



# Non-Motorised Routes: A Design Guide

## Countryside and Rights of Way Service

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## **Active Travel (non-motorised routes)**

Non-motorised routes away from the County's main road system offer a valuable component to walking and cycling infrastructure.

Such routes, when designed well, provide;

- cost effective provision of key inter-urban routes
- a clean, pleasant, quiet place to travel and connect with nature or communicate with travel companions
- increased opportunity to build walking or cycling into daily routines as an enjoyable, healthy part of the working/school day, an effective way to increase low activity levels
- a safe, accessible and inclusive walking and cycling environment particularly for those developing their confidence and riding skills
- a connection with the environment. Non-motorised routes often pass through natural areas of countryside and greenspace. A recent study has shown that people who spend 120 mins in nature a week consistently reported having higher levels of health and well-being.

We wish to see walking and cycling infrastructure in Hertfordshire that accords with the Government's core design principles (see below) following guidance for local authorities on designing high-quality, safe cycle infrastructure set out in LTN 1/20 Cycle Infrastructure Design.

- coherent
- direct
- safe
- comfortable
- attractive

## **Key Facts**

### **Public Rights of Way**

There are 960km of Public Rights of Way with bridleway status or above in Hertfordshire that can be used by walkers, cyclists and horse riders. Where these provide strategic links for communities, surface, drainage and signage can be improved to encourage greater use. The remaining 2240km of the network are public footpaths, although some of these may have permissive rights for cyclists and horse riders. Footpaths may change to a higher designation, according to user needs through landowner dedication and other legal means in conjunction with the county council's definitive map team. The Rights of Way Improvement Plan provides information on aspirations for improvements to paths, although a new development may alter these. Key public footpaths are also vital in delivering LTP4 policies, providing safe and quiet connections for pedestrians. Footpaths can be converted into 'Cycle Tracks' via a Cycle Track Order. This option requires approval from the Secretary of State, with objections required to be resolved at a Public Inquiry.

### **Off-Road Routes**

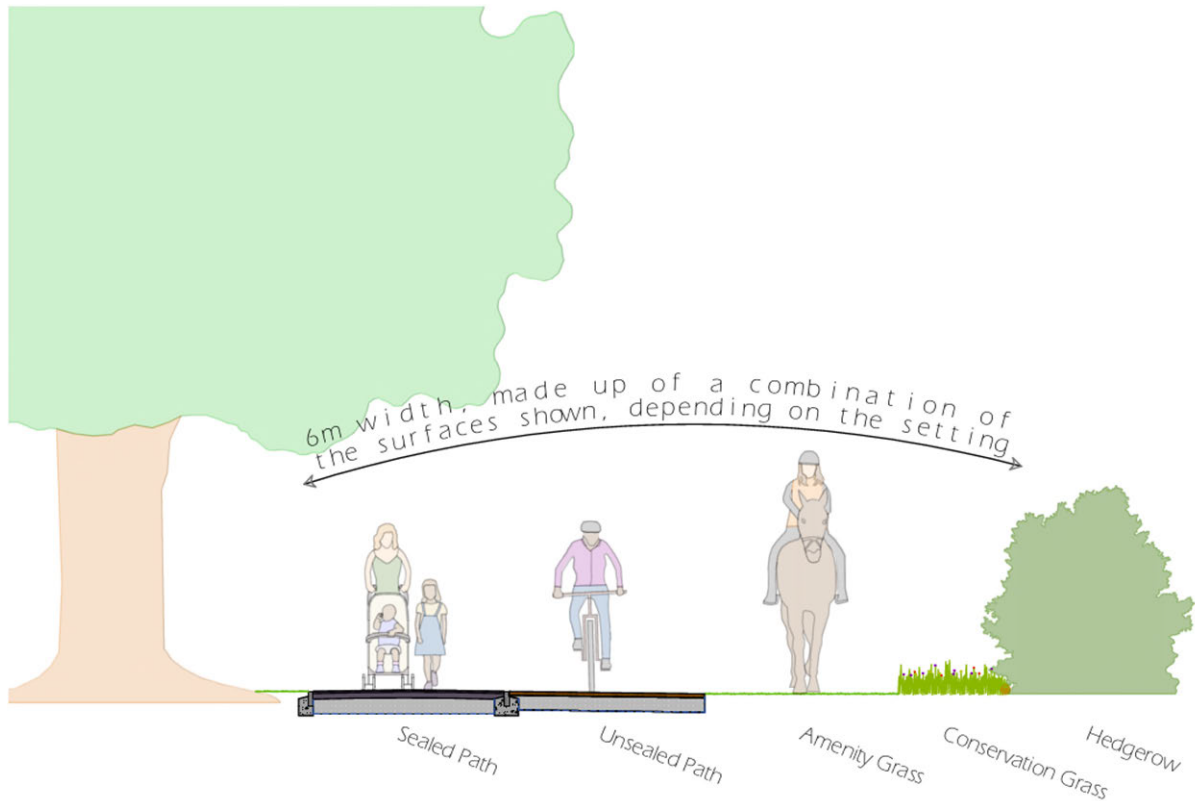
Green Infrastructure in the form of parks, greenspaces and other Local Authority and privately-owned land, towpaths, old roads and railway lines have the potential to provide additional connectivity in support of the Rights of Way network and usable roads. Often conveniently sited within and running between settlements they offer an opportunity to provide high quality routes and connections.

### **Development Opportunities**

Future development offers opportunities to enhance desirable routes or create new ones that can link into the existing non-motorised transport network. Development that successfully creates opportunities for Active Travel will deliver a range of benefits including:

- improved quality of life
- raised levels of physical activity, health and wellbeing
- significant economic benefits for both the development itself and the wider area
- reduced environmental impact of travel

## Solutions



Future new provision serving a new development may involve:

- Provision (and possibly legal dedication) of new paths, for which the minimum width requirement will be 6m for walking and cycling provision.
- Incorporation of existing rights of way (see guidance: <https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/countryside-access-and-management/rights-of-way/applications/planning-and-rights-of-way.pdf>) for which the minimum width requirement will be 6m where this can be accommodated appropriately in the setting. Where an existing right of way has public footpath status and is to be retained, the path will be required to be legally upgraded to a higher status to take account of all new users.

The following pages detail construction and design solutions for the provision of non-motorised routes to facilitate active travel. Whole site drainage plans that integrate sustainable drainage systems will as part of that process need to consider the drainage for non-motorised transport routes. It is expected that these will be prepared at the master planning stage.

## Specification Examples

For routes providing for all types of non-motorised transport.

6m of path made up from the modules below depending on the setting.

hedge		wildlife margin		amenity margin		unsealed surface	sealed surface
1m	1m	1m	1m	1m	1m	2m	2m

*Additional 0.5m widths can be used providing the minimum width is met.*

**Hedges** - 2m wide but could be 1m within path width and 1m over the boundary. Hedges are not maintainable at public expense, they are the responsibility of the adjoining or underlying landowner and are required by law to be maintained to allow access along public highways, including rights of way.

**Amenity margin** 0.5m strip minimum, use scalloped edges where possible.

**Wildlife margin** 1m strip minimum, use scalloped edges where possible.

**Unsealed surface** minimum 2m width where possible.

**Sealed surface** minimum 2m width where possible.

### Urban

Likely to require a sealed surface due to high-level and type of every-day use, routes to employment, education, retail, public transport. Pedestrians and cyclists may be segregated depending on the expected level of use.

A					
B					
C					
D					

### Semi-urban

Likely to require a sealed surface, but also leisure route.

E	**			
F				
G				
H				
I				

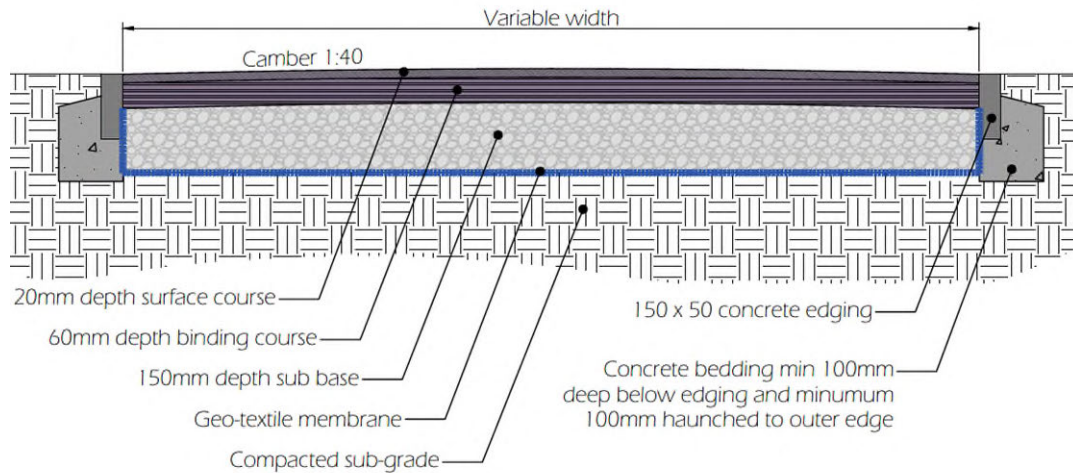
### Semi-rural/rural

Where unsealed surface is required due to level and type of use.

J	**			
K				
L				
M				

\*\* 3m grass margin for bridleway (horse use).

## Sealed Path Surface Construction



Note: Where heavy vehicle use is expected sub-base 200mm, bituminous binder course 100mm, bituminous surfacing 45mm. Incorporate geo-textile synthetics where ground requires stabilisation.

**For new paths where a base course is required. Paths where a base course is suspected to exist may require cross section analysis to determine the appropriate specification.**

1. Agreed path footprint excavated to 230mm depth
2. Sub-grade well compacted, soft spots excavated back to firm ground and built up with type 1 granular sub-base to provide level gradient.

**Stone edging appropriate for most settings**

3. Lay edging level and aligned, running smoothly when viewed in section and in plan on a bed of compacted concrete 100mm deep. Curves and corners to sweep smoothly without kinks, flat sections or abrupt changes.

Lay 100mm width of haunching concrete on outside edge of stone edging. Compact and smooth to ensure edging is held firm. Smooth off 50mm below top of the stone edging/ground level. Allow concrete to set.

Backfill trenches ensuring again that sub-grade is well compacted.

**Metal edging considered where path is bordered by vegetation which can naturalise the edge, not between dual use paths.**

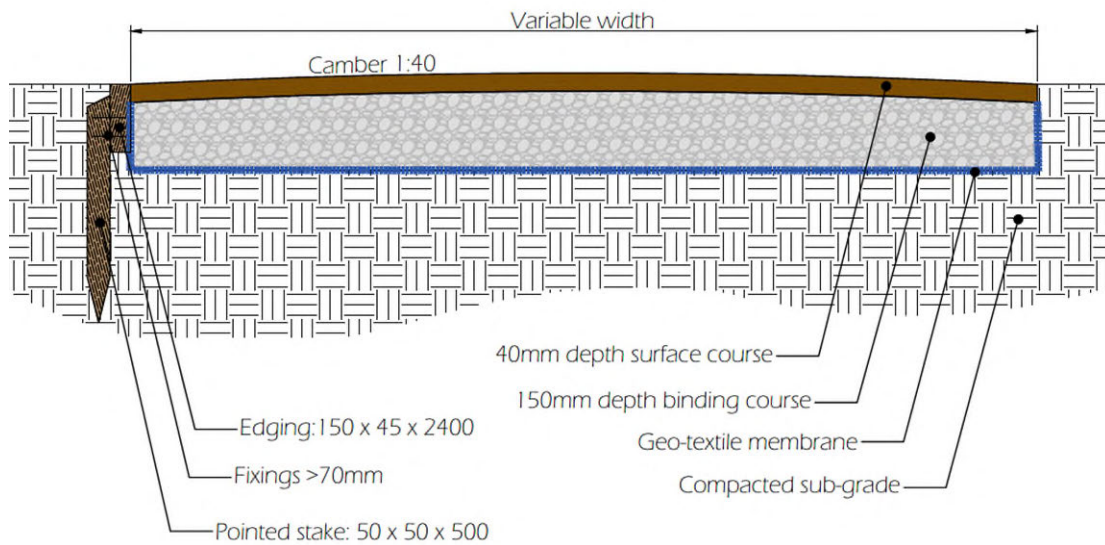
Min 2.5mm wide. Face min of 75mm deep. Follow manufacturer's guidance for installation (concreted or driven in and secured with fixings into the sub-base).

4. Lay geotextile membrane to suppress weed growth. Not to be visible above ground.
5. Lay 150mm depth of machine-compact type 1 granular sub-base. Incorporate a 1:40 camber to allow surface water to drain either side on flat ground, or cross-fall to the downward side.
6. Machine-roll 60mm depth binding course of 20mm Dense Bitumen Macadam. Incorporate a 1:40 camber to allow surface water to drain either side on flat ground, or to the downward side.

**Surface course material will vary according to expected user-type.**

7. Immediately lay and machine roll a 20mm depth of 6mm close grade tarmacadam or specialized surface. Incorporate a 1:40 camber to allow surface water to drain either side on flat ground, or cross-fall to the downward side.
8. Junctions with other paths, surfaces and ironwork (for services) to be level. Changes in direction gradual with curved flare.
9. Path edges to be at ground level.

## Unsealed Path Surface Construction



Note: Where heavy vehicle use is expected sub-base 200mm, surface dressing 60mm. Incorporate geo-textile synthetics where ground requires stabilisation.

**For new paths where a base course is required. Paths where a base course is suspected to exist may require cross section analysis to determine the appropriate specification.**

1. Agreed path footprint excavated to 190mm depth

**Base and surface course material** for most paths will be type 1 recycled aggregate but in ecologically sensitive areas a pH neutral material, such as granite may be required.

2. Sub-grade well compacted, soft spots excavated back to firm ground and built up with type 1 granular sub-base to provide level gradient.

**Timber or recycled plastic edging** may be appropriate in some locations particularly where the ground falls away and material needs to be held in place.

To facilitate large vehicle crossing points, the dimensions of timber shown below can be scaled up, typical dimensions 100mm x 200mm x 2.4m.

In ecologically sensitive areas untreated hardwood may be required.

3. Install 150mm x 45mm x 2400mm edging timber, level, aligned and 50mm proud of existing ground level, greater where the ground is lower and revetting is required. Secure boards in place with pointed pegs 50mm x 50mm x 500mm at each end and in the centre. Peg length will increase where more than one depth of edging timber is required on sloping ground. Fix pegs to edging timber - 2 screws per section. Saw pegs at sloping angle away from path 20mm below top of edging timber.
4. Lay geotextile membrane to suppress weed growth. Not to be visible above ground.
5. Lay 150mm depth of machine-compact type 1 granular sub-base. Incorporate a 1:40 camber to allow surface water to drain either side on flat ground, or cross-fall to the downward side.
6. Lay 40mm depth of machine-compact, well-graded recycled aggregate (6mm to dust) as surface dressing. Incorporate a 1:40 camber to allow surface water to drain either side on flat ground, or cross-fall to the downward side.
7. Junctions with other paths, surfaces and ironwork (for services) to be level. Changes in direction gradual with curved flare.

## **Grass Margin**

Vegetated margin specifications will be location-specific depending on soil type and setting. In some areas it may be appropriate not to provide a topsoil layer - chalk or gravel for example.

### **Ground Preparation**

#### ***Where species-rich soil has been removed:***

1. Store soil away from other topsoil and in such a way as the soil fauna survives
2. Re-lay soil
3. Cultivate the soil to sufficient depth to alleviate compaction
4. Rake and roll to produce a fine, firm, level surface
5. No need to add seed

#### ***Where the ground has been disturbed and nutrient-rich topsoil removed:***

1. In most cases seed can be sown directly into well-prepared sub-soil, or a 20mm layer of retained topsoil can be cultivated in where appropriate.
2. Cultivate the sub-soil to create a level seed bed of 20mm depth to alleviate compaction.

#### ***Where the ground is undisturbed:***

1. Cut and remove the vegetation from the area to be seeded.
2. Mechanically scarify the ground so that two thirds of the topsoil is exposed.

### **Sowing**

3. Introduce a site-appropriate native meadow seed mix either through direct seeding (from the Emorsgate meadow and grassland range or equivalent)
4. Sow the seed at the rate specified for the mix between August-September or March-April according to ground conditions.
5. Roll the surface.

### **First Year Management**

Year 1, cut and collect 4 times at a height of 50mm to encourage establishment and good root growth whilst removing some of the competition from the grasses.

### **Subsequent Management**

Mow as local conditions dictate, but at a minimum of once a year through the growing season.

## Access Control

Physical barriers should be avoided on non-motorised routes. This guidance is specifically targeted to the use of bollards, as the only acceptable form of physical barrier on a multi-user route. In the rare circumstance where the use of more restrictive furniture cannot be avoided, HCC and local users should be consulted.

Bollards may be appropriate in certain locations where illegal use or fly-tipping is an issue for path users. For speed reduction or safety purposes, signs including surface markings should be considered first.

Bollard positioning will be location specific and dependent on the reason for installation:

- Where authorised access is required use removable bollards.
- Use rounded bollards without edges and with a reflective strip, visible to path users.
- Place at a location where the path is wide enough or can be widened to accommodate the extra width taken by the bollard(s).
- Set back from the highway by 5m, extend to 6m on Public Restricted Byways.
- Bollard height should normally be 600mm above ground.
- Width between bollards is recommended at 1800mm, with a minimum of 1500mm for walkers and cyclists and 1525mm for bridleways or where horse riders use the path.
- Two bollards providing a gap in the centre of the path, often the most well-defined and least overgrown section is preferable. One bollard in the centre of the path only to be used where the two-bollard option is not possible. There must still be the require gap width on one or both sides,

### **Public Rights of Way**

Restrictive furniture on public rights of way is subject to the British Standard BS5709:2018, in which the least restrictive option (taking into account land management needs) is to be used.

The least restrictive option is a gap; however, if bollards are deemed necessary for safety reasons or to prevent misuse, the document outlines the minimum width required between them:

<b>Path type</b>	<b>Minimum width</b>
Public Footpath <i>(walkers)</i>	<b>1200mm</b>
Public Bridleway <i>(walkers, horse riders and cyclists)</i>	<b>1525mm</b>
Public Restricted Byway <i>(walkers, cyclists, horse riders and horse-drawn carriages)</i> BOAT <i>(all traffic, but often unsurfaced)</i>	<b>3050mm</b> to define width <b>2100mm</b> where problems persist

## Signage

The signing of off-carriageway routes should be considered as part of the design process, only provide coherent information and be kept to a minimum to avoid clutter and visual intrusion.

Destination signage should be used at each end of a route and where there are links and destinations along the route. The Traffic Signs Regulations and General Directive 2016 (TSRGD) applies to signs within the Public Highway. Off-road routes are often not within the Highway boundary but using the same format of signage can be helpful for route users to provide consistency.

For routes with their own heritage such as old railway lines creating a branded identity can encourage community participation and sense of ownership. This has been successful on the Nickey Line:



Regulatory signage (see diagrams 956, 956.1 and 956.2) should be specified where a shared route meets the highway to indicate the route is not for motor vehicles. In this case the TRSGD should be consulted.



**Figure 11-18** Diagram 956  
(S3-2-29) Route for use by pedal  
cycles and pedestrians only

### **Public Rights of Way**

Where a route is along a public right of way the county council's guidance on sign posting and waymarking should be followed. Contact Hertfordshire County Council's Countryside and Rights of Way Team for further guidance and ensure that all design work is signed off by them:

<https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/countryside-access-and-management/rights-of-way/sign-posting-and-way-marking-specifications.pdf>

On some urban paths where users may not be as familiar with rights of way terminology it may be appropriate to use regulatory signage as discs on waymark posts or vinyl stickers on destination signposts:



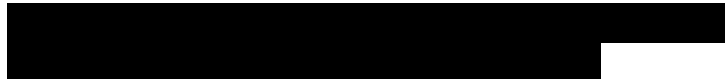
**Figure 11-19** Diagram 956.1 (S3-2-30) Route for use by pedal cycles, horses and pedestrians only



**Figure 11-20** Diagram 956.2 (S3-2-31) As diagram 956.1 but permitting horse-drawn vehicles also

## **The National Cycle Network**

Where a route is part of the National Cycle Network Sustrans guidance on signage should be followed:



### **Routes on Private Land**

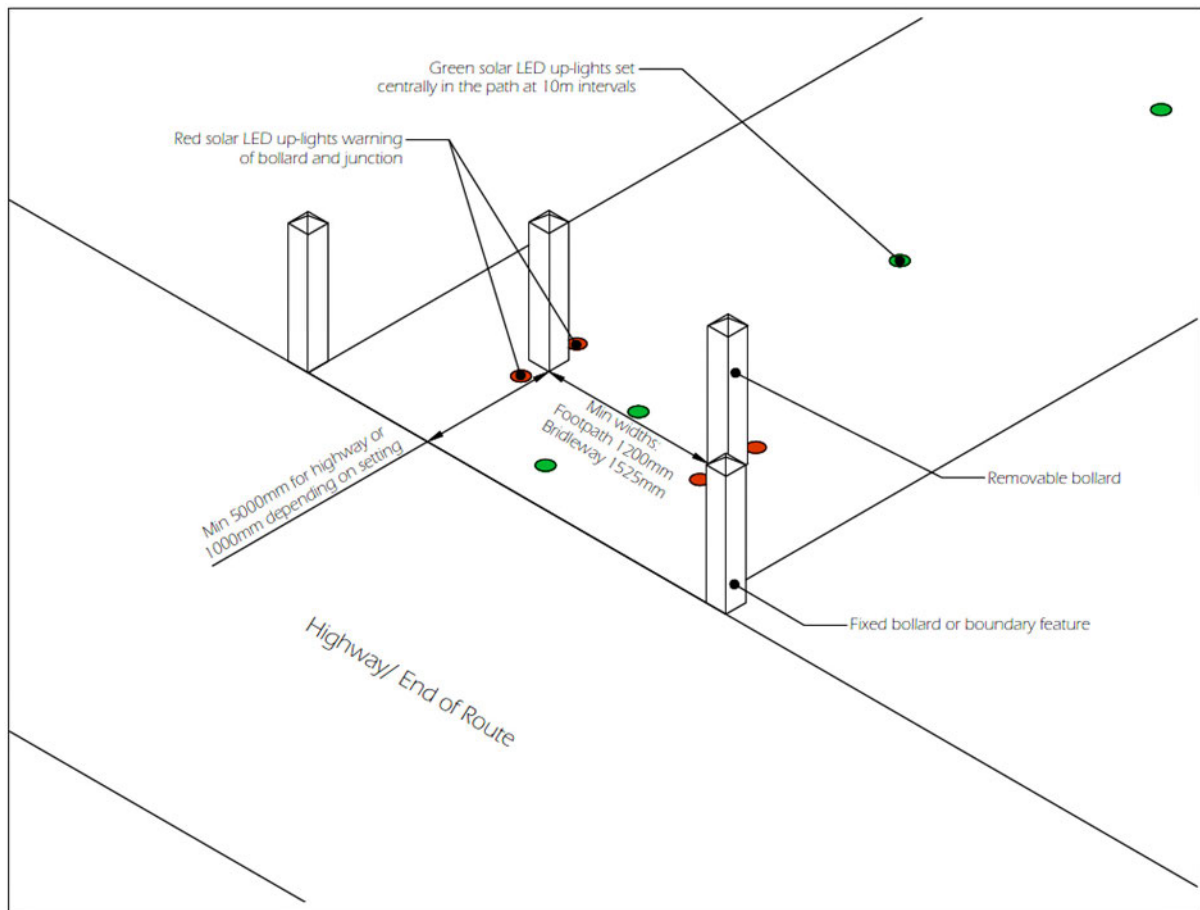
Some key routes are on private land, commonly belonging to trusts and organisations with similar visions for route improvements. The Canal and Rivers Trust are a prime example and promote a network of towpaths that provide non-motorised routes between and within urban areas. Such organisations have their own branding and will require that to be the basis of sign design.

## Lighting

Many non-motorised transport routes that are remote from natural surveillance may not be well-used after dark even if lighting is provided and lighting such routes can have a negative impact on certain wildlife such as bats. Travellers who will use such routes after dark are likely to equip themselves with their own personal lighting solutions. However, sensitive lighting may be appropriate in some locations.

Delineating solar or on-grid LED up-lighting can be used on bound surfaces. These are available in bat-friendly versions, approved by the Bat Conservation Trust. Up-lighting does not light the area, it just shows the line of the path to follow. Lighting can come in different colours and be used to warn path-users of approaching obstructions like bollards.

Solar up-lighting will require a certain amount of UV to reach the light-unit and is therefore often better located in a single strip centrally along the path where there is less build-up of organic matter.



## **Further Information**

Hertfordshire County Council's Local Transport Plan

<https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/consultations/ltp4-local-transport-plan-4-complete.pdf>

Nature Research Journal: Scientific Reports. Spending at least 120 minutes a week in nature is associated with good health and wellbeing.

[REDACTED]

Rights of Way Improvement Plan

<https://www.hertfordshire.gov.uk/media-library/documents/environment-and-planning/countryside-access-and-management/rights-of-way/improvement-plans/rights-of-way-improvement-plan-201718-202728.pdf>

Hertfordshire County Council's Highway Design Guide

<https://www.hertfordshire.gov.uk/services/highways-roads-and-pavements/business-and-developer-information/development-management/highways-development-management.aspx#highwaydesignguide>

Department for Transport's Cycling and Walking Investment Strategy

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/874708/cycling-walking-investment-strategy.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/874708/cycling-walking-investment-strategy.pdf)

Hertfordshire County Council's Active Travel Strategy

<https://www.hertfordshire.gov.uk/media-library/documents/about-the-council/data-and-information/active-travel-strategy.pdf>

Department for Transport's Local Cycling and Walking Infrastructure Plans

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/883082/cycling-walking-infrastructure-technical-guidance.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/883082/cycling-walking-infrastructure-technical-guidance.pdf)

National Planning Policy Framework – Promoting Sustainable Transport

<https://www.gov.uk/guidance/national-planning-policy-framework/9-promoting-sustainable-transport>

Sustrans – Linking Active Travel and Public Transport to Housing Growth and Planning

[REDACTED]

Sustrans Handbook for Cycle Friendly Design

[REDACTED]

British Horse Society Advice Leaflet on Vehicle Barriers

[REDACTED]

Department for Transport. Cycle Infrastructure Design. Local Transport Note 1/20 Cycle

<https://www.gov.uk/government/publications/cycle-infrastructure-design-ltn-120>