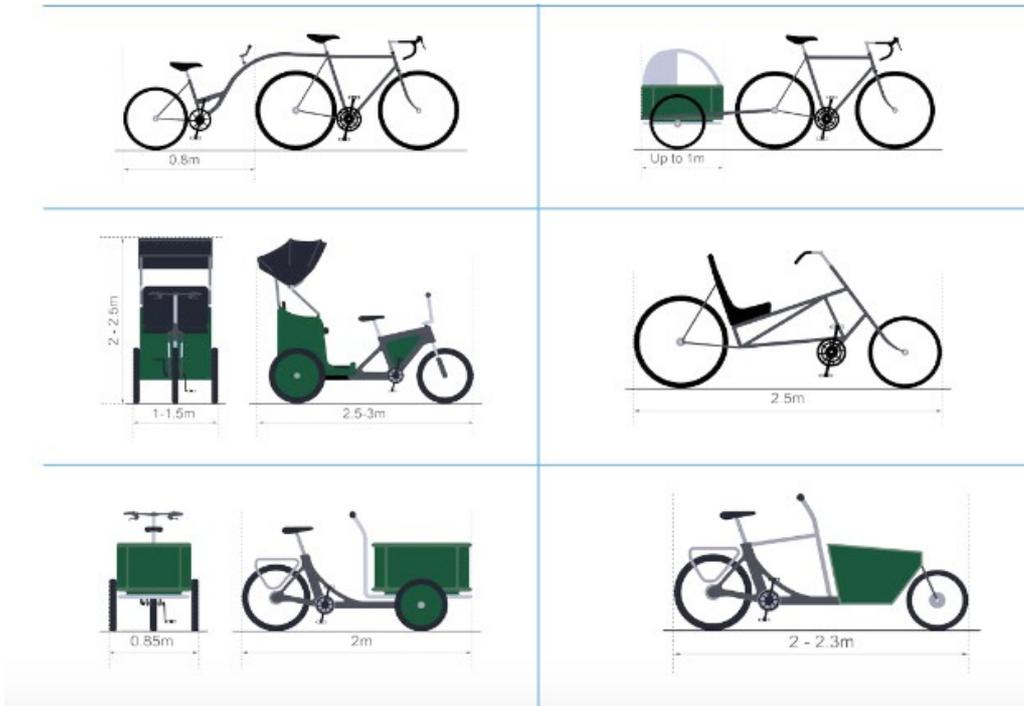


Illustration 1: part of Figure 5.2, CID

Examples in Harrogate where the design is not inclusive include:

- tight A-frame where the Stonefall Park bike path meets Hookstone Chase
- paint-only cycle lanes on busy roads
- elements of the Otley Road design where it is anticipated that some people will reject the facility and use the road instead; I appreciate the constraints there, but every effort should be made to build a route that everyone on a bike will choose to use



Illustration 2: tight A-frame at exit from Stonefall Park

4) Routes must be Coherent (Core Design Principle 1)

The Core Design Principles are the **essential requirements** to achieve more people travelling by cycle or on foot, based on best practice internationally and in the UK.

They are illustrated by Figure 1.1, which gives some examples of infrastructure that meets, and that does not meet, the Core Design Principles.

Accessibility for all				
Coherent	Direct	Safe	Comfortable	Attractive
 <p>DO Cycle networks should be planned and designed to allow people to reach their day to day destinations easily, along routes that connect, are simple to navigate and are of a consistently high quality.</p>	 <p>DO Cycle routes should be at least as direct – and preferably more direct – than those available for private motor vehicles.</p>	 <p>DO Not only must cycle infrastructure be safe, it should also be perceived to be safe so that more people feel able to cycle.</p>	 <p>DO Comfortable conditions for cycling require routes with good quality, well-maintained smooth surfaces, adequate width for the volume of users, minimal stopping and starting and avoiding steep gradients.</p>	 <p>DO Cycle infrastructure should help to deliver public spaces that are well designed and finished in attractive materials and be places that people want to spend time using.</p>
 <p>DON'T Neither cyclists or pedestrians benefit from unintuitive arrangements that put cyclists in unexpected places away from the carriageway.</p>	 <p>DON'T This track requires cyclists to give way at each side road. Routes involving extra distance or lots of stopping and starting will result in some cyclists choosing to ride on the main carriageway instead because it is faster and more direct, even if less safe.</p>	 <p>DON'T Space for cycling is important but a narrow advisory cycle lane next to a narrow general traffic lane and guard rail at a busy junction is not an acceptable offer for cyclists.</p>	 <p>DON'T Uncomfortable transitions between on-and off carriageway facilities are best avoided, particularly at locations where conflict with other road users is more likely.</p>	 <p>DON'T Sometimes well-intentioned signs and markings for cycling are not only difficult and uncomfortable to use, but are also unattractive additions to the street scape.</p>

Illustration 3: Figure 1.1, CID

The first Core Design Principle is that routes must be Coherent. Figure 1.1 says that this means allowing people to reach their day-to-day destinations on routes that connect, are simple to navigate and are of a consistent high quality.

Case study: Penny Pot Lane

One example of failure to build a Coherent cycle route is from the new King Edwin Park housing development to Otley Road. This is because the cycle infrastructure such as it is doesn't allow anyone to reach any destination.

The large number of new houses at King Edwin Park will generate a lot of new, short local journeys. Under the Cycling & Walking Investment Strategy, cycling and walking should be the natural choices for these journeys – but cycling is not provided for with a Coherent route.

All cycle provision is low quality shared use pavements (a type of infrastructure that suits no one, and should not be used in urban areas – see point 9 below), but it is also stop-start, not Coherent. From King Edwin Park to Otley Road, this is the situation:

- Penny Pot Lane, King Edwin Park to Young's Drive: shared use pavement that most people on bikes ignore - **START**
- Penny Pot Lane, Young's Drive to Oak Beck: no infrastructure – **STOP**
- Penny Pot Lane/Cornwall Road, Oak Beck to Harlow Moor Road: no infrastructure – **STOP**
- Harlow Moor Road, Cornwall Road to Harlow Moor Drive: shared use pavement that most people on bikes ignore - **START**
- Harlow Moor Road, Harlow Moor Drive to Otley Road: shared use pavement being built, that will be on the wrong side of the road when travelling uphill, and will be ignored by people on bikes – **STOP**

(Shared use pavements are not appropriate cycle infrastructure here. We should start again in planning for bikes on this route. One solution would be to make Penny Pot Lane one way, reduce the speed limit, widen the pavements, and create protected uphill bike lanes. After all, is Penny Pot Lane really suitable as a major A59 alternative route into and out of Harrogate?)



Illustration 4: person on a bike ignoring Harlow Moor Road shared use path

Summary Principle 8 reinforces the point about isolated stretches of cycle provision.

'Routes should be planned holistically as part of a network. Isolated stretches of provision, even if it is good, are of little value.' (Summary Principle 8, CID).

Case study: Sainsbury's junction, Wetherby Road

There is more about the Core Design Principles in Chapter 4, Design Principles and Processes. In relation to Core Design Principle 1, paragraph 4.2.4 states:

'Abrupt reductions in the quality of provision for cyclists – such as a busy high-speed roundabout without facilities – will mean that an otherwise serviceable route becomes unusable by most potential users.' (Para 4.2.4, CID).

The route through the Yorkshire Showground from Hornbeam Park to Sainsbury's is well-used. It continues through Stonefall Park towards Plumpton Park, but is severed by an **abrupt reduction in quality** at the A661 Wetherby Road, where NYCC has failed to make proper provision for cycles.

The options for people on bikes are:

- Negotiate the junction as a vehicle using the road, which feels very dangerous
- Dismount, cross the A661 in several stages, then push your bike along the footway where cycling is prohibited

Both these options fail to meet the standards of CID, and get multiple **0 (Red)** scores using the JAT. The on-road way across the junction is also a CRITICAL FAIL, because of the volume of traffic at that junction.

NYCC must take into account potential delays to cycles as well as vehicles. *Remember the duty to secure expeditious and safe movement applies to people on foot and on bikes as well as cars.*

NYCC should first consider whether changes are needed to ensure the provision of a safe and Coherent bike route. *Remember NYCC is the Highways Authority responsible for putting cycling at the heart of the transport system.* Only then should questions of cost and work required be looked at; the cost and work involved should not affect the judgement as to whether changes are needed.

Also on this route, where the bike path meets Hookstone Chase is another fail in terms of Coherence, as there's a signal-controlled crossing to a pedestrian-only footway. The bike route does not take you to the Plumpton Park destination, but abandons you, as described in the Minister's Foreword to CID:

'Too much cycling infrastructure is substandard, providing little protection from motorised traffic and giving up at the very places it is most needed. Some is actually worse than nothing, because it entices novice cyclists with the promise of protection, then abandons them at the most important places.' (Foreword, CID).

[Question 3: will NYCC please assess the provision for cycling at these two junctions?](#)

5) Routes must be Direct (Core Design Principle 2)

Cycle routes should be at least as direct – and preferably more direct – than those available for private motor vehicles. The DON'T image shows a cycle track that gives way at each side road, meaning lots of extra stopping and starting; this breaches the Direct principle, and means people will choose the main carriageway instead, or not cycle at all.

Also on this point, Summary Principle 19 states that schemes must be easy and comfortable to ride. Cycling is a physical effort, and schemes should not impose constant stopping and starting.

There are plenty of example of cycle routes that breach this Core Design Principle, including

Jennyfield Drive and the shared use path on Beckwith Head Road.



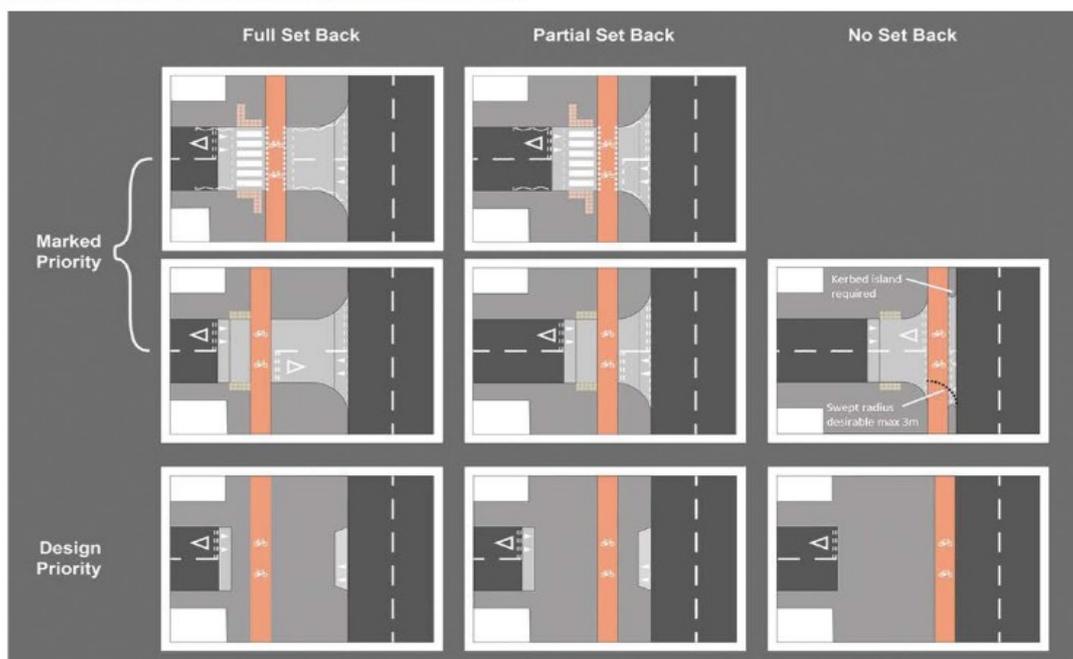
Illustration 5: shared use pavement on Beckwith Head Road gives way to a side road

What should be done instead? CID tells you in Chapter 10. This is the principle to be applied.

'In urban areas, where protected space separate from the carriageway is provided for cycling, it is important to design priority junctions so that wherever possible cyclists can cross the minor arms of junctions in a safe manner without losing priority. This enables cyclists to maintain momentum safely, meeting the core design outcomes of safety, directness and comfort.' (Para 10.5.7, CID).

CID provides all the designs, based on the position of the cycle track relative to the main road, and whether full legal priority is given over traffic, or effective priority is achieved by the design.

Figure 10.13: Priority crossings of cycle tracks at side roads*



* Note – yellow globes at parallel crossings omitted for clarity.

Illustration 6: Figure 10.13, CID

There are more detailed diagrams showing the individual designs, for example 'full set back, marked priority'.

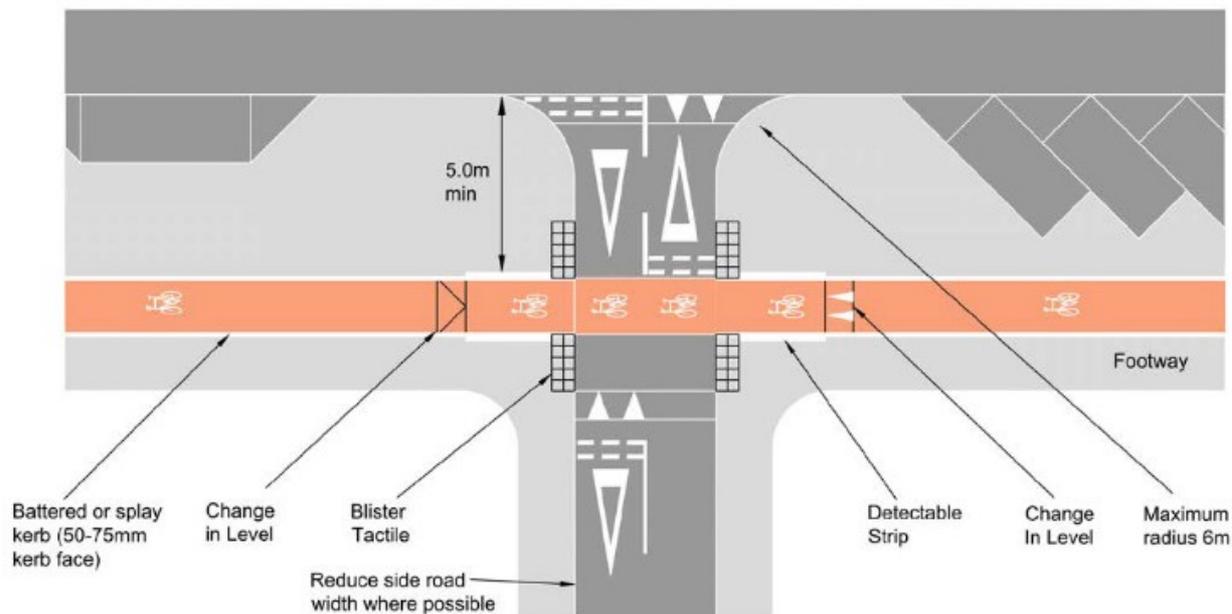


Illustration 7: part of Figure 10.15, CID

The Otley Road Cycleway design should be checked against the designs at side roads in Chapter 10, CID.

There are a few examples of good design in relation to the Direct principle – for example, Beech Grove > Victoria Avenue is a direct route for people on bikes, but not vehicles. Setting off from that junction is a completely different experience to setting off with vehicles behind you, their drivers desperate to get past as soon as possible.



Illustration 8: Beech Grove to Victoria Avenue

6) Routes must be Safe

The third Core Design Principle is that routes must be not only Safe, but perceived to be Safe.

Narrow paint-only lanes, such as those on Oatlands Drive, Hookstone Drive, East Parade (downhill), or Knaresborough High Bridge, are neither Safe, nor do they feel Safe.



Illustration 9: narrow paint-only cycle lane on Oatlands Drive

There are many other sections of CID which are relevant to the Core Design Principle of Safety. Some of them follow.

Summary Principle 1

Cycle infrastructure should be accessible to everyone from 8 to 80 including those with a disability. Paint-only cycle lanes will not be used by children, nor many adults.

Summary Principle 3

Cyclists must be physically separated and protected from high volume motor traffic. Cycle routes indicated only with road markings will be perceived to be unacceptable for safe cycling.

Chapter 4, Design Principles and Processes

This has more on the Core Design Principle of Safety in paras 4.2.9-13. It says Safety can be achieved by reducing traffic speed with traffic calming, or reducing traffic volume with filtered permeability, but on busy strategic roads, dedicated and protected space for cycling is required. This may involve reallocating highway space or providing a parallel route.

Para 4.4.1 states:

'Motor traffic is the main deterrent to cycling for many people with 62% of UK adults feeling that the roads are too unsafe for them to cycle on...The need to provide protected space for cycling on highways generally depends on the speed and volume of motor traffic. For example, in quiet residential streets, most people will be comfortable cycling on the carriageway even though they will be passed by the occasional car moving at low speeds. On busier and faster highways, most people will not be prepared to cycle on the carriageway, so they will not cycle at all, or some may unlawfully use the footway.' (Para 4.4.1, CID).

(Note that not all residential streets are suitable for cycling in mixed traffic. West End Avenue is a long, straight road with parking on both sides that reduces the carriageway to one lane. Some

drivers lose their patience/temper when they come up behind someone riding a bike and can't pass. Filtered permeability on West End Avenue and neighbouring streets would resolve this problem).

Figure 4.1 has a table that sets out clearly when protected space is required.

Figure 4.1: Appropriate protection from motor traffic on highways

Speed Limit ¹	Motor Traffic Flow (pcu/24 hour) ²	Protected Space for Cycling			Cycle Lane (mandatory/ advisory)	Mixed Traffic
		Fully Kerbed Cycle Track	Stepped Cycle Track	Light Segregation		
20 mph ³	0					
	2000					
	4000					
	6000+					
30 mph	0					
	2000					
	4000					
	6000+					
40 mph	Any					
50+ mph	Any					

- Provision suitable for most people
- Provision not suitable for all people and will exclude some potential users and/or have safety concerns
- Provision suitable for few people and will exclude most potential users and/or have safety concerns

- Notes:
1. If the 85th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
 2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow
 3. In rural areas achieving speeds of 20mph may be difficult, and so shared routes with speeds of up to 30mph will be generally acceptable with motor vehicle flows of up to 1,000 pcu per day

Illustration 10: Figure 4.1, CID

Chapter 6, Space for Cycling within Highways

The width of cycle lanes is specified in Chapter 5. Para 6.4.3 states:

'Cycle lanes less than 1.5m wide should not normally be used as they will exclude the use of the facility by larger cycles and are therefore not inclusive. They can also encourage 'close-passing' of cyclists by motorists, who tend to judge their road position with reference to the nearside marking.' (Para 6.4.3, CID).

That's exactly what happens on Oatlands Drive and in many other locations. Yet there are lots of painted cycle lanes around 1m wide, and hardly any at 1.5 or 2m.

7) Routes must be Comfortable

The fourth Core Design Principle says that routes must be Comfortable, meaning that they should have good quality, well-maintained smooth surfaces, adequate width for the volume of users, minimal stopping and starting and avoiding steep gradients.

Summary Principle 14 reinforces the point that surfaces should be hard, smooth, level and durable. This should be applied to bridleways near Oatlands School, and to the surfaced bridleway between

Roecliffe and Copgrove, where the surface is tarmacked but in a shocking state of disrepair. No other developed country would accept infrastructure falling into such a state.

The DON'T image for Comfortable refers to uncomfortable transitions between on- and off-carriageway routes, particularly at locations where conflict with other road users is more likely. This describes the East Parade bike lane (uphill), which hops between road and pavement, and has bodged arrangements where it crosses the mouth of North Park Road and at the Odeon roundabout, involving multiple stop-starting and looking out for (and giving way to) traffic from multiple directions.

The Comfortable Core Design Principle should also be applied to the Follifoot Underpass and Harland Way. This route has potential for utility cycling, but the soft crushed stone in the Underpass will deteriorate quickly; and the Harrogate section of the Harland Way is mud and gravel, whereas the Leeds/Wetherby part is a sealed surface.

8) Routes must be Attractive

Cycle infrastructure should help to deliver public spaces that are well-designed and finished in attractive materials, and be places that people want to spend time using. East Parade fails on this account, particularly where the cycle route gives way to a rubbish bin.



Illustration 11: East Parade bike lane where it gives way to a bin

9) No shared use pavements in urban areas

'Cycles must be treated as vehicles, not as pedestrians. On urban streets, cyclists must be physically separated from pedestrians and should not share the same space with pedestrians.' (Summary Principle 2).

It goes on to say that shared use routes *away from streets* may be appropriate in locations such as canal towpaths, paths through housing estates, parks and other green spaces. Where cycle routes use such paths in built-up areas, you should try to separate them from pedestrians, perhaps with levels or a kerb.

There is further explanation of this point in other sections of CID.

Chapter 5, Geometric Requirements

'Where a route is also used by pedestrians, separate facilities should be provided for pedestrian and cycle movements. However, away from the highway, and alongside busy interurban roads with few pedestrians or building frontages, shared use might be adequate...Conversion of existing footways to shared use should only be considered when options that reuse carriageway or other (e.g. verge) space have been rejected as unworkable.' (Para 5.5.3, CID).

Chapter 6, Space for cycling within highways

'Creating space for cycling may require the reallocation of space within the highway boundary. Wherever possible, this should be achieved by reallocating carriageway space, not reducing the level of service for pedestrians. Only where there are very wide or lightly-used footways should part of the space be considered for cyclists, and the minimum footway widths recommended in Inclusive Mobility should be retained.' (Para 6.1.9, CID).

Shared use is dealt with in detail in para 6.5. 'In urban areas, the conversion of a footway to shared use should be regarded as a last resort. Shared use facilities are generally not favoured by either pedestrians or cyclists, particularly when flows are high. It can create particular difficulties for visually impaired people.' (Para 6.5.4, CID).

Para 6.5.6 outlines the situations where well-designed shared use might be appropriate:

- alongside interurban and arterial roads where there are few pedestrians
- at and around junctions where cyclists are moving slowly
- where a length of shared use may be acceptable to achieve continuity of a cycle route
- where high cycle and pedestrian flows occur at different times

'Designers should be realistic about cyclists wanting to make adequate progress. The preferred approach is therefore to provide sufficient space so that cyclists can comfortably overtake groups of pedestrians and slower cyclists.' (Para 6.5.8).

Table 6-3 has recommended minimum widths for shared use routes.

Table 6-3: Recommended minimum widths for shared use routes carrying up to 300 pedestrians per hour

Cycle flows	Minimum width
Up to 300 cyclists per hour	3.0m
Over 300 cyclists per hour	4.5m

Illustration 12: Table 6-3, CID

Shared is the default in Harrogate. Language is important, and if designers habitually refer to “cycles and peds”, it tends to lump together as an afterthought two modes of transport that do not in fact have the same requirements.

Housing developers use shared use a lot – for example the so-called 'Miller Homes cycleway' which will be a shared use pavement. Shared use is clearly unsuitable on Penny Pot Lane, Cornwall Road and Harlow Moor Road. Plans from developers founded on shared use should not be accepted.

There are constraints on Otley Road, but every effort should be made to create a separate cycle track, and keep shared use to a minimum, only where necessary 'to achieve continuity of a cycle

route.'



Illustration 13: cyclists ignoring shared use pavement on Beckwith Head Road

10) Side street routes

'Side streets that are closed to through traffic can be an alternative to segregated facilities or closures on main roads – but only if they are truly direct.' (Summary Principle 4, CID).

Sometimes, a mix of the two can achieve a direct route. 'Routes that are not direct or that see significant volumes of rat-running traffic will not be used and should not be provided.'

Cycling becomes more attractive if you permit movements which prohibited to motor traffic (para 4.2.8, CID).

Chapter 7, Quiet Mixed Traffic Street and Lanes

Chapter 7 deals with mixed traffic streets and lanes.

Paragraph 7.1.1 gives the upper limits for speed and volume of traffic for inclusive cycling:

- 2,500 vehicles/day
- 20mph

'Most people, especially with younger children, will not feel comfortable on carriageways' with more traffic or higher speeds than this.

20mph

CID says that 20mph is being more widely adopted as an appropriate speed for access roads and many through streets in built-up areas, with 30mph limits retained on locally strategic roads. It acknowledges that enforcement or physical measures are needed to make sure that changes to the speed limit have a significant impact.

Traffic calming

Traffic calming measures are covered in paras 7.6.2-10. They include road-narrowing and chicanes, as well as speed humps, tables and cushions.

Tight kerb radii at side roads reinforce lower speeds for turning vehicles and offer a better crossing environment for pedestrians. The entrance to King Edwin Park has spectacularly failed to take account of this – it's one of the widest road junctions I've ever seen.

Carriageway widths

Table 7-2 has Desirable and Absolute Minimum lane widths where on-carriageway cycling is appropriate, and Table 7-3 gives widths for bus lanes shared with cyclists, buffer zones, and car parking bays. The idea is that sufficient width reduces intimidating close passes.

Reducing motor traffic

Reducing traffic flow in side streets and encouraging through traffic to use main roads can enable people to cycle on the side streets.

This can be done through:

- mode filtering through TRO exemptions, e.g, permitting contraflow cycling as proposed on Kingsley Drive
- filtered permeability
- traffic reduction through control of car parking – charges, limited capacity, limited duration of stay, or removal of on-street car parking to provide space to pedestrians and cyclists

Cutting out through traffic can transform a route, and make it ideal for cycling. One example is Parson's Intake.



Illustration 14: Parson's Intake

Wherever you allow cars, people will drive. If you allowed through traffic here, it would make it much less attractive as a cycle route.

11) Design for thousands of cyclists a day

'Cycle infrastructure should be designed for significant numbers of cyclists, and for non-standard cycles. Our aim is that thousands of cyclists a day will use many of these schemes.' (Summary Principle 5, CID).

The Summary Principle also says that cargo bikes should replace some van journeys, and cycle

routes must be accessible to recumbents, trikes, handcycles and other cycles used by disabled cyclists. 'Many current tracks are too narrow or constrained to meet these objectives. To allow faster cyclists to overtake, and make room for non-standard bikes, cycle tracks should ideally be 2 metres wide in each direction, or 3 to 4m (depending on cycle flows) for bidirectional tracks...'

Chapter 4, Design Principles and Processes

A related element is mentioned in para 4.2.15: 'cycling is a sociable activity and many people will want to cycle side by side, and to overtake another cyclist safely. It is important that cyclists can choose their own speed so that they can make comfortable progress commensurate with the amount of effort they wish to put in.'

Chapter 5 Geometric Requirements

Table 5-2 specifies the appropriate widths for cycle lanes and tracks.

Table 5-2: Cycle lane and track widths

Cycle Route Type	Direction	Peak hour cycle flow (either one way or two-way depending on cycle route type)	Desirable minimum width* (m)	Absolute minimum at constraints (m)
Protected space for cycling (including light segregation, stepped cycle track, kerbed cycle track)	1 way	<200	2.0	1.5
		200-800	2.2	2.0
		>800	2.5	2.0
	2 way	<300	3.0	2.0
		>300-1000	3.0	2.5
		>1000	4.0	3.0
Cycle lane	1 way	All – cyclists able to use carriageway to overtake	2.0	1.5

*based on a saturation flow of 1 cyclist per second per metre of space. For user comfort a lower density is generally desirable.

Illustration 15: Table 5-2, CID

Table 5-3 has the additional width to be added at fixed objects (for example where the cycle track or lane runs next to a kerb).

Table 5-3: Additional width at fixed objects

Type of edge constraint	Additional width required to maintain effective width of cycle track (mm)
Flush or near-flush surface including low and splayed kerbs up to 60mm high	No additional width needed
Kerbs 61mm to 150mm high	200
Vertical feature from 151mm to 600 mm high	250
Vertical feature above 600 mm high	500

Illustration 16: Table 5-3, CID

Much of Harrogate's cycle infrastructure is not designed for significant numbers of cyclists. Cycling is treated as marginal, and as an afterthought, and the assumption appears to be that it doesn't matter if the infrastructure is any good or not because hardly anyone will use it. Because much of it is no

good, not as many people use it as could and would if it were of a proper quality.

One illustration of failing to design for volume is the bridge over the railway from Dragon Road to Franklin Road. It's a main, signed cycle route where cycling is prohibited! (It is better than the alternatives).

Another example is St George's roundabout, where the Toucan crossing from the east side of Leeds Road leads to a narrow shared use pavement hemmed in by railings – unsuitable for any bicycles, let alone thousands a day.



Illustration 17: railed-in shared use path, St George's roundabout

12) Presumption of cycle infrastructure to these standards in future highway schemes

This is Summary Principle 5 – that future highway schemes should improve the cycle infrastructure.

Chapter 14 covers integrating cycling with highway improvements and new developments. This is a cost-effective way of making improvements.

Highway works

'Appropriate cycle facilities should always be provided within all new and improved highways in accordance with the guidance contained in this document...' (Para 14.1.2, CID).

More modest but still effective improvements can be achieved as part of highway maintenance – for example when road markings are being renewed. I suggest this should NOT include simply repainting narrow cycle lanes on busy roads, in breach of all CID guidance. There are likely to be legal implications to ignoring the guidance in the event that dangerous cycle infrastructure leads to injury.

Developments

'The requirements should include the provision of new cycle routes connecting to and through developments and enhancing the provision for cycling when making alterations to links and junctions on existing highways. It will not usually be acceptable to maintain an existing poor level of service when undertaking highway improvement schemes.' (Para 14.1.1, CID).

Housing developments under way are a disaster for active travel; they are 99% car-centric, and will increase congestion in the town.

There is no cycle link from King Edwin Park to western and central Harrogate; the houses opposite Jennyfield on the A59 appear to have a shared use path running along the front of the development that doesn't go anywhere; all the houses built in Killinghall have not resulted in a safe cycle link to Harrogate. Why not?

Question 4: is there a Coherent plan for cycle infrastructure to link these developments to key destinations?

The 'jug handle' arrangement at the new roundabout by the Dunlopillo development in Pannal serves no purpose.



Illustration 18: Dunlopillo jug handle

The only way you can reach it is by cycling on the A61, so why would anyone brave enough to be there in the first place leave the main road so that they can lose their priority and make an inconvenient two or more stage crossing to the development?

There will be a separate note about cycling infrastructure and housing developments.

13) Cycling infrastructure should be planned as a holistic network

This is Summary Principle 8. As has already been mentioned, isolated stretches of provision are of little value. In planning, it is important to understand who currently cycles, where they go and why, and more importantly who does not currently cycle and why.

Chapter 3, Planning for Cycling

Chapter 3 describes the concept of a connected network, with nodes (junctions, origins and destinations) and links. It says that developing a network plan provides a sound basis for funding applications.

Routes should be suitable for all abilities. There shouldn't be more than 250m to 400m between routes in built-up areas, so that all people can easily travel by bike within and between neighbourhoods. (This is called mesh density). There should also be longer distance routes for

leisure, tourism and utility cycling.

There's a six-stage process for developing a Local Cycling & Walking Infrastructure Plan (LCWIP).

CWIS focuses on getting people to make short, local journeys on foot or by bike instead of by car, so this should be a focus of network planning.

Paragraph 3.3 covers 'stakeholder participation' – how to consult people. 'Strong political leadership and a comprehensive evidence base will help to ensure a scheme progresses through to implementation' (para 3.3.4, CID).

The components of a local network (para 3.4) are:

- Dedicated space for cycling within highways
- Quiet mixed traffic streets (suitable for independent travel by a 12-year-old)
- Motor traffic-free routes
- Junction treatments and crossings
- Cycle parking

Trials with temporary materials can be used to get an understanding of impacts, but tell local communities well in advance and allow long enough for a scheme to settle down. Monitor behaviour before and during the trial period, and after the final scheme implementation.

I have read WSP's Phase 1 Harrogate Cycle Infrastructure Plan, but it only identifies corridors in a general way. It does not contain specific routes, and therefore is not a basis for planning a holistic network.

The LCWIP is mentioned extensively Chapter 14 in relation to new developments.

'Where local authorities have developed a future cycling network through an LCWIP it will enable them to seek meaningful and worthwhile contributions from new developments rather than ad-hoc and isolated measures which do not enable active travel journeys beyond the site.' (Para 14.2.7, CID).

[Question 5: why is there no LCWIP? When will it be published and adopted?](#)

14) Trials

Trials with temporary materials can be used to test the impact of a road change (Summary Principle 15). 'However, it is important that the scheme is designed correctly at the beginning, to maximise the chances of it working.'

15) Chicane barriers and dismount signs

Summary Principle 16: 'They reduce the usability of a route for everyone and may exclude people riding nonstandard cycles and cargo bikes. Schemes should not be designed in such a way that access controls, obstructions and barriers are even necessary; pedestrians and cyclists should be kept separate with clear, delineated routes...'

Chapter 13, Traffic signs

'The CYCLISTS DISMOUNT sign...should not normally be used – on a well-designed facility, it is very rarely appropriate and represents a discontinuity in the journey, which is highly disruptive.' (Para 13.4.1, CID).

Most of the 'Cyclists Dismount' signs in Harrogate (for example on Slingsby Walk) have now been removed.

'The END OF ROUTE sign...and the END marking...are not mandatory, and should be used sparingly...where their use appears unavoidable, designers should be able to defend their decision and why it cannot be avoided. When deciding whether to use them, consideration should be given to the purpose they are meant to serve. If the end of route is obvious, they are redundant. If the cycle route cedes priority on ending, GIVE WAY signing is used instead.'

There are still lots of 'End of Route' signs in Harrogate, for example on Beckwith Head Road (not even where the route ends, but where it gives way to a side road).



Illustration 19: End of Route sign in the middle of the Beckwith Head Road route

And where the route does end with Give Way markings at Otley Road.



Illustration 20: End of Route sign at junction of Beckwith Head Road & Otley Road

There is also a brand new one at the junction of Cornwall Road and Harlow Moor Road.

NYCC uses these signs routinely and often they do not serve a purpose, except to highlight the absence of a Coherent network of routes. The punctiliousness with which these signs are placed is

not replicated when it comes to standards of usefulness and quality of the infrastructure itself.

Redundant End of Route signs should be removed. Any End of Route signs in the Otley Road Cycleway design should be removed, and consideration given instead to useful signs with advice as to how to continue a journey by bike.

16) Bollards to prevent through traffic are quick, cheap and effective

This is Summary Principle 17. 'Perhaps the single most important tool to promote cycling may be the humble bollard, used to prevent through traffic. It is relatively inexpensive and can be erected quickly...[and] can increase safety by reducing through traffic while retaining cycle and pedestrian access.'

Some of the nicest roads in the District are filtered in this way – for example, Bilton Lane and Waterside. It transforms streets for cycling and walking. Another example is Rossett Drive.



Illustration 21: filtered permeability at Rossett Drive

We are excited to see the effect on Beech Grove if through traffic is effectively removed from it. Bollards would also transform the West End Park area.

17) Making the Case for Change

The Introduction to CID finishes with this very good passage about a clear stakeholder engagement plan.

'Before any specific proposal is put forward, the ground must be carefully prepared, with the public persuaded of the need for change and an attractive alternative to the status quo laid out...Articulate a clear vision of what you want a place to look like. Work out every technical aspect of a proposal thoroughly and in detail before you present it, to anticipate and pre-empt likely objections, and get it as right as possible at the beginning. When communicating the proposals be confident about it and absolutely clear about your intentions, the benefits and disadvantages. Proposals must be clear and unambiguous, as detailed as possible...and frank about the disadvantages, to build trust and discourage misrepresentation.'

The approach taken in Seville, Spain, is also relevant. They built a cycle network in 18 months, and applied these principles:

- consult on options, but make it clear that you are going to do *something*
- build a network quickly; then it works, people see that it works, and they approve of what you did

18) Dedicated on-highway space for cycling

Chapter 6 covers dedicated cycling facilities with physical protection on faster and busier roads. There is lots of technical information for designers, and this is only a very brief summary.

The most robust protection is from fully kerbed cycle tracks, created by taking space from the carriageway. The widths are set out above (point 11), but there is also a table of widths for buffer strips, that protect cyclists from air turbulence and debris.

Table 6-1: Minimum recommended horizontal separation between carriageway and cycle tracks*

Speed limit (mph)	Desirable minimum horizontal separation (m)	Absolute minimum horizontal separation (m)
30	0.5	0
40	1.0	0.5
50	2.0	1.5
60	2.5	2.0
70	3.5	3.0

*Separation strip should be at least 0.5m alongside kerbside parking and 1.5m where wheelchair access is required.

Illustration 22: Table 6-1, CID

There is a discussion of pros and cons of one way tracks (cyclists travelling in the same direction as other traffic) and two-way tracks (paras 6.2.15-17).

Other options include stepped cycle tracks (intermediate level between carriageway and footway), cycle track between parking and footway, and light segregation.

Pedestrian crossings of a cycle track may be needed.

Bus lanes

Bus lanes can offer some degree of segregation for cyclists as they reduce interaction with motor traffic (6.6.1). They're not attractive to a wide range of people, so should not be regarded as inclusive. If taxis and motorcycles can use them, that is a deterrent to cycling.

Where cyclists are using bus lanes, they should be at least 4m wide, preferably 4.5m, to allow overtaking.

Perhaps the A61 Leeds Road could be a suitable location for a bus and cycle lane from M&S to West Park/Parliament Street.

19) Contraflow cycling

'Permitting contraflow cycling in one way streets and using point-closures to close certain streets to motor vehicle through traffic will generally provide a more direct route for cyclists and should always be considered. On quiet low speed streets, there may be no need for a cycle lane...enabling cyclists to use narrow streets in both directions. Where there is good visibility cyclists and on-coming drivers should be able to negotiate passage safely.' (Para 7.3.4, CID).



Illustration 23: Figure 7.4, CID

Para 7.3.5 gives the appropriate carriageway widths.

7.3.5 Where speed is low in urban areas, contraflow cycling without a dedicated cycle lane has been found to be successful even on narrow streets with on-street car parking. The following minimum carriageway widths are recommended:

- ▶ 2.6m with no car parking
- ▶ 3.9m based on car passing cycle, no car parking
- ▶ 4.6m with car parking on one side of the road
- ▶ 6.6m with car parking on both sides of the road

We would like to see contraflow cycling on Kingsley Drive, if it is made one way. Please follow the guidance and:

- make it 20mph for inclusive cycling in mixed traffic, as per para 7.1.1
- limit parking to one side of the road only, to produce an appropriate width as per para 7.3.5

20) Junctions and crossings

'It is essential that the needs of cyclists are taken into account in the design of all new and improved junctions, not just those on designated cycle routes, and that crossings are provided where cycle routes continue across busy highways. Safety is vital, but junctions and crossings should also enable cyclists to negotiate them in comfort without undue delay or deviation...At quieter junctions it may be safe to integrate cyclists into the general traffic streams to reduce the number of conflicts but at busier junctions it will be necessary to separate and protect cycle movements. The Junction Assessment Tool (Appendix B) should be used to assess how well junctions meet cyclists' needs.' (Preamble to Chapter 10, CID).

Junctions are the locations of the most actual and perceived hazards, and if a junction doesn't provide safe facilities it may be the reason people won't use the rest of the route (para 10.3.1).

'New junctions should be designed to provide good conditions for cycling in all permitted directions, regardless of whether they are on a designated route...The provision of inclusive cycle facilities should be prioritised at existing junctions where there is a high level of existing demand and/or suppressed demand for cycling, or a poor casualty record.' (Para 10.3.2, CID).

Table 10-1: Application of core design principles to junctions and crossings

Core design principle	Design aspects to consider
Safety	Junctions should be designed to remove or manage conflicts between cyclists, motor traffic and pedestrians by one or more of the following: <ul style="list-style-type: none"> ▶ separating cyclists from motor traffic and pedestrians in space and/or time; ▶ banning one or more motor traffic movements; ▶ providing priority for cyclists over motor traffic; and/or ▶ reducing the speed and volume of motor traffic movements so that cyclists can safely be integrated with them Designs should identify and reduce conflict with Heavy Goods Vehicles.
Directness	The distance and time required for cyclists to travel through a junction should be minimised. Wherever possible their level of delay should be less than for motor traffic without increasing pedestrian delay. Exempting cycles from turning movements that are banned for other vehicles will significantly increase directness and should always be considered. Cycle crossings at junctions and across links should not be staggered.
Coherence	Junctions should enable and facilitate cycle movements in all permitted directions. These should be made in a legible manner, without requiring people to deviate significantly from their overall desire lines.
Comfort	The occasions when cyclists need to stop or to give way should be minimised. Routes through junctions should ease the passage of cyclists by providing a smooth surface of adequate width, with flush surfaces at transitions, and avoid street clutter.
Attractiveness	Junctions are often important places where people gather and should be designed to suit and enhance their context.

Illustration 24: Table 10-1, CID

Design approaches

The two main approaches are:

- integrating cycle and motor traffic streams (where speeds and flows of motor traffic are low enough for cycling in mixed traffic)
- separating cycle and motor traffic streams

Signalised junctions

At signalised junctions, cyclists can be provided with a dedicated phase based on detection or push buttons.

Sainsbury's junctions, Wetherby Road

This junction has very high traffic flows. There is in effect no provision for cycling – only an uncontrolled, multi-stage crossing that involves traffic-dodging and lands you on a footway where cycling is prohibited.

This is on a cycle route. The junction clearly needs to be remodelled for Safety, Directness, Coherence and Comfort. The junction should be assessed, and NYCC should accept the need for changes. Funding the cost of remodelling the junction is a separate question from whether changes are needed.

As discussed above, there are similar problems where the cycle route exits Stonefall Park at Hookstone Chase.

21) Cycle crossings

Cycle crossings enable cyclists to cross a carriageway that would otherwise form a hazardous or

impenetrable barrier on the cycle route network. They can be uncontrolled or controlled crossings.

Table 10-2 shows the suitability of each type of crossing, depending on speed and volume of traffic and number of lanes to be crossed.

Table 10-2: Crossing design suitability

Speed Limit	Total traffic flow to be crossed (pcu)	Maximum number of lanes to be crossed in one movement	Uncontrolled	Cycle Priority	Parallel	Signal	Grade separated
≥ 60mph	Any	Any	Green	Green	Green	Green	Green
40 mph and 50 mph	> 10000	Any	Green	Green	Green	Green	Green
	6000 to 10000	2 or more	Green	Green	Green	Green	Green
	0-6000	2	Green	Green	Green	Green	Green
	0-10000	1	Yellow	Green	Green	Green	Green
< 30mph	> 8000	> 2	Green	Green	Green	Green	Green
	> 8000	2	Green	Green	Green	Green	Green
	4000-8000	2	Green	Green	Green	Green	Green
	0-4000	2	Green	Green	Green	Green	Green
	0-4000	1	Green	Green	Green	Green	Green

- Provision suitable for most people
- Provision not suitable for all people and will exclude some potential users and/or have safety concerns
- Provision suitable for few people and will exclude most potential users and/or have safety concerns

Notes:

1. If the actual 95th percentile speed is more than 10% above the speed limit the next highest speed limit should be applied
2. The recommended provision assumes that the peak hour motor traffic flow is no more than 10% of the 24 hour flow

Illustration 25: Table 10-2, CID

In many situations, reducing the speed of motor traffic using the carriageway will enable additional design options to be considered.

Cycle priority crossings can be placed on raised tables.

Figure 10.6: Cycle priority crossing

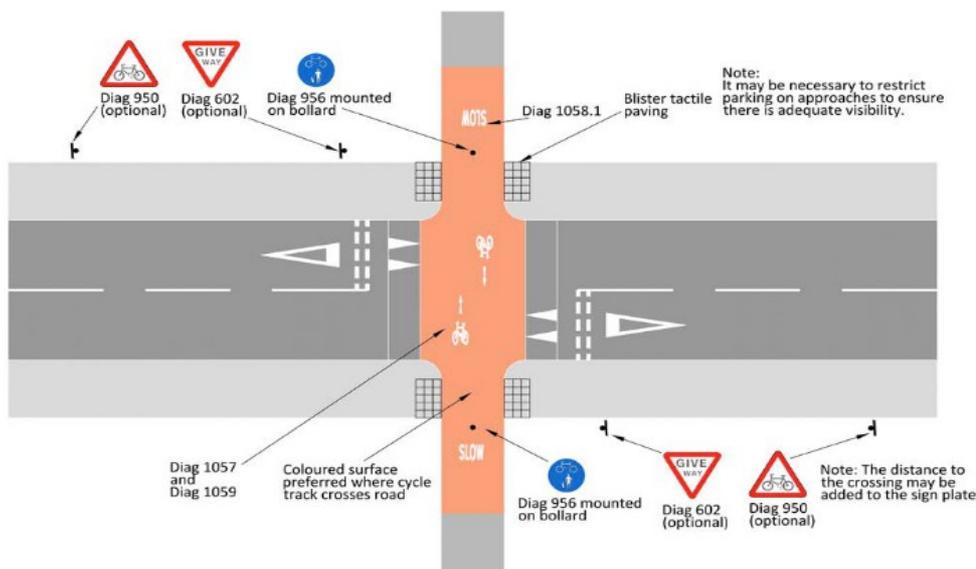


Illustration 26: Figure 10.6, Cycle Infrastructure Design

This design could be suitable for the junction where the Nidderdale Greenway crosses Bilton Lane.

Parallel crossings (cycle crossing alongside a zebra) are more demand responsive and lower cost. This design could be suitable for the junctions where Slingsby Walk crosses Oatlands Drive and Wetherby Road.

22) Roundabouts

'Roundabouts account for 20% of all reported cyclist killed or injured (KSI) casualties, and roundabouts designed to standard UK geometry can be hazardous.' (Para 10.7.1, CID).

The two approaches to accommodate cyclists are:

- provide protected space away from the carriageway
- where traffic volumes and speeds are low, compact or mini-roundabouts with narrow lane widths and tight geometry

Chapter 10 has technical details of designs.

A new roundabout has been built on A59 Skipton road by the very large housing development.

Question 6: has any provision for cycling been made at this roundabout?

Question 7: what are the cycle routes from that development? Where do they go? What is the network plan?

23) Construction and maintenance

'Surface quality affects the comfort and effort required when cycling. Loose surfaces such as gravel or mud can also present a skidding hazard, increase the risk of punctures and make cycles and clothing dirty in bad weather...Smooth, sealed solid surfaces offer the best conditions for everyday cycling.' (Para 15.2.1, CID)

Good quality smooth, machine laid surfaces appeal to a wide range of users and offer greater accessibility and safety for wheelchair users, mobility scooters and blind and partially sighted people (para 15.2.2).

'Sealed surfaces should normally be provided within towns, cities and villages and on commuter routes between villages, for example where pupils might be expected to travel to school.' (Para 15.2.3, CID).

'Unbound surfaces are generally unsuitable for utility cycling and in practice have proven to require regular maintenance and repair, being prone to erosion on gradients and easily damaged by horses.' (Para 15.2.18, CID).

Chapter 15 has several technical paras about the elements of construction – formation and sub-base, surfaces, edges and verges, ecology, drainage, and ancillary works like lighting and fencing.

There is no natural sweeping effect from cyclists, so routine maintenance should include regular sweeping so routes remain Safe, Comfortable and Attractive to users at all times of year. Table 15-1 has a typical maintenance programme for off-road routes.

Question 8: do NYCC standards include a maintenance programme for bike routes?

24) The Tools

Appendix A has the Cycling Level of Service tool, with Factors, Design Principles, and Indicators allowing the CLoS to be scored.

It is easy to use, and if officers are familiar with it, it will help design schemes that are more likely to be funded.

Appendix B has the Junction Assessment Tool. As junctions pose the greatest risk of collision, and fear of motor traffic is a major factor preventing uptake of cycling, the JAT should be used to assess a junction at the design stage as well as existing junctions.

Sainsbury's junction on Wetherby Road would make a good subject for a first JAT assessment.

HDCA, 20th October 2020