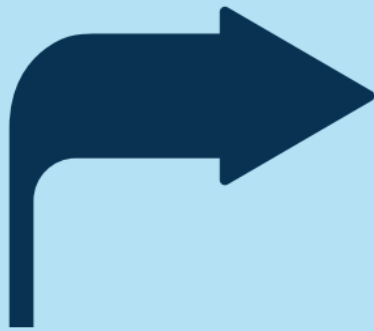


March 2023



Cambridgeshire's

Active travel design guide

Version 1



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Glossary of terms

Active Travel (AT)	Walking and cycling, but also includes other modes of travel that support the aim of enabling and encouraging a shift away from journeys being made by a private car.
The Definitive Map	The Definitive Map is the legal record of all known public rights of way in Cambridgeshire. It is accompanied by the Definitive Statement, which describes the route, position and width where defined of each right of way, as well as any limitations.
LTN 1/20	This local transport note (LTN) provides guidance to local authorities on delivering high quality, cycle infrastructure including: planning for cycling. space for cycling within highways.
Non-Motorised User (NMU)	A person who is walking, cycling, horse riding or travelling along a path by any other means without the assistance of a motor.
Public Right of Way	A public right of way is a right by which the public can pass along linear routes over land at all times. Although the land may be owned by a private individual, the public have a legal right across that land along a specific route.
Sealed Surface	Route surfaces which have been sealed with the application of a surface treatment such as rolled asphalt or dense bituminous macadem (DBM)
Semi-sealed Surface	A mixture of asphalt, which is added to a base, and aggregates that are evenly distributed on the surface and rolled to create a paved surface. It's sometimes referred to as sprayed seal or surface dressing.

Context and purpose of the design guide

The Cambridgeshire Active Travel Design Guide provides information for planning and designing paths for Active Travel (AT) in the County of Cambridgeshire. The guide also aligns with the emerging Active Travel Strategy for Cambridgeshire (a child document of the Cambridgeshire and Peterborough Local Transport and Connectivity Plan (LTCP)) and recognises the overlap and balance required to address potential pressures between providing for Active Travel whilst maintaining existing networks of public rights of way for 'non-motorised users' (NMUs). Part of the purpose of the document is to reduce this tension by defining what is and is not acceptable when designing for AT. Useful links and information are also provided to help designers to navigate through the legal/statutory processes of route creation and re-designation of routes if required.

This is the first edition of the design guide, it is intended that it will be a live and evolving document which will take advantage of new techniques, materials, and applications as they become available and appropriate. It is recognised that early iterations of this guide will be limited in scope and may not address all situations and circumstances. However, by documenting standard design details such as desirable path widths and surface choices to encourage AT, as well as outlining necessary processes to be considered when designing new AT paths, the guide will help to define Cambridgeshire County Council's (CCC) long-term vision of a connected and continuous network of safe AT routes. By defining design requirements for AT, CCC will enable increased levels of AT and make it a realistic, attractive, alternative to the private motor car for many more people. It will also tap into the great potential opportunities that new AT routes have, to provide improved local amenity, recreational routes and enhancements to environments and habitats for wildlife and for public enjoyment as well as public health benefits.

There has been considerable focus to date on the development of AT routes within urban environments but there is a gap in available guidance when looking at rural and semi-rural environments. There are people living in rural areas of Cambridgeshire who would like to be more physically active and have better access to Active Travel routes. It is important that CCC work to address this and ensure the provision of AT routes which enable and encourage rural residents to safely access services by walking, cycling or public transport. The guide contains principles for the inclusive design of paths and details of appropriate widths and surface types that represent attractive and safe specifications for different path users. Good AT provision will enable people to be less reliant on private motor vehicles, it will improve air quality, boost health by enabling people to live more active lifestyles and it can make places, not just more liveable, but safer and more attractive too.

This guidance is for use by anyone designing and installing new routes for AT primarily in Cambridgeshire's rural environment, as well as those making changes to existing routes to enable increased volume or scope of use, for example changing a footpath to a bridleway. Initially this guide will put less emphasis on designing for AT in urban environments, however this is an area that is expected to be developed in line with existing guidance such as LTN 01/20 and other guidance as it emerges. References for other existing guidance on designing for AT in the urban realm can be found in the references section on page 21.

The design guide will be a point of reference for project teams within the local authority or other public bodies and their consultants, highways practitioners as well as external developers. It applies to both new build schemes and upgrades to existing layouts. Routes should be designed in collaboration with the local community and local highway authority, as they will have an interest in the planning and future management of routes and there may be opportunities to address obvious missing links in the public rights of way network.

Inclusivity and accessibility are key outcomes for the design guide and the use of this guidance will enable the development of designs that align with the public sector Equality Duty set out in the Equality Act 2010. This will be achieved through the application of the Equality Impact Assessment (EqIA) process. The guidance may also

be of interest to those looking to make reasonable adjustments in response to the requirements set out in Section 20 of the Act.

What is ‘Active Travel’ and who are we designing for?

This Design Guide aligns with the Cambridgeshire Active Travel Strategy document which proposes the term ‘Active Travel’ to refer to walking and cycling, but also includes other modes of travel that support the aim of enabling and encouraging a shift away from journeys being made by a private car.

Whilst the Strategy is inclusive of people who can travel by wheelchair, adapted cycle or other mobility aid, it acknowledges not everyone has this travel option and those with limited mobility will remain reliant on travel by car or community transport.

The Strategy is focused on utilitarian walking and cycling journeys including journeys to schools, town centre facilities, transport hubs, and places of healthcare and employment. This includes journeys to leisure facilities and the wider rights of way network. This guide therefore aims to be inclusive of all expected users and enable the use of AT routes by wheelchair users, pram-pushers, non-standard bicycles such as cargobikes, recumbent cycles, hand cycles or bicycles with trailers.

Whilst improvements to the rights of way network is the purpose of the Rights of Way Improvement Plan rather than this strategy, implementing new and improved infrastructure for ‘active travel’ purposes can overlap and potentially conflict with existing networks of public rights of way and bridleways. Wider users of the network, ‘non-motorised users’ (NMU), include those walking, cycling or horse riding as a leisure, recreational or commercial activity must be considered and protected in such cases.

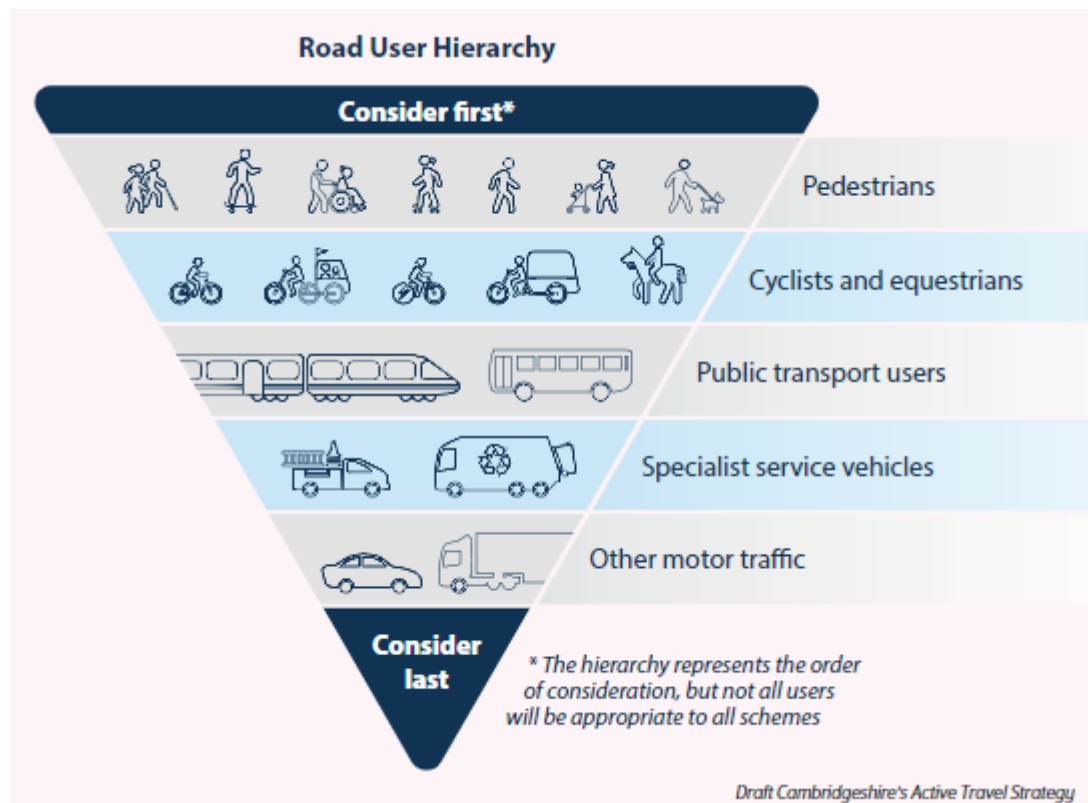
E-scooters are currently not included in the Strategy. E-scooters are currently only legal to use on a public highway when hired as part of a government trial scheme in specific areas, such as Cambridge. Until the outcome of the trials are known and further guidance provided, e-scooters have not been included within our definition of Active Travel but this will be kept under close review and future-proofing routes for e-scooter use will be considered on a case-by-case basis.

Beyond Active Travel Users the design of Active Travel infrastructure needs to take into consideration a number of other stakeholders. Landowners, tenants, local residents and indeed even local wildlife. Active Travel routes in Cambridgeshire must be recognised as valuable opportunities to enhance environments and habitats for wildlife and this Guide will begin to develop a framework for how this can be achieved during the design process.

According to the recent Government Guidance document Active Travel: local authority toolkit (updated Aug 22) *“Active travel refers to modes of travel that involve a level of activity. The term is often used interchangeably with walking and cycling, but active travel can also include trips made by wheelchair, mobility scooters, adapted cycles, e-cycles, scooters, as well as cycle sharing schemes.”* It is notable that no reference is made to equestrian users in this national guidance document. However, the Cambridgeshire Active Travel Strategy and this Design Guide recognise the overlap and balance required to address potential pressures and conflict between providing for Active Travel whilst maintaining existing networks of public rights of way for ‘non-motorised users’ (NMUs), including consideration equestrian users.

User hierarchy





Whilst this 1st iteration of the Active Travel Design Guide is focussed on Active Travel routes predominantly away from roads, the Road User Hierarchy should be taken into consideration as it sets the right tone for all Active Travel provision. As the Active Travel Strategy for Cambridgeshire makes clear, an important part of embracing Active Travel is putting those who walk or cycle at the top of our transport user hierarchy. The 2022 updates to the Highway Code put more emphasis on protecting the most vulnerable users of the road network, including horse riders. The road user hierarchy, as illustrated below, based on Manual for Streets (DfT, 2007), puts active transport modes at the top of the road user hierarchy. The inclusion of equestrians in the hierarchy reflects the need to consider all vulnerable non-motorised users such as horse riders in all transport schemes, ensuring they are provided for where appropriate on a scheme-by-scheme basis and are not adversely impacted.



When planning and designing Active Travel routes it is important to have a clear understanding of the legal status of paths. Public rights of way are types of highway, and appropriate statutory provisions apply. The following table explains different legal designations that are given to public rights of way and what rights the status implies. For even more comprehensive definitions refer to descriptions and definitions in LTN1/20 page 185.

Legal designations of public rights of way and other paths

Public rights of way

Type of path	Description
Public Footpath 	A highway over which the public have a right of way on foot only, not being a footway [Section 329(1) Highways Act 1980]. Mobility scooters or powered wheelchairs are also generally accepted as legitimate users of these paths.
Public Bridleway 	A right of way on horseback (or leading a horse), foot and bicycle. The Countryside Act 1968 gave cyclists a right to use bridleways; however, they must give way to pedestrians and equestrians. There is no penalty for failing to comply. Since the bridleway forms part of the highway it remains for case law to establish whether the offending cyclist could be said to be 'furiously driving a carriage on a highway so as to endanger life and limb', see Highways Act 1835. There may occasionally be a local byelaw to prohibit cycling on a particular bridleway.
Restricted Byway 	Are generally open only to pedestrians, cyclists, horse-riders and horsedrawn vehicles and replace the former category of Roads Used as Public Paths (RUPPs). Created by the Countryside and Rights of Way Act 2000 (S48).
Byway Open to All Traffic 	Are open to motorised traffic, but are used by the public mainly for the purposes for which footpaths and bridleways are used. They rarely have a sealed surface and are generally used in a similar way to restricted byways and bridleways. The definition was created under the Wildlife and Countryside Act 1981 (S66).

Making changes to the legal status and extent of public rights of way

Changes to, and the creation of, public rights of way can only be made through formal statutory processes. The main legislation for these types of changes is through the Public Path Orders under the Highways Act 1980 and the Town and Country Planning Act 1990.

The width of a right of way is critical to the viability of a scheme. It is essential to determine what the legal width is before proceeding with a proposal. Only a small percentage of recorded rights of way have a defined legal width. Conclusive clarification as to the legal extent, or width, of a public right of way can only be achieved through a Definitive Map Modification Order under the section 53 Wildlife & Countryside Act 1981 statutory process.

The responsibility for managing and making Public Path Orders and Definitive Map Modification Orders sits with Cambridgeshire County Council’s Asset Information Definitive Map Team. The Team must be consulted as early as possible on any proposed status changes to Public Rights of Way, so that the appropriate statutory processes and implications for a project can be identified and addressed. Key considerations are:

- Most of the statutory processes are open public procedures, which are open to objections. As such, outcomes cannot be guaranteed.
- Width determinations may require detailed site surveys.
- There can be long timelines to achieving successful orders due to existing casework; negotiations required with landowners and third parties; and delays should objections to orders be received requiring determination by the Planning Inspectorate.

Further information on the processes can be seen on the Asset Information Definitive Map Team’s webpages at:

<https://www.cambridgeshire.gov.uk/residents/libraries-leisure-culture/arts-green-spaces-activities/definitive-map-and-statement>

The Asset Information Definitive Map team should be contact via e-mail: highwaysassetmanagement@cambridgeshire.gov.uk

Other highways, paths and tracks

Other route types which are not public rights of way but may be useful in the creation of Active Travel routes are included in the following table:

Type of path	Description
Permissive paths	The landowner decides what categories of user can use these, and can withdraw access rights with little notice
Cycle Tracks	Cycle Tracks are a legal class of highway that is recorded on the List of Streets under s36 Highways Act 1980. They carry rights for cyclists and pedestrians, or cyclists only.
Shared use routes	Usually roadside routes for non-motorised users. Can be signed for pedestrians and cyclists only, or pedestrians, cyclists and equestrians.
Other mechanisms to allow reallocation of the public highway for active travel use	Restricting access to motor traffic on a roadside path by way of a Traffic Regulation Order (TRO)

Development related works to change the layout of an existing highway other than a public right of way is managed by Highways Development Management. This includes share use routes by the side of the road and cycle tracks. Highways Development Management must be engaged in accordance with their guidance at:

<https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/roads-and-pathways/highways-development>

Any proposal involving the existing highway network *other than a public right of way* may affect the legal extent of the highway. The County Council's highway asset records are managed by the Asset Information Searches Team. Similarly, as with public rights of way, they must be consulted at an early stage to enable identification of the legal extent to ensure that a proposed scheme is viable. The legal extent as opposed to physical boundary features is not always obvious, and there are significant implications if it is not established early on in a project. Implications can include third party challenges resulting in legal disputes. Further information is available on the Asset Information Searches Team webpages at:

<https://www.cambridgeshire.gov.uk/business/highway-searches>

The team should be contacted via at searches@cambridgeshire.gov.uk

Processes for making changes to the surface of public rights of way

All proposed changes to the surface of an existing public right of way must be formally authorised using the County Council's *Changes to PROW Surface Authorisation Form*. This will require consultation with user groups and key stakeholders as well as appropriate specialisms within the County Council, such as Ecology, Road Safety and the Rights of Way Officer. Sufficient time should be allowed to enable the Authorisation process to be undertaken. It is expected that it will be undertaken at an early stage such as pre-application planning, as the Authorisation is critical to the viability of a project that seeks to change the surface of a right of way. The Form is located in the Highway Operational Standards, available on the County Council's website at:

<https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/highway-policies-and-capital-maintenance-programme>

All works will require inspection and certification by Cambridgeshire County Council as the highway authority.

Depending on what works are proposed and where, other legal processes (in addition to any legal processes dealing with change to legal status or extent of highway) may be required to control and authorise delivery to the highway authority's standards. For example, changes to an existing right of way may need to be secured through a formal Agreement under Section 278 Highways Act 1980.

Please see further guidance at:

<https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/roads-and-pathways/highways-development>

Other, more minor, works may only require inspection and certification by the Rights of Way Officer.

Design outcomes and principles

The Active Travel Strategy for Cambridgeshire provides much more detail on the vision, objectives and policies for Embracing, Enhancing, Expanding and Encouraging Active Travel in the county. In this section of the Design Guide we consider the key design outcomes that designers should strive for when developing Active Travel schemes and some of the principles that should be applied in order to reach the desired outcomes. It is recognised that this 1st iteration of the guide may not provide a full and comprehensive set of design principles. We welcome feedback and intend to learn from experience as future iterations of this document are developed.

Design Outcomes

There are five outcomes which represent the core requirements for people wishing to travel by cycle or on foot. These can be defined as the desirable consequences of making a change or implementing a new Active Travel route. Accessibility for all is a requirement that should always be considered in relation to each of the outcomes. Designers should always aim to provide infrastructure that delivers these outcomes and therefore caters for the broadest range of people. While cyclists and pedestrians share the same underlying design outcomes, the geometric design requirements for pedestrians and cyclists are not the same, owing to the differential in speed and mass.

Safe	Active Travel routes must be, feel and look safe to attract users. Crime and anti-social behaviour must not be enabled through the design. Enabling separation between users will reduce collisions and increase the sense of safety. Changes to existing rights of way must not result in NMUs being placed in more dangerous situations.
Direct	Active Travel routes should be as direct, or more direct, than alternative routes for motor traffic. Routes should be logical and continuous preferably as part of a coherent network.
Comfortable, Inclusive and Accessible	Comfort for all users including children, families, and older and disabled people should be considered. Comfort can be split into the following two categories <ul style="list-style-type: none"> • <i>Surface quality</i> - Riding surfaces should be smooth and even. Transitions from one surface to another (e.g. footway to carriageway) should be simple and take place in appropriate places preferably fully segregated from motor vehicles. • <i>Spatial comfort</i> – routes should have enough width and separation between modes which may travel at different speeds
Coherent	Active Travel routes should: <ul style="list-style-type: none"> • form part of a network which links people to places • use as few signs as possible and where they are used make them clear • avoid changes in the type and quality of provision • be inclusive to all users, legible and consistent.
Attractive	<ul style="list-style-type: none"> • Active Travel routes should enhance the environment, not detract from it. This applies to on-street as well as rural off-road routes. Active Travel Users tend to spend more time appreciating the environment surrounding the route.

Design principles

To deliver the outcomes the following principles should be considered:

Active Travel should be assessed in a similar way to other modes, through an assessment of appropriateness, based on need and demand, and reasonableness, based on acceptable cost and impact.
Active Travel provision is inclusive and accessible. Different Active Travel users may have different priorities/requirements.
Routes should be designed in collaboration with the local community.
Active Travel routes must be, and feel, safe for all types of users in all weather conditions.
New routes should form part of wider networks and be well-connected. Waymarking should be clear.
Active Travel routes must be future proofed to accommodate growth in user numbers and potential improvements in technology such as e-bikes.
Key stakeholder engagement is undertaken from the outset and should continue at regular intervals throughout the project in a managed way.
Active Travel provision should be aspirational and align with the Climate Change and Environment Strategy to “double nature”. Designers of Active Travel routes should have regard for the environment that the route passes through and should provide improvements for landscape, ecology or heritage assets. Adverse impacts (e.g. construction, lighting and recreational pressure) should be avoided, mitigated, or at last resort compensated.
Future maintenance requirements are minimised wherever possible. Acceptable maintenance plans should be developed with the maintaining authority.

When designing Active Travel routes in rural areas there are several additional considerations. Routes should:

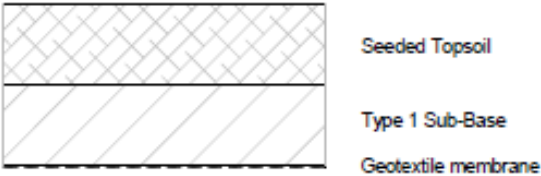
Identify where Active Travel routes overlap with routes for Non-Motorised Users, and ensure the design is not any more detrimental to any one user group or place them in more danger.
Provide convenient links to key destinations - connecting communities to amenities such as schools, doctors surgeries, local shops and post offices as well as enabling greater access to the countryside.
Lighting should be considered in the context of the route and the surrounding natural environment and wildlife.
Be designed in a way that enhances biodiversity and delivers 20% biodiversity net gain.
Be signed clearly and consistently <ul style="list-style-type: none"> • signage should be a mix of signs, surface markings and wayfinding measures. Every junction or decision point should be signed. • It is important that signage is consistent network-wide and directs users to and from trip generators such as places of interest, hospitals, universities, colleges and also recognises connections to wider networks such as long-distance paths and the National Cycle Network (NCN).
Be free-draining, and verges must be finished to avoid water ponding at the edges of the path
Enable all users to cross roads safely and step-free <ul style="list-style-type: none"> • Road crossings should be in accordance with current guidance • All grade-separated crossings should provide safe and step-free access
Be interesting <ul style="list-style-type: none"> • Landscaping, artwork and interpretation boards should be used to create interest • Seating and cycle parking should be provided at regular intervals along the route. • Consider provision of mounting blocks for equestrian users, especially by gates in remote areas
Consider ‘constructability’ at an early stage (i.e. works access, temp accommodation, etc.)
Consider emergency access particularly if access control measures are being installed
Manage the propensity for illegal access (i.e fly-tipping)

This section of the design guide details surface material specifications which can be used on AT routes in Cambridgeshire. The pros and cons of each surface material are listed but it is recognised that these may vary in importance for different AT users. Where any change of surface is proposed to an existing Public Right of Way, final agreement of surface material and construction must be approved by a Public Rights of Way officer at the County Council. In certain cases, the consent of the landowner may also be required.

Surface materials

Designers should consider the principles and outcomes listed above and it is important to note that hybrid path solutions are acceptable, where the surface may change along the route. Rarely will you find a surface treatment that is suitable for the entire length of a route. Consideration must be given to selecting the most appropriate surface materials and construction techniques for each local setting, even if this results in a mixed surface layout along the route. The choice of surface material may also be influenced by external factors such as space availability, scheme budget, land availability and planning requirements/agreements.

The table below lists a variety of surface material options for soft, firm and hard surfacing. This table is not prescriptive, and the choice of materials and construction technique will need to be adapted for each individual location and its site-specific character. It is expected that in some situations the most appropriate solution will be to construct a path using more than one surface material laid adjacent to each other to provide separate space for different users e.g. an Asphalt path with a Grassy Strip alongside might provide suitable space for pedestrians, cyclists and equestrians.

SOFT SURFACE – NON-CONCUSSIVE				
Surface Material	Expected demand	Specification	Pros	Cons
Natural Grassy strip – to be used in combination with (parallel to) another surface to allow separation between users	Some pedestrians prefer a non-concussive surface. Equestrian use is expected. Low use expected by wheeled vehicles	Dependent on existing surface retain previously compacted grass surface if viable. If creating a new surface, a mixture of utility grass seed and topsoil spread over an aggregate sub-base.	Relatively low-cost surface. Less percussive issues for equestrians and preferred by some runners. Improved habitat for wildlife along a ‘green corridor’ Natural appearance blends in well with rural landscape	Grass can become impassable by foot or bicycle following prolonged wet weather. May exclude some forms of ATUs such as children’s scooters or other small-wheeled vehicles. Requires regular maintenance to retain accessibility e.g. summer vegetation clearance
 <p>The diagram shows a cross-section of the surface construction. It consists of three layers: a top layer of 'Seeded Topsoil' with a cross-hatch pattern, a middle layer of 'Type 1 Sub-Base' with a diagonal line pattern, and a bottom layer of 'Geotextile membrane' with a dashed line pattern.</p>				
<p>Example location: Alongside the Busway maintenance track between St Ives and Cambridge (although not the entirety of the route)</p>				

SEMI-SEALED SURFACE (FIRM)

Surface Material	Expected demand	Specification	Pros	Cons
Granite dust	Increasing use for wheeled vehicles but still accommodating equestrian use No agricultural vehicles expected	Granite dust laid on an aggregate sub-base	Relatively low-cost, non-slip surface. Free draining. Less percussive issues for equestrians. Natural appearance blends in well with rural landscape, can accommodate tree root growth and avoid root heave/path cracking, doesn't require skilled operatives to lay - relatively simple construction.	Higher rolling resistance than asphalt. May exclude some forms of ATUs such as children's scooters or other small-wheeled vehicles. Non-bound surface can result in loose surface debris. Not suitable for steep gradients (max 1:8), liable to water scouring, gully formation and erosion, susceptible to frost heave if there has been insufficient compaction during initial construction. Requires regular inspection and maintenance.



Granite Dust

Type 1 Sub-Base

Geotextile membrane

When tree root protection is required:



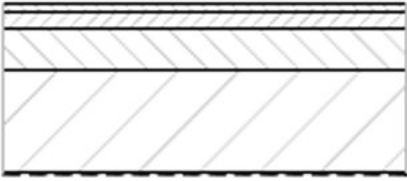
Granite Dust

Type 3 Sub-base

Cellur confinement system filled with Type 3 Geotextile membrane

Example location:

Wilsons Road/ Longstanton Bridleway 10

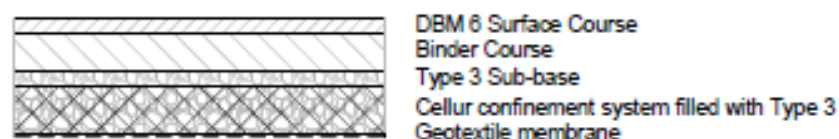
Surface Material	Expected demand	Specification	Pros	Cons
Surface Dressing	Increasing use for wheeled vehicles but still accommodating equestrian use Possible infrequent use by agricultural vehicles *	Bitumen bound 10mm & 6mm granite aggregate laid over an aggregate sub-base.	Relative low cost. Non-slip surface Slight cushioning/less hard than asphalt for equestrians and other users such as joggers	Higher rolling resistance than asphalt. May exclude some forms of Active Travel Users such as children's scooters or other small-wheeled vehicles. Non-bound surface can result in loose surface debris. Durability is questionable, especially in locations where agricultural vehicles turn.
 <p>6mm Aggregate Surface Dressing Surface Course</p> <p>Type 1 Sub-base</p> <p>Geotextile membrane</p>				
<p>Example locations:</p> <p>The Fen, Fenstanton</p> <p>Reynolds Drove, Between Rampton and the Busway maintenance track at Northstowe</p>				

* Concrete pads may be provided for short sections e.g. field entrance/turning areas for agricultural machinery.

Surface Material	Expected demand	Specification	Pros	Cons
Asphalt	<p>Significant increase in Active Travel</p> <p>Frequent use by agricultural vehicles is possible</p>	<p>Machine-laid 6mm Dense Bitumen Macadem (DBM)</p> <p>For rural locations, where aesthetic appearance is considered important, a gravel aggregate mix, as opposed to a granite mix, should be used. Moderate Hydro-blasting is required to expose the gravel aggregate.</p>	<p>Relatively low cost compared to rubber crumb</p> <p>Low rolling resistance allows cycles to travel further with less energy input required from the rider</p> <p>Proven durability with long design life (30+ years), low annual maintenance, opportunities for coloured asphalt and painted surface lines and markings, tolerant to high levels of use</p>	<p>Hard surface providing very little cushioning may lead to injuries for horses and other users such as joggers</p> <p>Black surface in rural environment often considered to be urbanisation</p> <p>More expensive than unbound surface treatments</p> <p>Can become slippery for equestrians and other users when wet or covered in ice or leaves – additional winter maintenance may be required</p> <p>Susceptible to root heave creating surface deterioration</p> <p>Installation can require site access for heavy plant and machinery</p>



When tree root protection is required:



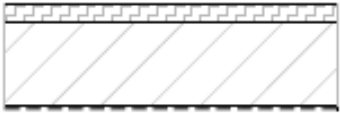
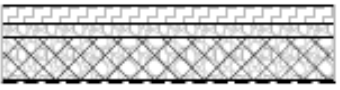
Example locations:

The Busway maintenance track – St Ives to Cambridge and Trumpington to Cambridge

The Coton path – Between Coton and the M11

In recognition of some of the disadvantages of asphalt surfacing for some users, we are exploring the suitability of a hybrid rubber crumb/aggregate mix sealed surface. It is hoped that this will address some of the negative aspects of asphalt and provide a surface that is more suitable for pedestrians, cyclists and equestrians in locations where all users are expected to travel on a shared surface.

Trial patches of this material are proposed in order to test the suitability of the surface for all users ahead of any roll-out and if successful further details of the specification will be updated.

SEALED SURFACE (HARD)				
Surface Material	Expected demand	Specification	Pros	Cons
Rubber crumb or Hybrid rubber/aggregate mix	Significant increase in Active Travel expected. Still accommodating equestrian use Possible infrequent use by agricultural vehicles *	Different options for specification are still being confirmed. These include: 'Pure' rubber-crumb (KBI-Flexipave/ Nu-flex/other similar supplier) hand-laid. Hybrid rubber/aggregate mix potentially machine laid (supplied by Tarmac)	Rubber crumb – highly porous surface, non-slip, provides a level of cushioning for equestrians and other users such as joggers Increased levels of gravel aggregate for aesthetic purposes.	Potentially high cost compared to asphalt Higher rolling resistance than asphalt Durability is questionable, especially in locations where agricultural vehicles turn.
 <p>Rubber Crumb Surface Course Type 1 Sub-Base Geotextile membrane</p> <p>When tree root protection is required:</p>  <p>Rubber Crumb Surface Course Type 3 Sub-base Cellulose confinement system filled with Type 3 Geotextile membrane</p>				
This surface option is still under development and when details of trails and example locations become available we will make the location details available.				

Future development **Cross section selection**

The areas of this section of the Design Guide that we intend to develop and improve in future versions are:

- Additional details and case studies of example locations
- Greater detail of approved specifications and how they should be applied.

The process of choosing a cross-section for use along a section of an Active Travel Route should always start with inclusivity as a high priority. Enabling the most possible users to have access to a route is in keeping with Cambridgeshire County Council’s policies on Equality, Diversity and Inclusion. It should be noted that hybrid path solutions, where more than one type of surface is utilised in parallel to enable safe separation between user groups along a route, are acceptable. It may be necessary to adjust the cross-section layout for sections of a route to accommodate pinch points. Consideration must be given to selecting the most appropriate path layout for each local context, even if this results in a mixed cross section along the route.

Other factors that will need to be taken into consideration are:

- Strategic purpose of the route - i.e. Commuter route, School route, leisure route etc.
- Potential usage - (propensity of each type of user)
- Existing available path widths
- Highway boundary locations (if applicable) and designated legal width of the public right of way if available.
- Other potential uses: Are agricultural vehicles likely to use the path.
- How will the path and any boundaries be maintained?
- Project budget

Public right of way cross sections

This section of the guide provides details of how the surface materials can be configured to provide cross-sections that are acceptable for Cambridgeshire's Active Travel routes in rural locations. The width of paths for cycling should follow LTN 1/20 guidance and where a shared use path is proposed the following guidance applies:

6.5.7 Recommended minimum widths of shared use routes carrying up to 300 pedestrians per hour are given in Table 6-3. Wherever possible, and where pedestrian flows are higher, greater widths should be used to reduce conflict.

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

The amount of available space to provide an active travel route will often dictate what widths are achievable. The following illustrations show how paths should be configured given an available width.

6 metre and above cross section



Grassy strip –
3 metres wide

Firm or Hard
surfaced path -
3 metres wide

Natural grassy strip = 3m

**Sealed or semi-sealed surface = 3 – 4.5m depending
on usage flow**

Any additional space widen accordingly depending on requirements and favourable local stakeholder engagement

5 metre cross section



Grassy strip –
2 metres wide

Firm or Hard
surfaced path -
3 metres wide

Natural grassy strip = 2m

Sealed or semi-sealed surface = 3m

Less than 5 metre cross section



Firm surfaced path - varying
in width depending on
environmental constraints

Shared use path using sealed or semi-sealed surface

The images above are all indicative and the surface colours and edging types may vary. These details will be subject to stakeholder engagement.

Future development

The areas of this section of the Design Guide that we intend to develop and improve in future versions are:

- Provide examples for routes that are expected to be very high usage including separation of pedestrians and cyclists.
- Improve images to show variety of surfacing materials.
- Show examples of connections between rural and urban environments including road crossings and junctions.

Access controls

Physical barriers should be avoided on Active Travel routes however there will inevitably be the occasional requirement to control access. Carefully located bollards and cattle grids are the only acceptable form of physical barrier on a multi-user route. Where they are used, they should be lit in order to make them conspicuous to users and to minimise the risk of collisions. In the rare circumstance where the use of more restrictive furniture cannot be avoided, CCC and local users should be consulted. Any barriers on a Public Right of Way must gain approval/consent of a Public Right of Way officer.

Bollards may be appropriate in certain locations where illegal use or fly-tipping is an issue for path users or landowners. For speed reduction or safety purposes, signs including surface markings should be considered first. Chicanes are restrictive and can exclude some users. These should not be used.

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

- 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).
- Do not place bollards at a junction or corner, instead place them back from the junction or corner on a straight section of path where they are clearly visible.
- Set back from the highway by 5m, extend to 6m on Public Restricted Byways.
- 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. A central bollard should only be used where the two-bollard option is not possible.

Public Rights of Way

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

If bollards are deemed necessary for safety reasons or to prevent misuse, the document outlines the minimum width required between them:

Path type	Minimum width
Public Footpath	1200mm
Public Bridleway	1525mm
Public Restricted Byway	3050mm
Byway Open to All Traffic (BOAT)	2100mm

Future development

The areas of this section of the Design Guide that we intend to develop and improve in future versions are:

- Provide example specifications for bollards
- Provide example images and locations for different scenarios
- Provide details and specifications of boundary types to include fencing, hedgerows and other solutions
- Investigate the feasibility of speed reduction solutions such as rumble strips which might deter unauthorised users of active travel routes

Lighting, Wayfinding and Maintenance

Lighting of Active Travel routes can increase the perception of safety and can directly influence the decision to use Active Travel routes at night time. In rural locations however, lighting provided by street lighting columns is likely to be minimal. The key reasons for this are that wiring lights in rural locations is likely to be costly and the impact on the environment and wildlife may be excessive. Current guidance is that lighting should only be used where a clearly defined requirement is identified, such as at conflict areas i.e. at a crossing point where a cycle path crosses a main road, or where bollards may present a hazard to users. This approach is in line with the Council's Climate Change and Environment Strategy considering reducing energy consumption and light pollution that can be detrimental to night-time wildlife.

Where lighting is required an ecological assessment would need to be undertaken and the proposals should be discussed with the Biodiversity and Greenspaces team (ecology@cambridgeshire.gov.uk) and would be expected to meet best practice standards for lighting and wildlife, e.g. ILP guidance note <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

Solar stud LED up-lighting should be used to delineate routes on bound surfaces, especially those alongside carriageways or to identify site specific hazards. These are available in bat-friendly versions, approved by the Bat Conservation Trust. Up-lighting does not light the area, it just shows the alignment of the path.

Solar LED lights should not be placed close to the sides of a path as vegetation will cover them. When solar LED lights are covered for a period of more than a few weeks their batteries will not be charged and the entire unit will fail. Once the battery is fully drained it will not recover. Setting solar lights at least 500mm from the edge of a path should minimise this issue.



Future development

The areas of this section of the Design Guide that we intend to develop and improve in future versions are:

Lighting:

- Investigation and improved guidance around the safety implications of lighting cycle routes alongside a carriageway with solar studs – increased delineation of a path vs the potential for driver confusion
- Consideration of lighting technologies such as reactive lights.
- Investigate solar solutions for powering lights in rural areas where wired solutions are not feasible. This will include security solutions as theft of solar lights has been a feature of past trials.

- Provide more detail on lighting specifications, for example how junctions are lit.
- Potentially provide a hierarchy of lighting needs

Wayfinding:

- Add information on signing routes.
- Investigate best practice wayfinding solutions and provide guidance on what is appropriate in Cambridgeshire. This should include app-based wayfinding technologies.

Maintenance

- Add information on future maintenance considerations of Active Travel routes.
- Consider maintenance access of routes including path widths and the ability to gain access with machinery for ad-hoc repairs, cyclic maintenance and winter maintenance.
- Detail design features that may help to minimise future maintenance burdens.
- Add detail of low maintenance planting specifications.

References and relevant publications

- A Guide to Inclusive Cycling
(Wheels for Wellbeing, 2020)
- British Horse Society – Advice on surfaces for horses
(July 2021)
- DMRB - CD 143 - Designing for walking, cycling and horse-riding
- Inclusive Mobility – A guide to best practice on access to pedestrian and transport infrastructure
(DfT 2021)
- Local Transport Note 1/20 Cycle Infrastructure Design (LTN 1/20)
(DfT 2020)
- London Cycling Design Standards (LCDS)
(Transport for London, 2016)
- NACTO – Global Street Design Guide
- Pedestrian Comfort Guidance for London
(Transport for London, 2010)
- Sustrans Traffic-free Routes and Greenways Design Guide
(Sustrans, 2019)
- Welsh Active Travel Design Guidance
(Welsh Government, 2014)
- Working together to promote active travel: a briefing for local authorities
(Public Health England, 2016)

