



**sustrans**

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# Wetherby to Tadcaster

Feasibility study for an improved cycling and walking corridor

March 2020



## About Sustrans

Sustrans is the charity making it easier for people to walk and cycle.

We are engineers and educators, experts and advocates. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute.

Sustrans works in partnership, bringing people together to find the right solutions. We make the case for walking and cycling by using robust evidence and showing what can be done.

We are grounded in communities and believe that grassroots support combined with political leadership drives real change, fast.

### Our vision

**A society where the way we travel creates healthier places and happier lives for everyone.**

### Our mission

**We make it easier for people to walk and cycle.**



**We provide solutions.**  
We capture imaginations with bold ideas that we can help make happen.



**We're grounded in communities,** involving local people in the design, delivery and maintenance of solutions.



**We make the case for walking and cycling** by using robust evidence and showing what can be done.

### What we do



Join us on our journey. [www.sustrans.org.uk](http://www.sustrans.org.uk)

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Front cover images: **Top left:** Sustrans stock Greenway image. **Top Middle:** View northeast along A659, Tadcaster. Source: Sustrans. **Right:** Sustrans stock Quiet Streets image. **Bottom left:** View north from riverside path towards Tadcaster Viaduct. Source: Sustrans **Bottom right:** Sustrans stock Greenway image.

Images page opposite: **Left:** View south along Riverside link to A659 Tadcaster. Source: Sustrans. **Right:** View north towards Tadcaster Viaduct. Source: Sustrans.

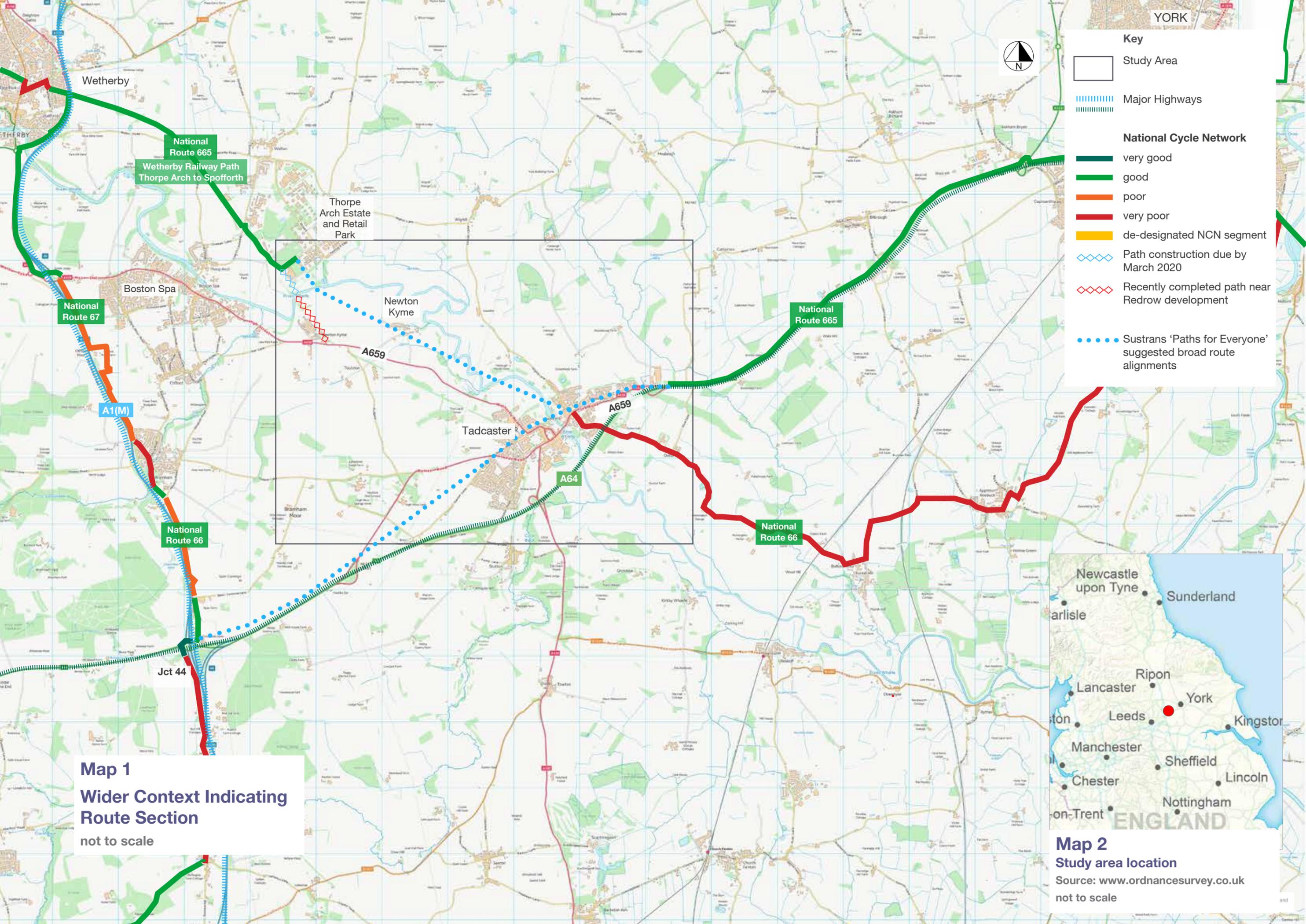
## Executive Summary

National Cycle Network (NCN) route 665 is a largely traffic-free cycle and pedestrian route between Wetherby and York. It comprises of two sections, one either side of the market town of Tadcaster, located on the River Wharfe, with a gap of approximately 3.5 miles (6km) separation. Sustrans has been commissioned by Highways England to deliver a feasibility study identifying a continuous corridor for safe cycling and walking to fill this gap. The proposal supports Highways England's vision to limit the impact of the Strategic Road Network (SRN) on the local community, increasing accessibility, connectivity and integration with other modes of transport. The proposal will also contribute to community cohesion along the way and enable Tadcaster residents to reach the countryside using active travel modes.

The study identifies two parts for route option analysis: a **western** branch connecting the Thorp Arch branch of NCN 665 to the north or west of Tadcaster, and an **eastern** branch connecting the east riverside to the York branch of NCN 665 (see Map 1 on page 4). A third section examines Tadcaster town centre. The town centre has obstacles standing in the way of a straightforward alignment, the most significant of these being provision of a pedestrian/cycle river crossing.

Sustrans assessed the level of service and deliverability for each; the preferred route offers an inclusive and attractive active travel alternative to car use for leisure, commuting and school journeys.





**Key**

- Study Area
- Major Highways

**National Cycle Network**

- very good
- good
- poor
- very poor
- de-designated NCN segment
- Path construction due by March 2020
- Recently completed path near Redrow development
- Sustrans 'Paths for Everyone' suggested broad route alignments

**Map 1**  
**Wider Context Indicating**  
**Route Section**  
 not to scale



**Map 2**  
**Study area location**  
 Source: [www.ordnancesurvey.co.uk](http://www.ordnancesurvey.co.uk)  
 not to scale

National Cycle Network (NCN) Route 665 stretching between Wetherby and the outskirts of York comprises of two unconnected sections. The most northern of these – the Wetherby Railway Path – is a mainly traffic-free path which uses the route of the disused railway line between Spofforth Castle and Thorp Arch (expected to be extended to the A659 in March 2020 following completion of construction works in an associated Highways England funded Sustrans scheme – see further details below).

The southern section of NCN route 665, also traffic-free, commences just east of the town of Tadcaster and runs in the verge alongside the A64 to the outskirts of York, where NCN route 65 then leads into York centre.

There remains a gap between these two sections of approximately 3.5 miles (6km), centered on the town of Tadcaster.

The purpose of this feasibility study is to explore potential route alignments closing this gap, thereby creating a continuous NCN route between Wetherby and York.

### Scheme benefits

Tadcaster is a market town adjacent to the A64 trunk road in the district of Selby in North Yorkshire. York is 10 miles (16km) north east, Leeds is 12 miles (19km) in a south west direction and the A1(M) is an approximate five mile journey (8km) west of the town.

The creation of the missing NCN section described will offer the opportunity to relieve some of the pressure on the strategic road network in the vicinity, specifically the A1(M) and A64, by encouraging journeys by foot and bicycle as an alternative to car travel within a corridor between York and Wetherby, and beyond - it would also form part of a longer key leisure route extending to Harrogate.

Other potential benefits of the scheme (dependent on route alignment selected) include:

- Connection of residential communities - safer car-free travel will be enabled for work, school and leisure travel between Wetherby, Thorp Arch, Tadcaster and York, and within Tadcaster itself;
- Tadcaster is an attractive market town and tourist destination. Famous for its breweries, it is also a town of historic interest. All shops in the town except Sainsbury's and Costa are independently owned. Cycling and walking visitors would bring regeneration via trade to cafes, shops and other local businesses without the congestion and pollution caused by motor vehicles;
- Car-free travel to bus connections in Tadcaster for onward travel into York or Leeds would be enabled. The town has two car parks which fill quickly, some of these with people driving into the town to then use onward bus services, including the CoastLiner bus service operating between Leeds, York and the coast;
- A future potential link to the nearby village of Newton Kyme;
- Possibly forming part of a future potential east-west link between Tadcaster and the NCN 66 towards Leeds, which is accessible at Junction 44 of the A1(M). This would fill a further gap in the NCN, enabling a near-complete cycle route between York and Leeds.

### Walking and cycling in and around Tadcaster

Tadcaster is located in a part of beautiful North Yorkshire countryside. Tadcaster's 'Walkers are Welcome Group' has created a series of walks around the area, and there is a short Tadcaster Town Trail suitable for wheelchair users (website: [tadwalks.org.uk](http://tadwalks.org.uk)).

Other walking and cycling infrastructure in the area include:

- Numerous Public Rights of Way and several Bridleways
- The Ebor Way, a long-distance footpath from Helmsley in North Yorkshire to Ilkley in West Yorkshire, 70 miles of length
- NCN routes – as indicated on **Map 1** and discussed above, NCN routes 66 and 665 are in the vicinity for connections towards Leeds, York and Wetherby.

### Tadcaster growing as a cycle centre

- The second stage of the Tour de Yorkshire of April 2017 commenced at Tadcaster Bridge.
- Tadcaster hosted a cycle festival and the start of The Yorkshire 2019 Para-Cycling International event in September 2019.
- Cyclesense is a family owned cycle shop established and located in Tadcaster since 1991, now with two branches in the town – one being a children's bike shop. They also provide a bike hire service.

### Other relevant schemes in the vicinity

- A concurrent Sustrans scheme funded by Highways England is currently underway, with construction expected to be completed March 2020, of a 500m length of cycle/walking track between the Wetherby Railway Path branch of NCN 665 at Thorp Arch and the recently refurbished Wharf Bridge (see **Map 1** and **Figure 1**). This would connect with a stretch of cycle route built recently by Redrow as part of their housing development near Newton Kyme (**Figure 2**). The result will be a continuous stretch of NCN 665 between Wetherby and the A659 at Newton Kyme.
- A-one+, contracted under Highways England, are believed to be working on a scheme exploring a potential new pedestrian/cycle bridge over the A64 just west of Tadcaster. Sustrans believes the scheme to be in early stages and details have not yet been confirmed.
- Planning discussions are understood to be taking place between The Old Brewery and

# 1. Introduction

Selby District Council relating to proposed regeneration works in the town. Details have been requested from Selby District Council but these had not been received at time of writing.

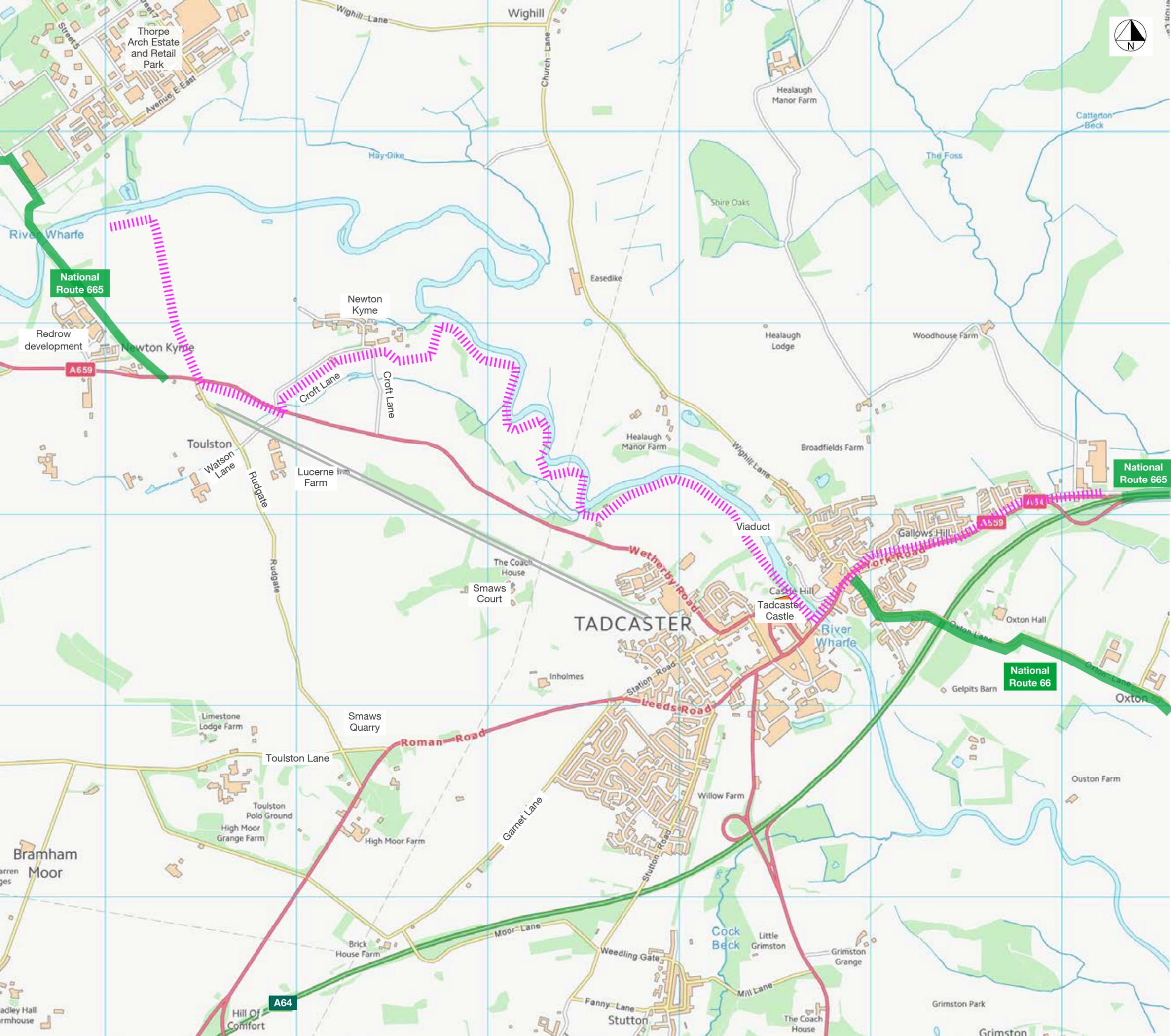
- North Yorkshire County Council are understood to be working on an LCWIP (Local Cycling and Walking Infrastructure Plan) for Tadcaster. Details have been requested from NYCC but these had not been received at time of writing. Sustrans 'Paths for Everyone - North of England' report 2018 suggests broad route alignments as indicated on **Map 1**.



Figure 1. Thorp Arch Railway Bridge - recently renovated Source: Sustrans



Figure 2. New path at Redrow development Source: Sustrans.



- Key**
- Existing alignment of National Cycle Network Route (NCN)
  - Disused railway line route
  - Ebor Way(Long Distance Path)

**Map 3**  
**Tadcaster Context**  
 not to scale

## Relevant Policies and Strategies

### The North Yorkshire Local Transport Plan (NYLTP)

The NYLTP (2016-2045) states two of its five objectives to be:

- Environment and Climate Change - Managing the adverse impact of transport on the environment
- Healthier Travel - Promoting healthier travel opportunities

“We will work with District Councils and other partners to help reduce transport related pollution across the whole highway network, especially at Air Quality Management Area sites [of which Tadcaster is one] and for new highway schemes.” (NYLTP 2016 Summary, p9)

“Where possible, appropriate and affordable we will maintain and provide the infrastructure (footways, crossings, cycle routes etc.) that will allow people to make the switch to walking and cycling.” (NYLTP 2016 Summary, p10)

### The Selby District Core Strategy Local Plan

The Core Strategy and Selby District Local Plan policies make up the Local Plan for the district and are intended to be read alongside each other. The Core Strategy is the long-term strategic vision for how the district will be shaped by setting out a number of broad policies to guide development.

Objective 8 of Selby District Core Strategy 2013 document:

“Minimising the need to travel and providing opportunities for trips to be made by public transport, cycling and walking.” (p24, Selby District Core Strategy October 2013).

Core Strategy Policy SP15, Climate Change, p131 of Selby District Core Strategy 2013 document proposes indicators of ‘reduced travel by private car’, and ‘increased walking, cycling and use of public transport’ with a target of higher patronage of these modes by end of plan period.

The maps in **Appendix 1** have been produced by the online ‘Selby District Local Plan & Core

Strategy’ interactive plan tool and indicate some site allocations relevant to routes examined in this study.

Other policy documents of interest include: Selby District’s Local Plan 2005, their wider Development Plan, Site Allocation Development Plan 2013 and Plan Selby: Selby District Market Towns Study November 2015.

**Tadcaster’s Neighbourhood Plan** – currently being composed by Tadcaster Town Council.

### Previous Studies related to this scheme

- A Cycleway Study prepared by Sustrans for Leeds City Council in 1996, titled “Wetherby to Thorp Arch Trading Estate (and onward link to Newton Kyme)” reported the outcome of 1995 investigative work by Sustrans into a Newton Kyme to Tadcaster section of NCN. The suggested path ran parallel with the A659 north of Tadcaster, then joining the existing riverside footpath (which required upgrading for cycle and wheelchair access) to reach the viaduct. The proposal included an improved path over the viaduct with access points into the town centre. See **Appendix 2**.
- Planning Applications were submitted in 2003, 2005/06 and 2011/12 proposing a walking and cycling path over the viaduct and linking with Wighill Lane to provide a traffic-free and direct connection between east and west Tadcaster. Records indicate that these planning applications were subsequently withdrawn.
- Reasons for withdrawal of Planning Applications are not clear on accessible records, but the latter of these is understood to have been withdrawn as a result of public access to the former pathway between the viaduct and Wighill Lane being blocked by the current landowner when it changed hands in 2012. Following this, in an attempt by a town resident to keep the path open, an application for a Definitive Map Modification Order (DMMO) was made. Although supported by the Town Council, Selby District Council and North Yorkshire County

Council, this concluded unsuccessfully in 2016 following public enquiries (source: <https://ramblersyorkshire.org/tadcaster-residents-defeated-landowner-historic-path-battle/>).

### Relevant current and recent Planning Applications

- Planning Application 2012/0840/FUL is for a housing development of 248 dwellings in central Tadcaster on land owned by a subsidiary of The Old Brewery next to Tadcaster Viaduct. This site is identified as a site of ‘Significant Residential Permission’ in the Selby District Local Plan & Core Strategy (**Appendix 1**). The Town Council’s comments on the application in Oct 2012 include their “wish to see a condition about the inclusion of a permanent pedestrian access and egress to the viaduct from the new development included in any grant application”.
- Planning proposal by Sam Smiths Old Brewery in conjunction with District/County Council: car park, creation of car park on east side of river. Details have been requested from Selby District Council but these had not been received at time of writing.
- Note that Tadcaster uniquely has a large proportion of land and property in the hands of one landowner, Samuel Smith’s Old Brewery

(aka The Old Brewery).

### Further Information

- Tadcaster, located on the River Wharfe, has long been associated with the brewing industry due to the quality and accessibility of the local water. It is now home to three breweries (previously four): The Tower Brewery (Coors, formerly Bass), John Smith’s and Samuel Smith’s Old Brewery. The latter is the oldest and only remaining independent brewery in the town.
- The dismantled railway line north of Tadcaster is visible from above as a line of woodland. It formed part of the Church Fenton to Harrogate Line until the line’s closure in 1964 (**Map 3**).
- Tadcaster Viaduct (**Figure 3**) was authorised for construction in 1846 as part of the planned extension between Cross Gates (Leeds) and Copmanthorpe (York). It was completed by 1849 but the collapse of railway investment led to the project’s abandonment. A siding was laid across the viaduct in 1883 to serve a flour mill on the east side of the River Wharfe until 1959. It is now a Grade II listed structure owned by Tadcaster Town Council with a footway over.



Figure 3. Tadcaster Viaduct Source: Sustrans

## 2. Infrastructure Design Guidance for Cycle Traffic

Highways England’s CD 195 ‘Designing for cycle traffic’, issued September 2019, provides useful requirements and advice for the design of infrastructure for cycle traffic on the motorway and trunk road network, and is intended for use by highway design professionals to facilitate convenient and safe movement of cycle traffic. This section highlights guidance from HE and Sustrans relevant to the Design Considerations section.

### Cycle Lanes and Cycle Tracks

CD195 guidance describes the minimum cycle route provision to be used for different traffic speeds and volumes.

Table E/1.1 Minimum provision for cycle routes

Speed limit (mph)	Motor traffic flow (AADT-Average annual daily traffic)	Minimum provision for cycle routes
40 and over	All flows	Cycle tracks (excluding stepped cycle tracks)
30	>5,000	Cycle tracks
	0-5,000	Cycle lanes
20	>5000	Cycle tracks
	2,500-5,000	Cycle lanes
	<2500	Quiet streets

Figure 4. Minimum provisions for cycle routes

It states five key design criteria to be balanced in design of routes, and emphasises personal security of users, requiring design which ensures well-lit routes with views of passing people and traffic, low-growing vegetation and well-designed underbridges.

Table E/1.1.1 Cycling design criteria

<b>Coherence</b>	Cycle networks link trip origins and destinations, including public transport access points and are continuous and easy to navigate.
<b>Directness</b>	Cycle networks serve all the main destinations and seek to offer an advantage in terms of distance and journey time.
<b>Comfort</b>	Infrastructure meets design standards for alignment and surface quality, and caters for all types of user, including children and disabled people.
<b>Attractiveness</b>	Aesthetics, noise reduction and integration with surrounding areas are important.
<b>Safety</b>	Cycle networks not only improve cyclists’ and other road users’ safety, but also their feeling of how safe the environment is (their personal security).

Figure 5. Cycling Design Criteria

### The ‘cycle design vehicle’

CD 195 uses a conceptual ‘cycle design vehicle’ 2.8m long and 1.2m long in order to aid design for a wide range of bike path users. This is based on a 1.8m bicycle plus child trailer

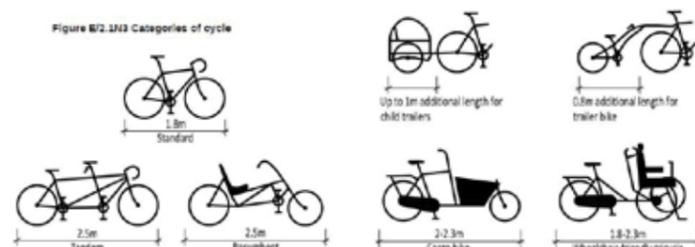


Figure 6. Categories of cycles

### Design of cycle lanes and cycle tracks

CD 195 addresses minimum widths for one-way and two-way cycle tracks. Use of surface colour, proximity to vertical features, kerbs and drainage gullies, visibility splays and route gradients are also addressed.

Table E/3.1 Minimum widths of cycle routes

Cycle route type	Peak hour cycle flow (either one-way or two-way depending on cycle route type)	Desirable minimum width	Absolute minimum width (for sections up to 100 metres)
Cycle lane	<150	2.0 metres	1.5 metres
Cycle lanes with light segregation	<150	2.5 metres	1.5 metres
One-way cycle track (including stepped cycle track)	<150 150-750 >750	2.5 metres 3.0 metres 4.0 metres	1.5 metres 2.5 metres 3.5 metres
Two-way cycle track	<150 150 or greater	3.0 metres 4.0 metres	2.5 metres 3.5 metres

Figure 7. Minimum widths of cycle routes

### Transitions

To reduce risk of collision CD 195 notes the need for continuous transitions where a cycle lane joins or diverges from the carriageway, with mandatory cycle lane length of minimum 5 metres before diverging from or merging with the carriageway.

Figure E/3.14.1N Cycle route transition

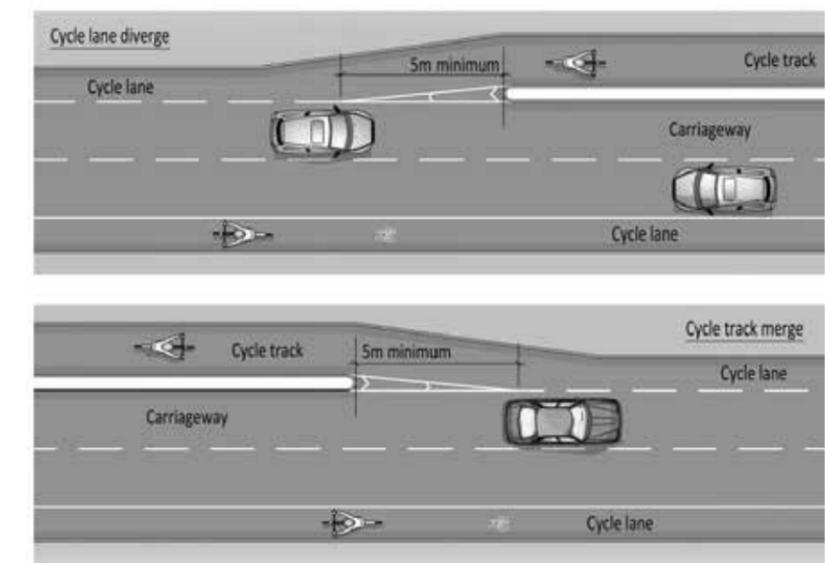


Figure 8. Cycle route transition

The guidance addresses bus stops on cycle routes, suggesting routing alongside the bus stop where space allows, and zebra crossings where bus passenger number are high.

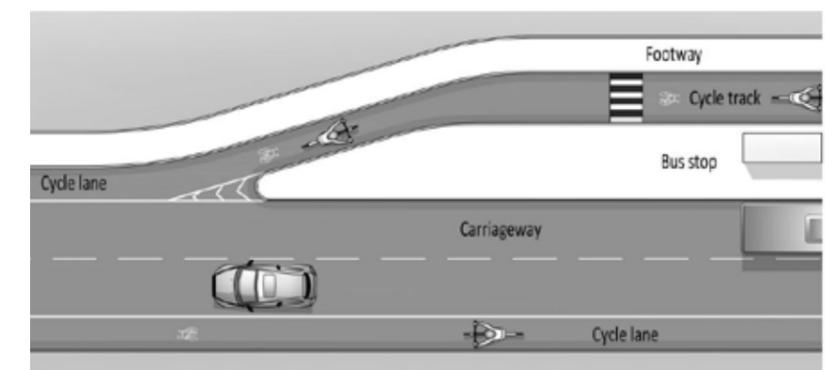


Figure 9. Zebra crossing at bus stop

**Off-carriageway tracks**

Addressing off-carriageway cycling, the guidance indicates minimum design speeds, stopping sight distances and forward visibility envelopes.

Table E/3.18 Minimum SSD

Design speed (kph)	Minimum SSD (metres)
40	47
30	31
20	17

Figure 13. Minimum SSD (m)

Changes in horizontal alignment are to be addressed via simple curves of minimum radii, with crossfalls not in excess of 5% provided to prevent collection of surface water.

Desirable horizontal separation between carriageway and cycle track is addressed, with footways separated by a kerb or verge. The guidance illustrates design of one and two-way, off-carriageway cycle tracks

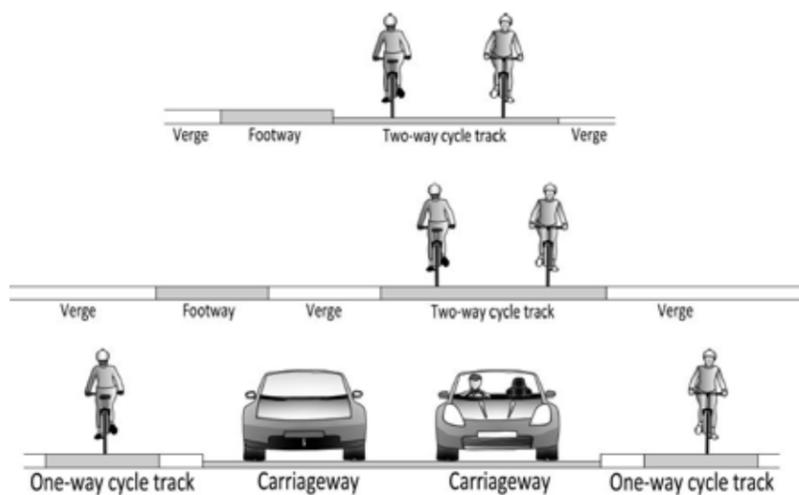


Figure E/3.28N2b Two-way cycle track adjacent to a carriageway



Figure 11. Cycle track provisions

**On-carriageway tracks**

The guidance illustrates light segregation features including flexible bollards, low height separators and intermittent raised kerbs, only to be used on mandatory cycle lanes.

**Road Crossings**

Recommendations for suitable types of controlled road crossings at links and junctions, including roundabouts, take note of location, flow and number of lanes to be crossed, and include grade-separated and signalised crossings.

Uncontrolled crossing features include flat-top speed humps, coloured tarmac and refuges, and guidance is provided for bent in and bent out crossings for cycle tracks.

Uncontrolled crossing

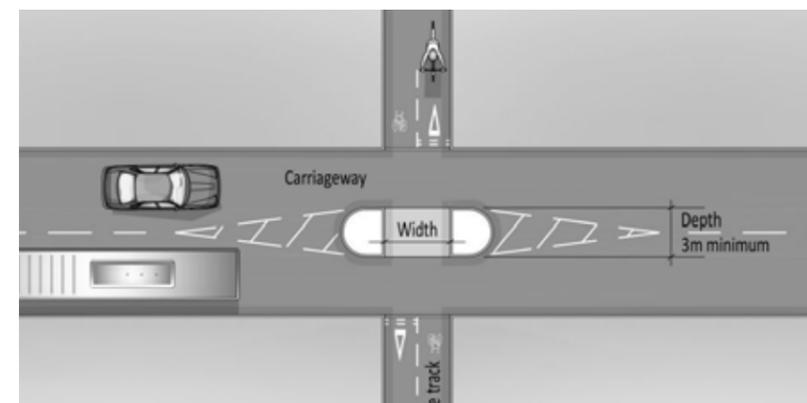


Figure 12. Refuge at cycle crossing

Finally, the guidance addresses cycle traffic direction signing strategies, and design of signage.



Figure 14. Healthy Streets Indicators (Source: Transport for London) (left)

**Streetscape vision**

Streets are places for people. Successful streetscapes are inclusive and provide for the competing requirements of their users, including pedestrians, cyclists, motorcyclists, bus operators, bus passengers, private vehicle owners. Understanding and carefully balancing the diverse needs of these users will ensure better and safer places to support the variety of activity on our streets.

**Moving**

Help people, goods and services get from A to B, by enabling more efficient and reliable movement for a range of transport modes, with a focus on active transport.

**Living**

Provide welcoming and inclusive places which support economic, cultural and community activities.

**Protecting**

Improve safety and ensure that streets are secure.

**Sustaining**

Reduce road network emissions and support clean, green initiatives for a healthier and more active city.

The guidance has three primary functions, based on standard practice based on Transport for London's Healthy Streets approach and Streetscape guidance:

- To encourage those responsible for designing, building, operating and maintaining local streets to use a robust design approach in balancing the movement of people and goods with high quality urban realm.
- To demonstrate the high level of ambition, innovation and creativity required to deliver excellent levels of service.
- To highlight the design considerations required for appropriate layout, material selection,
- application and maintenance, and to reinforce best practice design principles, ensuring that a high quality approach to street design is implemented.

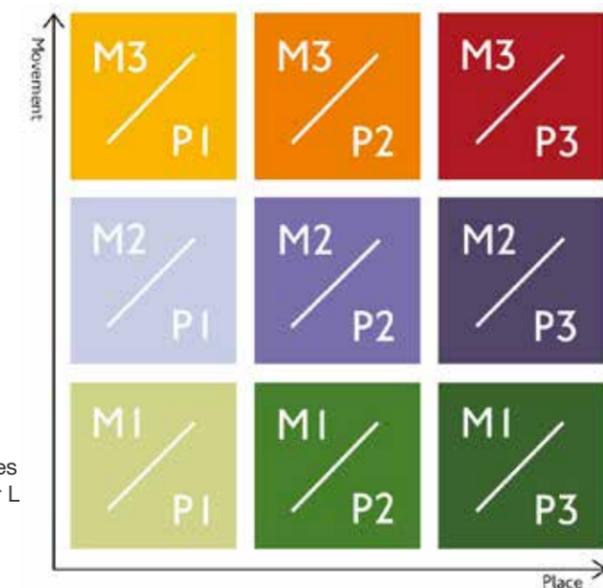
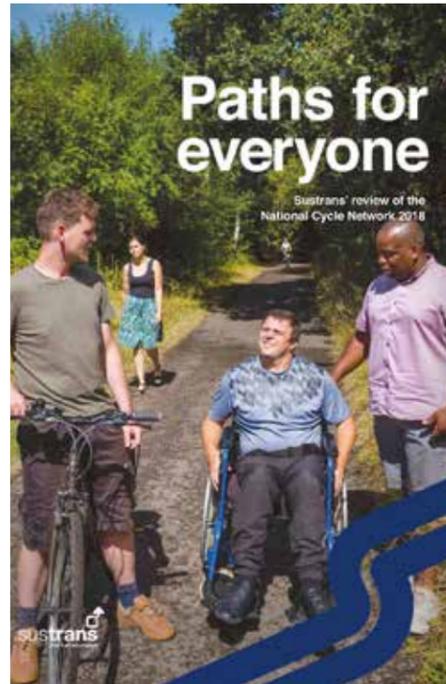


Figure 15. Street types (Source: Transport for L (right)

### 3. NCN Design Principles



#### National Cycle Network routes shall:

- be designed in accordance with current best practice design guidance;
- be designed in collaboration with the local community;
- provide convenient links to key destinations, connecting cities, towns and countryside;
- meet the following nine design principles:

The National Cycle Network design principles set out key elements that make the Network distinctive and need to be considered during design of new and improved routes forming part of the Network. Where the Network is not traffic-free it should either be on a quiet-way section of road or be fully separated from the carriageway. For a National Cycle Network route on a quiet-way section of road traffic speed and flows should be sufficiently low with good visibility to comply with design guidance for comfortable sharing of the carriageway. Signs and markings should highlight the Network.



#### Principle 1: Traffic-free or quiet-way

- Where the Network is not traffic-free it should either be on a quiet-way section of road or be fully separated from the adjacent carriageway.
- For a National Cycle Network route on a quiet-way section of road the traffic speed and flows should be sufficiently low with good visibility to comply with design guidance for comfortable sharing of the carriageway. Signs and markings should highlight the Network.



#### Principle 2: Sufficient width to accommodate all users

- Width of a route should be based on the level of anticipated usage, allowing for growth.
- Physical separation between users should be considered where there is sufficient width and a higher potential for conflict between different users.



#### Principle 3: Designed to minimise maintenance

- A maintenance plan should be put in place in the development process.
- Construction quality should be maximised to minimise maintenance.
- New planting should be kept well clear of the path.
- Sufficient tree work should be undertaken as part of construction to minimise future issues.
- Routes should be managed in a way that enhances biodiversity.



#### Principle 4: Signed clearly and consistently

- Signage should be a mix of signs, surface markings and wayfinding measures.
- Every junction or decision point should be signed.
- Signage should be part of a network-wide signing strategy directing users to and from the Network to trip generators such as places of interest, hospitals, universities, colleges.
- Signage should be used to increase route legibility and branding of routes.
- Signage should help to reinforce responsible behaviour by all users.



**Principle 5: Smooth surface that is well drained**

- Path surfaces should be suitable for all users.
- Path surfaces should be maintained in a condition that is free of undulations, rutting and potholes.
- Path surfaces should be free draining and verges finished to avoid water ponding at the edges of the path.
- In, or close to, built-up areas a Network route should have a sealed surface to maximise the accessibility.



**Principle 6: Fully accessible to all legitimate users**

- All routes should accommodate a cycle design vehicle 2.8 metres long x 1.2 metres wide.
- Any barriers should have a clear width of 1.5 metres.
- Gradients should be minimised and as gentle as possible.
- The surface should be maintained in a condition that makes it passable by all users.



**Principle 7: Feel like a safe place to be**

- Route alignments should avoid creating places that are enclosed or not overlooked.
- Consideration should be given as to whether lighting should be provided.



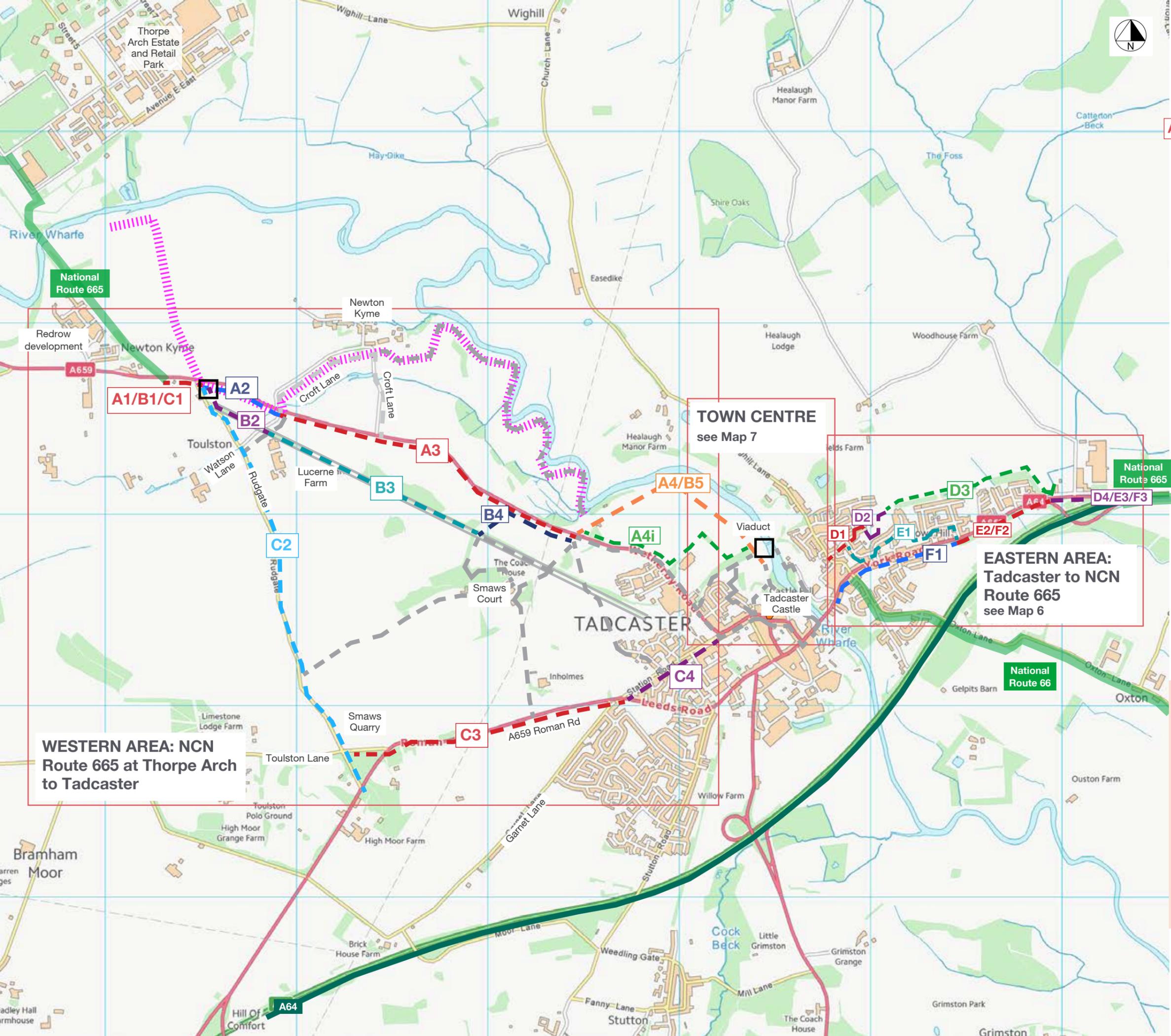
**Principle 8: Enable all users to cross roads safely**

- Road crossings should be in accordance with current best practice guidance.
- Approaches to road crossings should be designed to facilitate slow approach speeds to a crossing.
- All grade separated crossings should provide step-free access.



**Principle 9: Be attractive and interesting**

- Network routes should be attractive places to be in and pass along.
- Landscaping, planting artwork and interpretation boards should be used to create interest.
- Seating should be provided at regular intervals along a route.
- Opportunities should be taken to enhance ecological features.



- Key**
- Existing alignment of National Cycle Network Route (NCN)
  - Proposed alignment options (colours vary)
  - Other alignment options (see Map 5)
  - Disused railway line route
  - Key crossing points
  - Major highways
  - Ebor Way(Long Distance Path)
  - Route Option Appraisal Sections

**Map 4**  
**Route Options**  
**Appraisal Overview**  
 not to scale

**WESTERN AREA: NCN Route 665 at Thorpe Arch to Tadcaster**

**TOWN CENTRE**  
 see Map 7

**EASTERN AREA: Tadcaster to NCN Route 665**  
 see Map 6

**Update March 2020:**  
 Sustrans has recently been alerted to a flood alleviation scheme that the Environment Agency are planning for Tadcaster.  
 Information now received from them indicates improvement works to both sides of the River Wharfe between the disused railway viaduct and the A659 road bridge, some of which may have the potential to incorporate elements of the preferred route described in this study.  
 Sustrans intends to continue liaising with the Environment Agency regarding this.

## 4. Route Option Appraisal

Route option analysis for this scheme has been divided into two parts: a **western** branch connecting the Thorp Arch branch of NCN 665 to the north or west of Tadcaster, and an **eastern** branch connecting the east riverside to the York branch of NCN 665. A third section examines Tadcaster town centre. Several features hinder a straightforward route connecting the western and eastern branches, as will be described. Therefore options for a town centre section and river crossing have been explored and are described in this chapter, but a **‘best town centre alignment’** recommendation for taking forward to Design and Delivery stage will not be made at this stage.

### WESTERN AREA: NCN Route 665 at Thorp Arch to Tadcaster (see Map 4)

Three route alignments, **A, B** and **C**, are considered for this section. Other discounted route options are described briefly.

#### ALIGNMENT A

**A1. A659 Existing track to Rudgate** This alignment heads east alongside the A659 (Figure 16).



Figure 16. Facing east where end of existing track joins A659 Source: Sustrans

There is enough width available in the highway boundary to widen the existing footpath to 2.5 to 3.0 metres (Figure 17).



Figure 17. View east along A659, northern highway verge. Source: Sustrans

An alignment through the edge of woodland (owned by Redrow) just north of the highway boundary would also be worth exploring, but would require vegetation clearance and possible removal of trees.

The southern verge is too narrow along the front of a property on this stretch of road.

**A2. A659 Rudgate To Croft Lane** There is sufficient space within the northern highway verge for widening of the current footpath to 2.5m along the majority of path in this segment, with 3m achievable in places (Figure 18). This alignment requires a crossing at Croft Lane. The verge narrows approaching Croft Lane and would benefit from utilisation of the field corner given landowner consent. The southern highway verge is a less attractive alignment, as it is initially wide but gradually narrows, requiring routing inside the field edge for part of its length, and a road crossing. Being alongside a busy and fast traffic flow would mean a less pleasant experience for pedestrians and cyclists than more secluded alignments. However this option may feel safer than more isolated routes, particularly for lone cyclists and walkers during the darkness of winter commutes.



Figure 18. View east along A659, northern highway verge. Source: Sustrans

#### A3.A659 East of Croft Lane

For most of this stretch, space is limited within the highway boundary (Figure 19), requiring



Figure 19. View east along A659 Source: Sustrans alignments along the inside of field edges on both northern and southern side for most, if not all of section A3, and landowner consent. A northern verge alignment would require crossing of a second side road, also called Croft Lane.

**A4. A659 to Viaduct** This alignment leaves the A659 to head along a track leading to the Yorkshire Water plant and disused quarry site (Figure 20). There is a footpath (PRoW) just to the left of this track currently having too rough a terrain for cyclists and wheelchair users (Figure 21).



Figure 20. View north along track Source: Sustrans



Figure 21. View along ProW by river indicating rough terrain Source: Sustrans

Beyond the water works track, the PRoW continues as a trodden track in an open green area (Figure 22) which appears well used by pedestrians, dog walkers and joggers.



Figure 22. Footpath through green area by river Source: Sustrans

The path passes under Tadcaster Viaduct and joins a riverside surfaced path owned by the Town Council (Figure 23). Ideally, the existing right of way would be upgraded to be suitable for all. Otherwise, creation of a 3m wide shared-use path offset from this existing PRoW appears feasible if landowners are in agreement, thereby retaining the PRoW for

walkers while providing separate infrastructure suitable for cyclists, wheelchairs and pushchairs as well as pedestrians.

An alignment elsewhere in this area may also be possible, such as along the field edge parallel with the road, then around the school - shown as **A4i** on Map 4.



Figure 23. View north west from Town Council-owned path towards viaduct Source: Sustrans

#### Alignment A Summary

- Runs alongside the A659 (with verge separation or along inside edge of fields) – not peaceful due to traffic noise;
- May have a higher level of perceived safety than more secluded options, particularly for lone cyclists outside of daylight hours;
- Several land ownership parcels would be involved, mostly edges of farmland;
- North side of A659: two side road crossings required but none of the main road;
- Potentially wholly off-road;
- Links can be created with the town centre, river crossing and Newton Kyme.

#### ALIGNMENT B

**B1. A659 Existing track to Rudgate** This option is identical to A1.

**B2. Rudgate to Watson Lane** This option requires crossing the A659 just west of Rudgate. The national speed limit of the A659 and reduced visibility on bends will affect design of the crossing, possibly requiring a toucan or grade separated crossing

and further discussion with North Yorkshire County Council and Selby District Council (**Figure 24**).

Immediately after crossing the A659, the route enters land east of Rudgate, following the line of the disused railway.



Figure 24. Looking west along A659 at north end of Rudgate Source: Sustrans

This land is privately owned and as a result the site has not been investigated. Continued feasibility will require consultation and agreement with landowners. Desk study indicates the dismantled railway to be covered in dense woodland, indicating a possible requirement for significant tree and vegetation removal to accommodate a walking and cycle track.



Figure 25. Aerial photograph, B2 & B3 alignment Source: Google Aerial

**B3. Southeast of Watson's Lane** The route continues along the line of the dismantled railway. A bridge of unknown condition over Watson's Lane links sections B2 and B3. Sections B2 and B3 run on land owned by the same landowner and again continued feasibility would require consultation, agreement and site investigation. Google satellite photography (**Figure 25**) dated 2019 indicates the majority of the length as wooded, potentially requiring tree clearance. East of Lucerne Farm there

is a gap in the wooded corridor, where the route option would cross open farmland.

**B4.** This section follows a short length of farm access track between the dismantled railway line and the A659, then along the inside edge of a field bordering the A659. B4 is located in one land ownership parcel. The farm track is indicated to be unregistered and further investigation is required. A second crossing of the A659 is required to join segment B5.

#### B5. A659 to Viaduct

Identical to segment A4 above, this is an off-road stretch between the A659 and the open green area below the viaduct.

#### Alignment B Summary

- A tranquil, mainly off-road route but would feel more secluded outside of daylight hours;
- Requires two crossings of the A659;
- Affects three landowners significantly;
- More detailed site studies would be required to confirm suitability;
- Substantial vegetation clearance may be required.

#### ALIGNMENT C

**C1. A659 Existing track to Rudgate** This option is identical to A1.

**C2. Rudgate** The route follows Rudgate. Although a pleasant country road with relatively low traffic levels, the bendy, narrow alignment makes visibility poor in places (**Figure 26**).



Figure 26. Bridge near north end of Rudgate

Source: Sustrans

Frequency and quality of passing places will need addressing as there are currently few. The slightly hilly terrain in places may not be popular with less experienced cyclists, and commuting outside of daylight hours could feel secluded, particularly for lone cyclists. A farm shop (The Organic Pantry) is located on this section and could be an attraction for cyclists and walkers to the area. Rudgate is the only access to the farm however and will also bring vehicular traffic along the route. Smaws Quarry is located approximately 100m before the junction with Toulston Lane, and lorries are likely to use Rudgate as a route of access.

This segment would be classified as an on-road section of NCN, which is undesirable for a new NCN route. Sustrans NCN guidance requires a maximum 40mph and confirmation that traffic flow is below 1000 vehicles per day. A 'motor vehicles prohibited' sign is present at the north end of Rudgate but not the south, and vehicles can still turn left or right from Watsons Lane onto Rudgate. Prohibition of motor vehicles (except for access) from all directions would make this route safer and more attractive for pedestrians and cyclists, although vehicles accessing the quarry and farms along Rudgate would still present a danger to users. Closure of Rudgate between Lucern Farm and the quarry (other than access for farm vehicles), and suitable barriers in place at each end of the stretch would create a traffic-free section, but this would not address traffic dangers at the northern and southern ends.

**C3. Toulston Lane and Roman Road** Turning left from Rudgate to head towards Tadcaster, this 250m stretch of Toulston Lane has a 2.5m wide shared-use cycle and pedestrian path on the south side. The carriageway is designated one-way for east-bound traffic and has a 40mph speed limit (**Figure 27**).



Figure 27. Toulston Lane facing west Source: Sustrans  
Approaching the end of Toulston Lane there is a dropped-kerb crossing where the shared-use path diverts to the north verge and continues as a narrower path for approximately 30m along the A659 Roman Road. Vegetation could be scraped back to widen this. A crash barrier separates the path from the carriageway (Figure 28).



Figure 28. A659 Roman Road facing east Source: Sustrans

The shared-use path, of limited width, crosses from the north to the south side of the A659 at a pedestrian crossing. The speed limit is 40mph.



Figure 29. Looking west along A659 Roman Road near Garnet Lane Source: Sustrans

Existing verge space would enable widening of the path by 1m along most of its length. Figure 29. Currently there is insufficient width to create a 1m separation verge (minimum requirement for

40mph) along the whole length. The possibility of repositioning and widening the existing path by extending into the adjacent field, at certain sections, may be an option if landowners were in agreement.

**C4. Station Road** Alignment C crosses the A659 near Station Road and continues along Station Road as an on-road section. Its use as an NCN route would require introduction of a 20mph speed limit and traffic flow of less than 2500 vehicles per day. Narrow footpaths prohibit shared use.

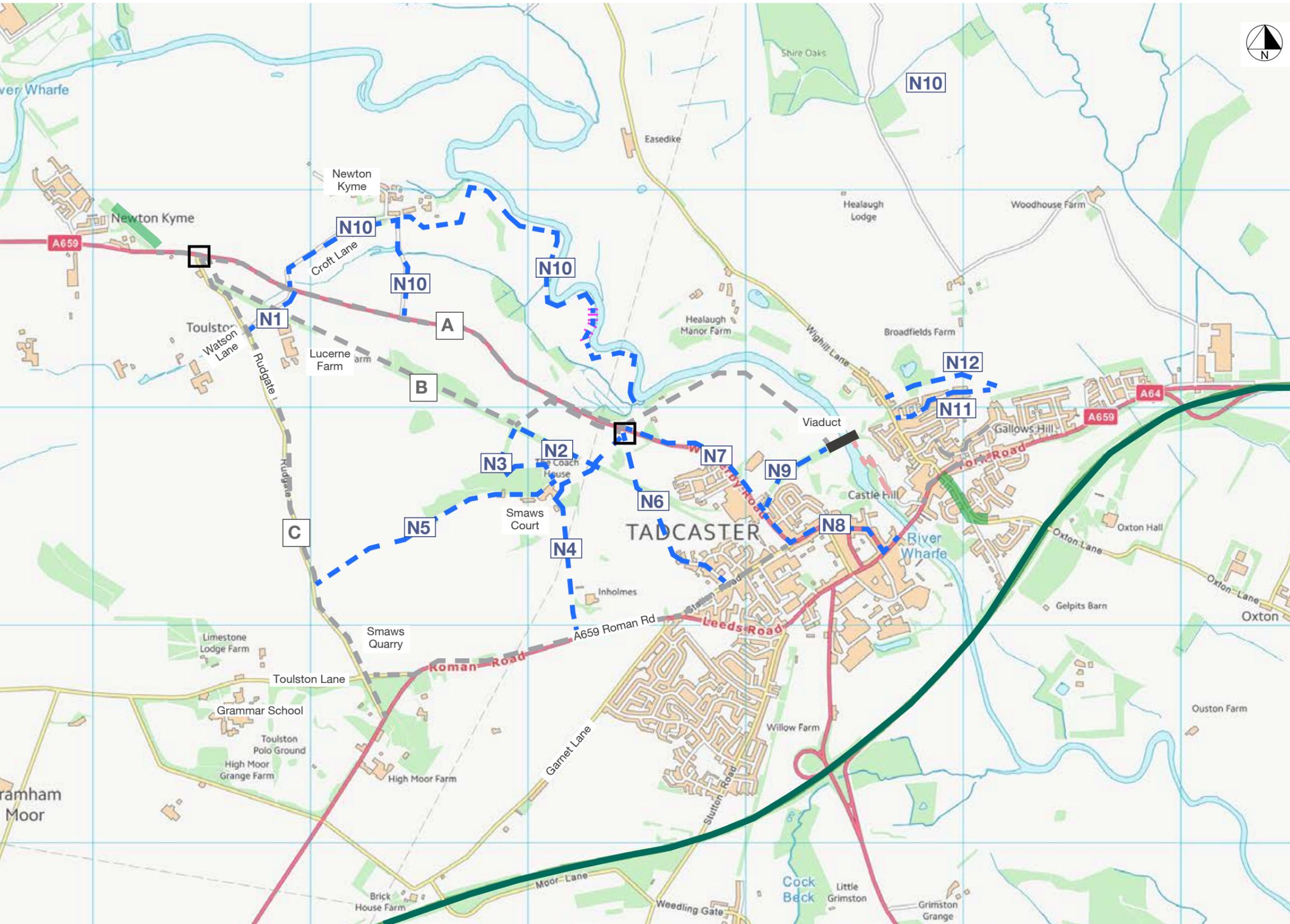
Alignment C ends at the junction of Station Road with Wetherby Road. The onward route would depend on which river crossing the NCN is to use (see Map 7 page 20). Off-road route options are limited for cyclists approaching Tadcaster on alignment C, and for travelling through the town generally. Extending alignment C further into Tadcaster in any direction is difficult owing to the town's layout and busy roads. An on-road section of route through the town with introduction of a 20mph speed limit and speed control measures (subject to low enough traffic flow rates) is the only known viable option at this stage, without extensive highway redesign incorporating segregated cycle infrastructure.

#### Alignment C Summary

- Rudgate could be a pleasant section of NCN if vehicular traffic was excluded. It currently presents a hazardous route;
- Alignment C provides a potential direct link between Newton Kyme and the grammar school;
- A crossing of the A659 (in a national speed limit zone) would be required at the north end of Rudgate;
- Personal safety may be a concern for lone cyclists along Rudgate, particularly in darkness;
- This is a relatively low cost option as some infrastructure is already in place. Implementation of a speed reduction on Rudgate could be enough to bring this section into use, although **NCN Design Principle 1** (i.e. to be traffic-free or quiet-way) would not be met;

- A pedestrian crossing and shared-use route are already in place on segment C3. Widening the shared-use path along the A659 would make it more user-friendly, although there is no verge barrier between road and path. This is a point of concern as the route is well used by school pupils and adjacent to a busy road. Extending the path into the adjacent field where highway space is too limited for widening would be the preferred upgrade;
- Options for continuing into Tadcaster from alignment C are limited to on-road, and would involve some busy sections;
- This is the longest route of the three options A, B and C and the most indirect;

There may be potential for extension of a link westwards towards Leeds from alignment C - see 'Next Steps' chapter.



- Key**
- Existing alignment of National Cycle Network Route (NCN)
  - - - Other alignment options explored
  - - - Alignments A, B and C
  - Key crossing points
  - Major highways

**Map 5**  
**Other Alignment Options Explored**  
 not to scale

## Other Alignment Options (Refer to Map 5)

Other route options that have been explored but discounted - or not included as part of the main selected alignments - are described on this page and indicated on the adjacent map.

### N1. Watson's Lane between A659 and Rudgate

On-road option, with traffic flow thought to be light. Ramp construction required to access dismantled railway line (alignment B) from Watson's Lane.

### N2. Dismantled Railway Line

Continues section B3, along a section of dismantled railway line, now split into three parcels of land all of which are in private ownership and partially covered in dense woodland. This section, not investigated beyond desk study owing to accessibility, may be worth exploring if alignment B becomes the best option to pursue, and an alternative to B4 is sought.

**N3. Northwest of Smaws Court.** Section not investigated beyond desk study as it crosses several land ownership parcels, however it is another option to consider if an alternative to B4 is sought.

**N4. Long Wood House to A659 Kelcbar Hill** This minor road links the A659 west of Tadcaster to a cluster of houses making up Smaws Court, then turns east to re-join the A659 north of Tadcaster. The route is a designated Bridleway on North Yorkshire's map of Public Rights of Way. The route has a sealed tarmac surface and appears quiet and lightly used by motor traffic. A potential link to any of the three main possible alignments A, B or C - for example to reach the grammar school from alignments A or B, or to travel onwards to Leeds from the north edge of Tadcaster (Figure 30).



Figure 30. Minor road between A659 Wetherby Road and dismantled railway line Source: Sustrans

**N5. Bridleway link** A mud track designated a Bridleway on North Yorkshire's map of Public Rights of Way. Resurfacing would be required. This alignment could provide a link, similarly to N4.

**N6. PRow** This is currently a designated PRow around field edges and is no more than a trodden track. Several private land ownership parcels are crossed.

**N7. A659 Wetherby Road entering Tadcaster from the north** A 20mph speed limit is in place between Kelcbar Close and just south of the Viaduct Walk entrance, in the vicinity of Riverside Primary School. This stretch of highway is a main route into and out of Tadcaster. Provision of a safe cycling route here would greatly benefit pupils and parents travelling to and from the school, and would form a direct route into Tadcaster from Newton Kyme and the northern section of NCN Route 665. It could also form part of an alternative route to access the viaduct, via section N9, Viaduct Walk. However there is insufficient highway width along this section to create a shared-use path or segregated cycle infrastructure (Figure 31).



Figure 31. A659 Wetherby Road approach to Tadcaster Source: Sustrans

**N8. A659 Tadcaster centre** A main and busy route through Tadcaster centre, providing direct access into and through the town. There is insufficient highway width to create a shared-use path or segregated cycle lanes. A 20mph speed restriction would enable an on-road NCN route if traffic volumes were sufficiently low but even this would be a last resort.

**N9. Viaduct Walk** A traffic-free, Town Council-owned path of good width leading from the A659 Wetherby Road up to and over Tadcaster Viaduct

(Figure 32). There is a pedestrian route (not a PRow) via steps down from the viaduct to a path on the west side of the river. Access down from the east end of the viaduct is also stepped, and a PRow does exist leading northwards from the base of the viaduct on this side. There is no PRow leading south or east into the town. Potentially useful as a link.



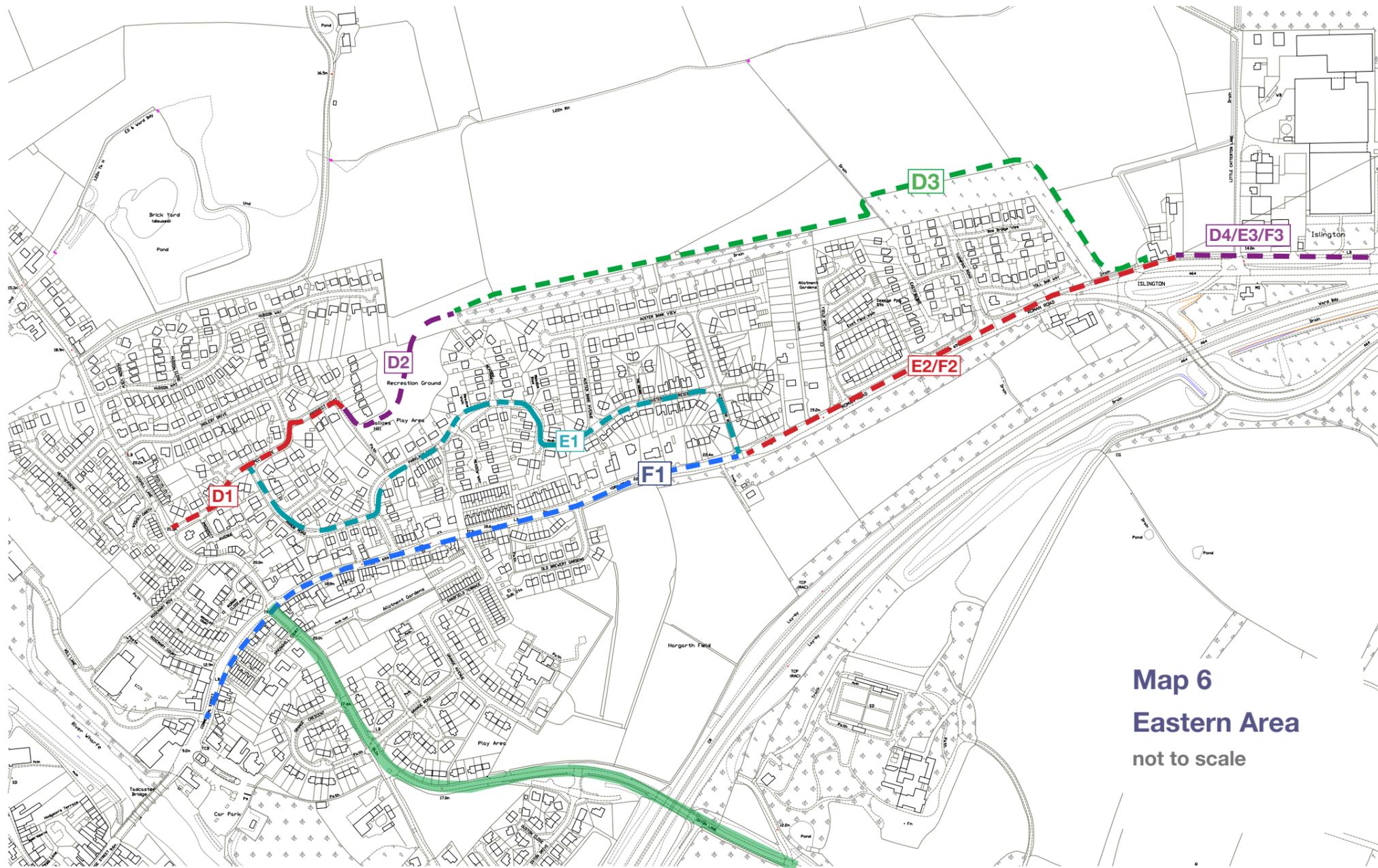
Figure 32. View west along access road Source: Sustrans

**N10. Croft Lane and Newton Kyme** This on-road alignment option, from the A659 along Croft Lane and through the village of Newton Kyme, continues off-road along the PRow path alongside the river all the way to the viaduct. Resurfacing of the PRow, or creation of an adjacent 3m path would be required for the stretch along by the river. The off-road section would make an attractive NCN route, connecting Newton Kyme to both Tadcaster and the new Redrow housing development north west of the main village, but it is a winding, indirect and long route. Segment N10 is discounted as more direct alignments (A, B and C) exist, however the initial section along Croft Lane could be studied further as a potential link to Newton Kyme.

**N11.** An alternative to segment D1 (see Map 6 for alignment D). It has not been confirmed whether a through-route directly into the field from the east end of Hudson Way would be possible without crossing private residential property. Land ownership would require further investigation if there is interest in progressing this option.

**N12.** A further alternative to segment D1, this follows an existing bridleway, before cutting across a field to join segment D3. This alignment is currently discounted owing to being further north (and therefore less direct) than other options, although it

does offer a partially off-road option.



**Map 6**  
**Eastern Area**  
not to scale

**Key**

-  Existing alignment of National Cycle Network Route (NCN)
-  Proposed alternative alignment options

**EASTERN AREA: Tadcaster to NCN Route 665 (Refer to Map 6)**

Three route alignments, D, E and F, are considered for this section east of the river. Discounted route options N11 and N12 are described briefly on the previous page.

**ALIGNMENT D**

**D1. Wighill Lane to Prospect Court** This on-road section leads from Wighill Lane via Ingleby Drive or Prospect Drive then to Prospect Court to access a traffic-free path. On-road sections would require a 20mph speed limit - which would seem in keeping with the residential neighbourhood.

**D2. Prospect Court to Playground** A short traffic-free path leads to Wighill Playground. The route would require a new path along the western playground edge, exiting at the northern boundary (Figure 33).



Figure 33. Wighill Playground Source: Sustrans

**D3. Wighill Playground to the A659** From the recreation ground this segment runs east along a wooded field edge to the north of Auster Bank View, turning south at the woodland corner (Figure 34) to rejoin the A659 (Figure 35).



Figure 34. View from A659 towards woodland corner Source: Sustrans



Figure 35. Alignment D rejoins A659 Source: Sustrans

**D4. A659** Connecting with the existing NCN Route 665 to York (**Figure 36**), this alignment runs on or alongside the access road which is parallel with the A659. Businesses are located along this stretch, and the roadsides are currently used to park vehicles (**Figure 37**).



Figure 36. View east towards NCN Route 665 Source: Sustrans



Figure 37. View west along access road Source: Sustrans

### Alignment D Summary

- Includes on-road sections;
- Section D3 runs along field edges at the back of houses. The section bordering woodland may feel more secluded in darkness. In daylight the off-road section would be a pleasant stretch of NCN;
- At least two private landowners are affected in section D3 where the path runs along field edges;
- A fairly direct alignment if the viaduct crossing or a new footbridge formed north of Tadcaster Bridge can be developed as part of the route. It is a less direct option if the main Tadcaster Bridge is to form part of the NCN (see Town Centre section on pages 20-21).

### ALIGNMENT E

An on-road alternative via residential streets, then joining - or alongside - the A659.

**E1. Prospect Drive to A659** From Wighill Lane the route passes Prospect Drive, on to Manor Road, left onto Parkland Drive. The route continues to Auster Bank Crescent via the cut-through, before turning right on to Auster Bank Road to the junction with the A659.

**E2. A659** Currently 30mph, this on-road route requires 20mph speed limit imposed and daily traffic flow rates below 2500. Traffic flow data shows AAdf of 7422 in 2018 (**Appendix 3**) suggesting that this is not a feasible option.

Provision of a two-way cycle track of 3.0-4.0m width (depending on peak hour cycle flow) with separation kerb/verge of 0.5m width, or narrower segregated one-way cycle lanes either side of the carriageway would involve a major highways scheme, and is likely to result in some encroachment into a woodland region south of the A659. Construction of cycle infrastructure along the southern edge of the carriageway would require at least two crossings of the busy A659 (one at either end of segment E2). A two-way cycle track contained entirely on the north roadside along the whole of E2 would be preferred

to infrastructure along the southern roadside, owing to the route being more accessible from residential streets in the vicinity. Two crossings of side-roads would be required in this case but none of the A659.

A further option may be to widen the northern edge footway to create a shared-use path.

**E3. A659** Identical to section D4.

### Alignment E Summary

- Major and costly highway works required for creation of segregated cycle track/lane;
- A659 carriageway is quite wide. Widening of existing footway into a shared-use path may be possible;
- AAdf data indicates the required maximum daily traffic count of 2500 is exceeded (to be confirmed), which would discount the option of an on-road route;
- Discussion with NYCC required for further progression with highway design;
- May be considered more feasible than Alignment D regarding impact on land owners;
- As with alignment D, route is indirect if the main Tadcaster Bridge is to be used as the river crossing.

### ALIGNMENT F

This alignment follows the A659.

**F1. Mill Lane Junction to Auster Bank Road** An NCN on-road route (i.e. Quietway) is unlikely to be feasible based on AAdf estimated count of 7422 at a nearby site in 2018 (**Appendix 3**).

Although the carriageway has narrow 'pinch points' in places (**Figure 38**), on the whole there is good width (**Figure 39**), but creation of segregated cycle infrastructure would mean loss of roadside parking spaces.

**F2. A659** Identical to section E2.

**F3. A659** Identical to sections D4 and E3.



Figure 38. A549 York Road west of Wighill Lane Source: Google



Figure 39. A659 York Road west of Parkland Drive Source: Google

### Alignment F Summary

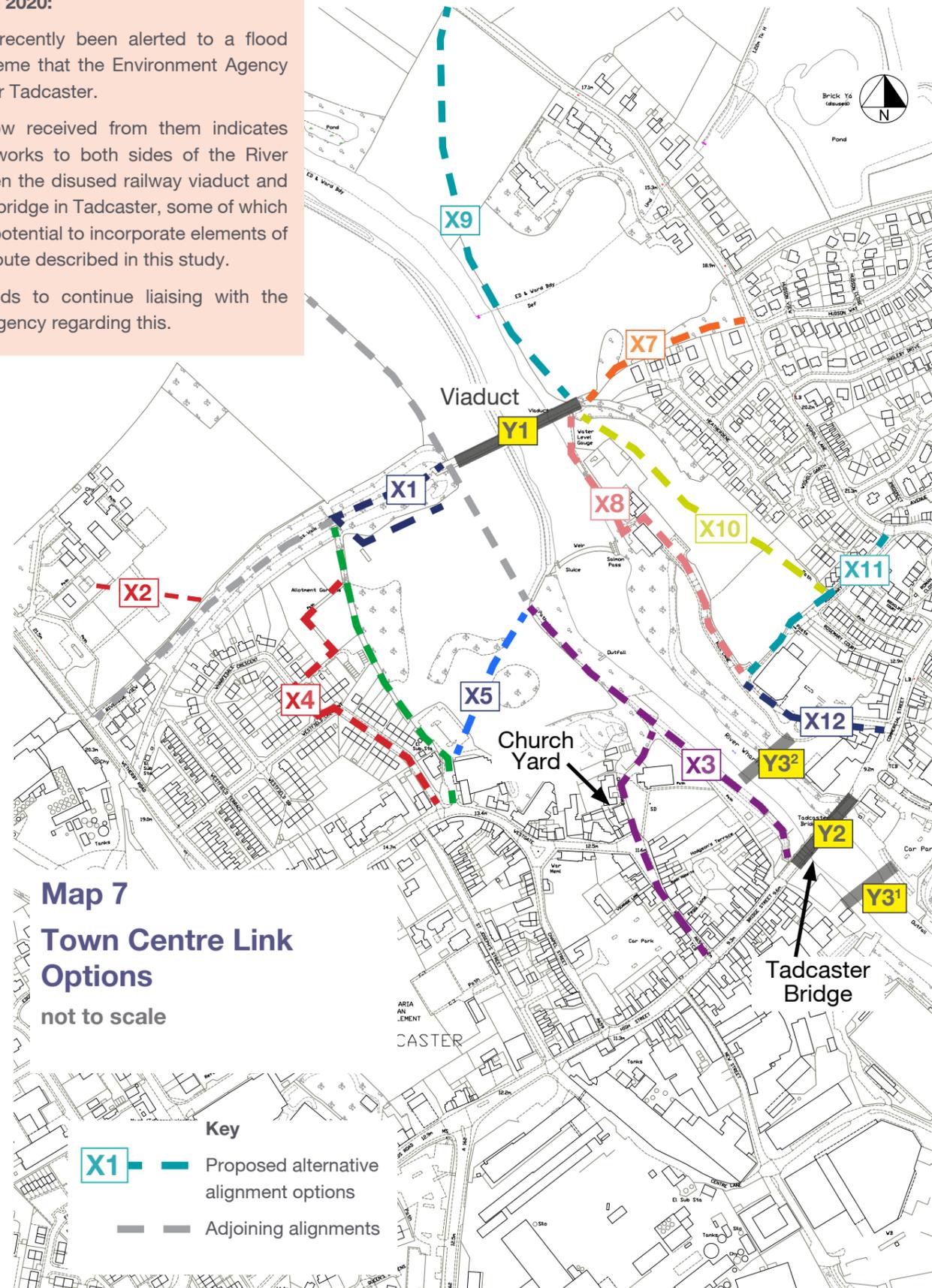
- Segregated cycle lanes/track or shared-use path are unlikely to be feasible due to restricted highway width in at least part of F1. Also may not be a popular option due to lost roadside parking spaces resulting from reduction in carriageway width (**Figure 38** and **Figure 39**);
- AAdf data indicates the required maximum daily traffic count of 2500 for Quietways is exceeded (to be confirmed), which would discount the option of an on-road route;
- Has advantage of directness, particularly if main Tadcaster Bridge is to form part of the NCN route;
- Perceived safety for lone cyclists outside of daylight hours would probably be greater than for the secluded part of option D. This must be weighed up against the dangers presented by traffic;
- The road gradient may be off-putting for irregular cyclists, particularly on a busy road.

**Update March 2020:**

Sustrans has recently been alerted to a flood alleviation scheme that the Environment Agency are planning for Tadcaster.

Information now received from them indicates improvement works to both sides of the River Wharfe between the disused railway viaduct and the A659 road bridge in Tadcaster, some of which may have the potential to incorporate elements of the preferred route described in this study.

Sustrans intends to continue liaising with the Environment Agency regarding this.



**Tadcaster town centre and river crossing (Map 7)**

An NCN route passing through or linking close to the town centre will bring an influx of visitors and a source of regeneration to the town. Tadcaster residents will also have access to safer cycling for short journeys into the town centre thereby reducing car use, congested roads and parking issues. Alignment options for the north and east branches have been selected to link as closely as possible to the town centre.

Issues limiting what can be achieved regarding the town centre section are discussed below, and suggestions made for progression. Sustrans considers further consultation work between landowners, residents, and town, district and county councils to be essential before ascertaining a town route to progress with.

**Existing road network**

Traffic density on the A659 through the town centre, the road network layout and limited highway widths restrict potential regarding segregated cycle routes along roads, without extensive highway restructuring.

Such a highway scheme designed in collaboration with the local authorities could enable significantly safer cycling through the town's streets and put Tadcaster on a par with other cycle-centred communities such as York.

Without such interventions, which may include the introduction of one-way roads, traffic-free roads or possibly some loss of roadside parking to create space for segregated cycle infrastructure, Sustrans' design standards require that speeds limits for on-road sections of NCN in urban areas are 20mph maximum (40mph in rural areas) and traffic flow to be below 2500 vehicles per day (below 1000 vehicles per day in rural areas). Even with the introduction of these traffic calming measures, on-road cycling is not ideal, particularly for less experienced cyclists and children. Sustrans NCN Design Principles include that routes be off-road or segregated from main traffic (or on-road "Quietways").

**Options for links from alignments A and B into Tadcaster**

Alignments A and B lead to the open green space beneath the Tadcaster Viaduct. An onward NCN route is dependent on location of river crossing, and whether a link is to be provided to the town centre. There are informal steps up onto the viaduct, restricting access to pedestrians only (Figure 40).



Figure 40. Steps up to Viaduct, west side Source: Sustrans

**Town Centre Links**

Options for extending alignments A and B into the town centre and to a river crossing include the following:

- X1.** Construction of a long ramp up to the viaduct, allowing users to either cross the river or continue west along Viaduct Walk back towards the A659. A 1-in-20 ramp gradient would be required to meet Sustrans design standards.
- X2.** A link to Riverside School via Viaduct Walk, providing access for pupils, parents and teachers.
- X3.** Continuation south towards on to the Town Council-owned footpath next to the river (Figure 41), then joining the A659 Bridge Street next to Tadcaster Bridge, or cutting through to the town centre via Churchyard.



Figure 41. Riverside path Source: Sustrans

From an initial desk study, two additional links to the town centre also appear worthy of further investigation, although these cross privately-owned land and may not be viable:

**X4.** via the path through allotments, then along Wharfedale Crescent;

**X5 and X6.** via a path to and through Tadcaster Community Swimming Pool.

Routes X4 to X6 could potentially join with Kirkgate and would provide direct access to the town centre. During a consultation meeting with Tadcaster Town Council in August 2019, interest was expressed in the possibility of transforming Kirkgate into an attractive traffic-free public realm space with facilities such as seats, cafes and shops. The provision of secure cycle parking would be a further asset.

Potential routes investigated to the east of the river, connecting a river crossing with an east branch alignment, are as follows:

#### From the viaduct:

**X7.** This would cross the edge of land formerly known as Barnados Home. A high perimeter fence has been erected by the landowner preventing use of this route which previous to 2012 was a publicly-accessible cut-through to Wighill Lane. A walking and cycling route here was proposed in the past, with planning applications submitted in 2003, 2006 and 2011. At least the latter of these met with strong opposition from a main property owner in Tadcaster (The Old Brewery), now also the owner of this piece of land. It is expected that a new proposal to create an NCN route here would be met with the same level of resistance. (See Introduction for more details.)

**X8.** Formation of a ramp down from the viaduct to the footpath (PRoW) on the east river bank would be required. Currently this is stepped access only (**Figure 42**). The PRoW runs only a short distance south along the east river bank (**Figure 43**) and although there appears to be a pedestrian way through to Mill Lane, it is an unofficial route and crosses privately owned land. This option would require more discussion with the landowner and Town Council.



Figure 42. Steps down to east bank Source: Sustrans



Figure 43. Path on east bank of river, view facing north Source: Sustrans

**X9.** A PRoW from the base of the viaduct on the east bank leading northwards to join Wighill Lane. This is not ideal for forming part of the route because it leads away from Tadcaster in the wrong direction, creating a detour. It is, however, currently the only official way through to Wighill Lane or the A659 Commercial Street from the east end of the viaduct.

**X10.** A land parcel adjacent to the east end of the viaduct had a planning application submitted in 2012 for a residential development of 248 dwellings (ref 2012/0840/FUL. Tadcaster Town Council's comments submitted in October 2012 included that they request a permanent pedestrian access and egress to the viaduct from the new development to be included in any planning approval. Further details and whether the development will progress are not known.

#### Other onward routes eastwards from east side of river

**X11.** This would follow the cut-through from Mill Lane to Rosemary Row (with widening of the path), then an on-road section continuing along Rosemary Row, a cul-de-sac. Here the route could turn left or right onto Wighill Lane, depending on which alignment option - D, E or F - is selected. A fairly steep gradient is encountered on X11, possibly greater than 1 in 20, but likely to be perceived to be less of a barrier than the gradient on the adjacent A659, particularly for less-confident cyclists.

**X12.** An on-road short section on Mill Lane (or shared-use path adjacent to the road if landowner permits).

#### An on-road route

An on-road town centre route between east and west preferred branches of NCN could involve segments N7, N8, C4, Tadcaster Bridge (Y2), F1 and F2. Daily traffic flow rates (**Appendix 3**) suggest desired maximum counts for Quietway routes are exceeded for many if not all of these on-road sections. If this is the case, limited highway width on many of the sections would mean that significant highway redesign such as introduction of one-way streets, traffic-free streets and removal of some roadside parking would likely be required to create segregated cycle lanes. Some stretches may have enough carriageway width to enable widening of a footway to shared-use. Any such design would require discussion with North Yorkshire County Council before further progression.

#### River crossing

A crossing of the river is essential for a continuous NCN route through Tadcaster. Options are limited to the following:

#### Crossing 1: The Viaduct (Y1 on Map 97 opposite).

The viaduct provides an ideal traffic-free river crossing (**Figure 44**), but private ownership of land east of the viaduct restricts onward travel, and also therefore limits this as a usable crossing point. The most feasible east-bound route after crossing the viaduct west to east would be X10.



Figure 44. Path over viaduct Source: Sustrans

#### Crossing 2: Tadcaster Bridge (Y2 on Map 97).

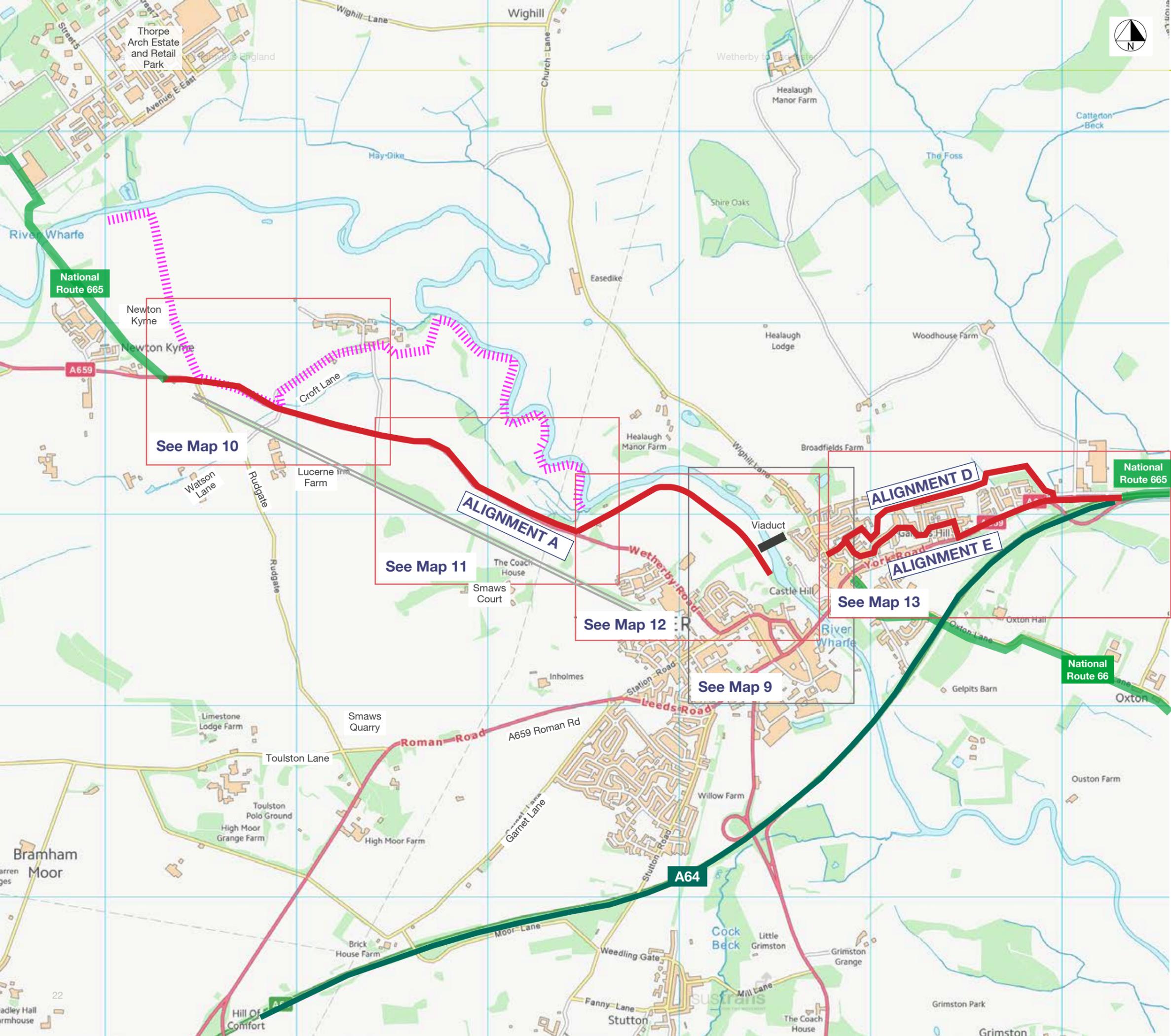
Tadcaster Bridge on the A659, recently reconstructed following flood damage in 2015, is the main river crossing and the only vehicular crossing in the village. This is busy with traffic and has insufficient width for creation of segregated cycle lanes (**Figure 45**). Traffic flow rates are indicated to be above the required 2500 for Quietway classification.



Figure 45. Tadcaster Bridge, view facing east Source: Sustrans

#### Crossing 3: A new bridge (Y3<sup>1</sup> and Y3<sup>2</sup> on Map 9).

A third possibility would be to create a new pedestrian/cycle bridge for the town. This has not been explored in depth here, but from initial observations, Y3<sup>1</sup> and Y3<sup>2</sup> on the adjacent map appear to be locations to consider.



**Key**

-  Preferred Route alignment
-  Location of Design Consideration plans
-  Existing alignment of National Cycle Network Route (NCN)
-  Major highways
-  Railway line (disused)
-  Ebor Way(Long Distance Path)

**Map 8**  
**PREFERRED ROUTE ALIGNMENT**

not to scale

See Map 10

See Map 11

See Map 12

See Map 9

See Map 13

ALIGNMENT A

ALIGNMENT D

ALIGNMENT E

National Route 665

National Route 665

National Route 66

A64

A659

Roman Road

Leeds Road

York Road

sustrans

**Y3<sup>1</sup>**. The site of a temporary footbridge placed at the beginning of 2016 while reconstruction works to flood-damaged Tadcaster Bridge took place. The footbridge spanned between the Selby District Council car park on the eastern side and Tadcaster Town Council owned land on the west. Not an ideal siting for an NCN bridge due to being south of the A659 and requiring crossings of the A659 to reach the east and west preferred NCN alignments.

**Y3<sup>2</sup>** This has the advantage of being located north of the A659, thereby avoiding the need to cross this busy road. It is also near Sainsburys, a popular destination for town visitors and residents. A pedestrian and cycle crossing north of the main Tadcaster Bridge would provide an ideal link for residents of east Tadcaster to reach the schools west of the river - although access to the path for residents in south Tadcaster is then restricted.

A visually unintrusive and sympathetically designed structure fitting with surroundings would be essential. The Environment Agency's flood defence requirements would also need to be met, owing to this being located in a Flood Zone 3 region.

**Update March 2020:**

Sustrans has recently been alerted to a flood alleviation scheme that the Environment Agency are planning for Tadcaster.

Information now received from them indicates improvement works to both sides of the River Wharfe between the disused railway viaduct and the A659 road bridge in Tadcaster, some of which may have the potential to incorporate elements of the preferred route described in this study.

Sustrans intends to continue liaising with the Environment Agency regarding this.

**Recommended Alignments to Take Forward - see Map 8**

**Alignment A** is the recommended route for the west branch for the following reasons:

- A direct route;
- Higher perceived safety regarding lone cycling out of daylight hours;
- Several land owners are affected but the route is mostly along field edges, causing minimum disruption;
- No crossings of the A659 are required;
- An entirely off-road route can be created
- A fairly central part of Tadcaster can be reached, and several town centre and river crossing links are viable;
- Can be linked to Newton Kyme.

**Two east branch options are recommended for further investigation: Alignment D and E. It is felt that preference between these cannot be made prior to consultation with stakeholders owing to the extent of impact, particularly with regard to landowners and North Yorkshire County Council.**

**Alignment D** has the following advantages:

- This is the most off-road of the options available;
- On-road sections are mainly on quiet residential streets;
- A pleasant route along field edges at the back of the village can be incorporated as part of the route (subject to agreement with landowners being reached).

**Alignment E** has the following advantages:

- If a shared path can be created along the A659, route creation would be fairly straightforward and comparatively low cost;
- Segregated cycle lanes/tracks are the preferred option for the A659 section, but costs would be considerably higher;

- A desirable route towards the town centre, also accessible by nearby residents, whereas the majority of Alignment D runs along a field edge and is not so easily accessible for nearby residents;
- Alignment E has less of an impact on land in private ownership than Alignment D.

**Town centre section and river crossing recommendations (Map 9)**

Discussion between landowners, residents and town, district and county councils is strongly suggested before further progressing with a town centre route and river crossing option. In current circumstances, Sustrans considers the following to be the most feasible options worthy of further discussion between stakeholders:

**Town option 1: X1 - Y1 (Viaduct crossing) - X8 or X10 - X11**

From the south end of Alignment A, pass under the viaduct, then travel westwards via a ramp up to the west end of the viaduct; cross the viaduct (X1 then Y1), then either:

X8 - a ramp down to south bound riverside path exiting on Mill Lane (X11); or

X10 - a route through a potential new development.

**Main advantages and disadvantages:**

- X8/X10 would be heavily dependent on the cooperation of the land owner;
- The ramps both sides could be a costly, and west side particularly may of significant size;
- The inclusion of the west ramp may make the route less direct.

**Town Option 2: X3 - Y3<sup>2</sup> - X11**

From Alignment A, join the riverside path west of the river and continue south (X3) to a proposed new foot/cycle bridge (Y3<sup>2</sup>) at a suitable location north of Tadcaster Bridge; then joining Mill Lane then Rosemary Row to Wighill Lane.

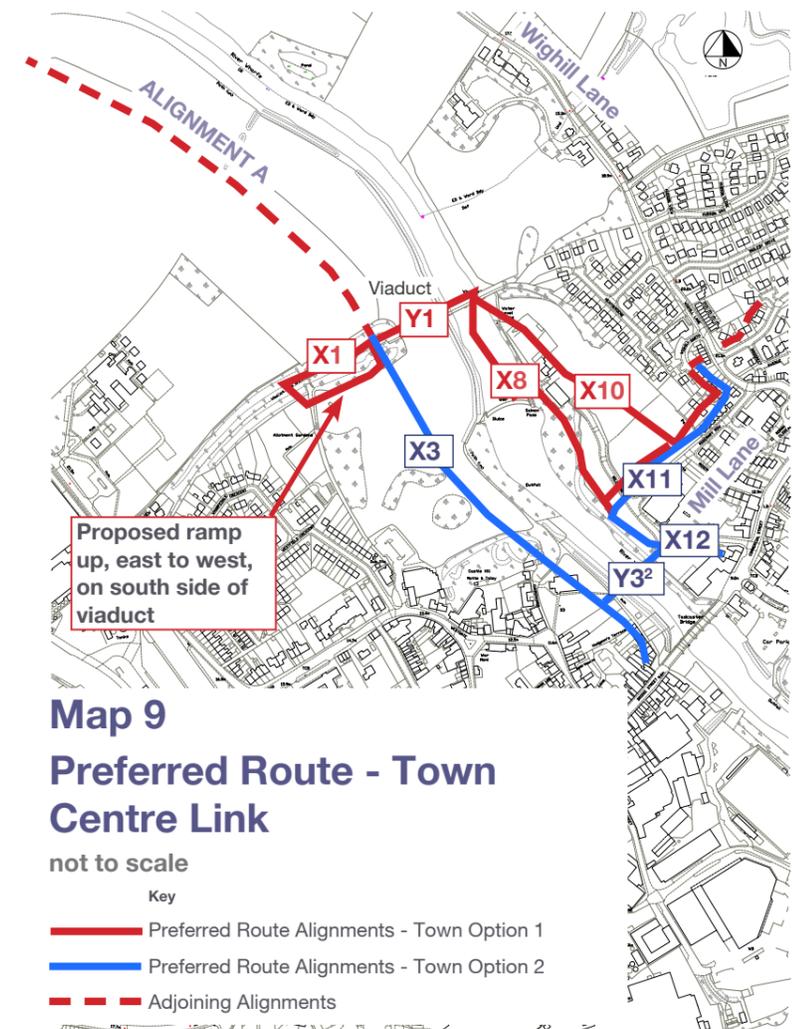
**Main advantages and disadvantages:**

- Land ownership regarding positioning of the

proposed bridge is a main concern with this option. The same landowner as Town Option 1 is affected (The Old Brewery);

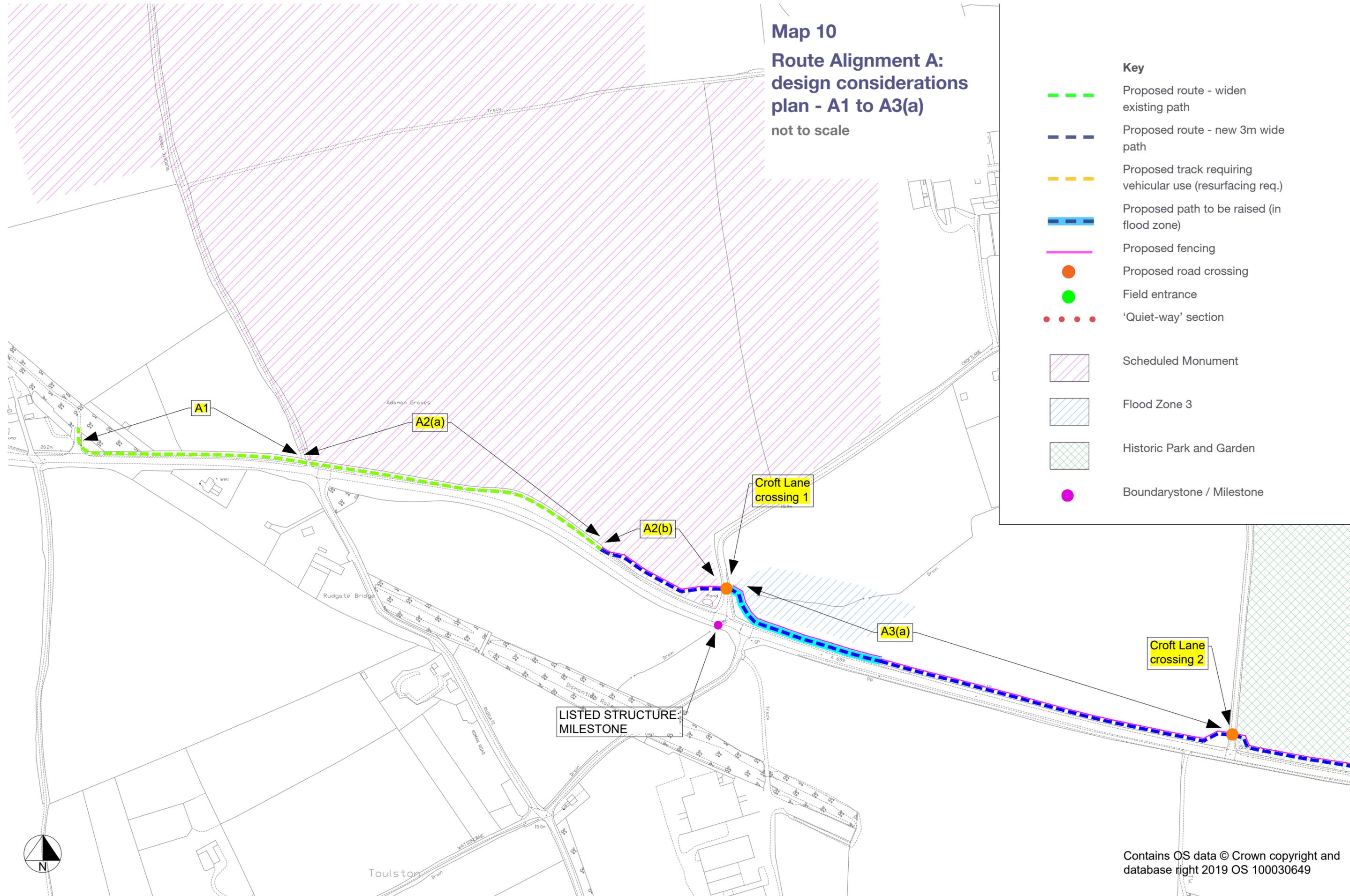
- A new bridge will be costly;
- Three bridges would be in close proximity - care needed to create an aesthetically fitting design;
- A new pedestrian and cycling bridge would greatly benefit residents of Tadcaster as well as users of the NCN.

All the above options would require a short distance of travel along Wighill Lane to connect with the east-bound alignment. DfT data (**Appendix 3**) suggests traffic flow is too high for a Quietway on Wighill Lane, but extensive traffic calming and warning signs may be an option for the short section involved if a segregated lane is not feasible.



**Map 10**  
**Route Alignment A:**  
**design considerations**  
**plan - A1 to A3(a)**  
 not to scale

- Key**
-  Proposed route - widen existing path
  -  Proposed route - new 3m wide path
  -  Proposed track requiring vehicular use (resurfacing req.)
  -  Proposed path to be raised (in flood zone)
  -  Proposed fencing
  -  Proposed road crossing
  -  Field entrance
  -  'Quiet-way' section
  -  Scheduled Monument
  -  Flood Zone 3
  -  Historic Park and Garden
  -  Boundarystone / Milestone



## 5. Design Considerations

Selected alignments A, D and E will now be looked at in further design detail. Flooding and drainage, conservation, and historical and architectural features have been included in considerations. Further information is included in **Appendices 1, 3, 4 and 6**, and are referred to where relevant.

### North branch - Alignment A (see maps 10,11 & 12)

#### A1 (map 10)

The existing footpath along the north side of the A659 would be widened to 2.5 to 3m and realigned to create a 2m verge separation between the path edge and carriageway edge (as per guidance in Sustrans Traffic Free Guidance and CD195). See **Figure 46, Figure 47 and 48**.

Excluding the initial stretch of approximately 60m, there is adequate width for this within the existing verge of segment A1. A slightly narrower verge availability in the initial 60m stretch may mean extension into the adjacent wooded area owned by Redrow. Some tree felling and vegetation clearance may then be required.



Figure 46. Start of segment A1, view facing east  
Source: Google Maps



Figure 47. Segment A1, facing east Source: Sustrans

Removable bollards to prevent vehicular access (except for maintenance vehicles) and appropriate fencing would enable access for all authorised users.



Figure 48. Example of roadside shared path Source: <https://www.forocoches.com/foro/showthread.php?t=5611047>

**Note** that the preferred alignment would run entirely inside adjacent fields further east along the route, owing to verges being overly narrow. This option could also be considered for segment A1 if agreement can be met with the landowner, thereby minimising the negative impact of traffic on path users.

#### A2(a) (map 10)

The preferred path continues across the end of a mud track (using the same construction as segment A1) in the highway verge. There is adequate width up to approximately 150m before Croft Lane.

#### A2(b) (map 10)

At the point where the verge narrows preventing a path of 2.5m width (**Figure 49**), it is suggested that the path diverts into the adjacent field and runs along the inner field edge.



Figure 49. Segment A2(b) where verge narrows. View facing east Source: Google Maps

Further consultation is necessary regarding the Scheduled Monument site (see **Map 10 and Appendix 6**). Scheduled Monument Consent would be required from the Secretary of State, via contact with Historic England. This is likely to involve archaeological surveys of the site.

If, at a later stage, diverting into the field edge is deemed infeasible due to the Scheduled Monument classification, the path would stay in the verge with 2m separation strip between path and carriageway. Path width will need to be reduced to fit (see **Figure 50**).



Figure 50. View facing north west near Croft Lane (1) - narrower verge Source: Google Maps

New fencing separating the path from the field is proposed (subject also to landowner's agreement). For the purpose of improving perceived personal safety at path sections where alignments are inside

field edges, replacement of existing hedgerows with fences and replanting hedgerows along the north side of the new path could be considered. This would apply to A2(b), A3(a) and A3(b).

**Note** siting of a pond in the south east corner of the field - see Ecological Assessment section.

#### Crossing of Croft Lane (1) (map 10)

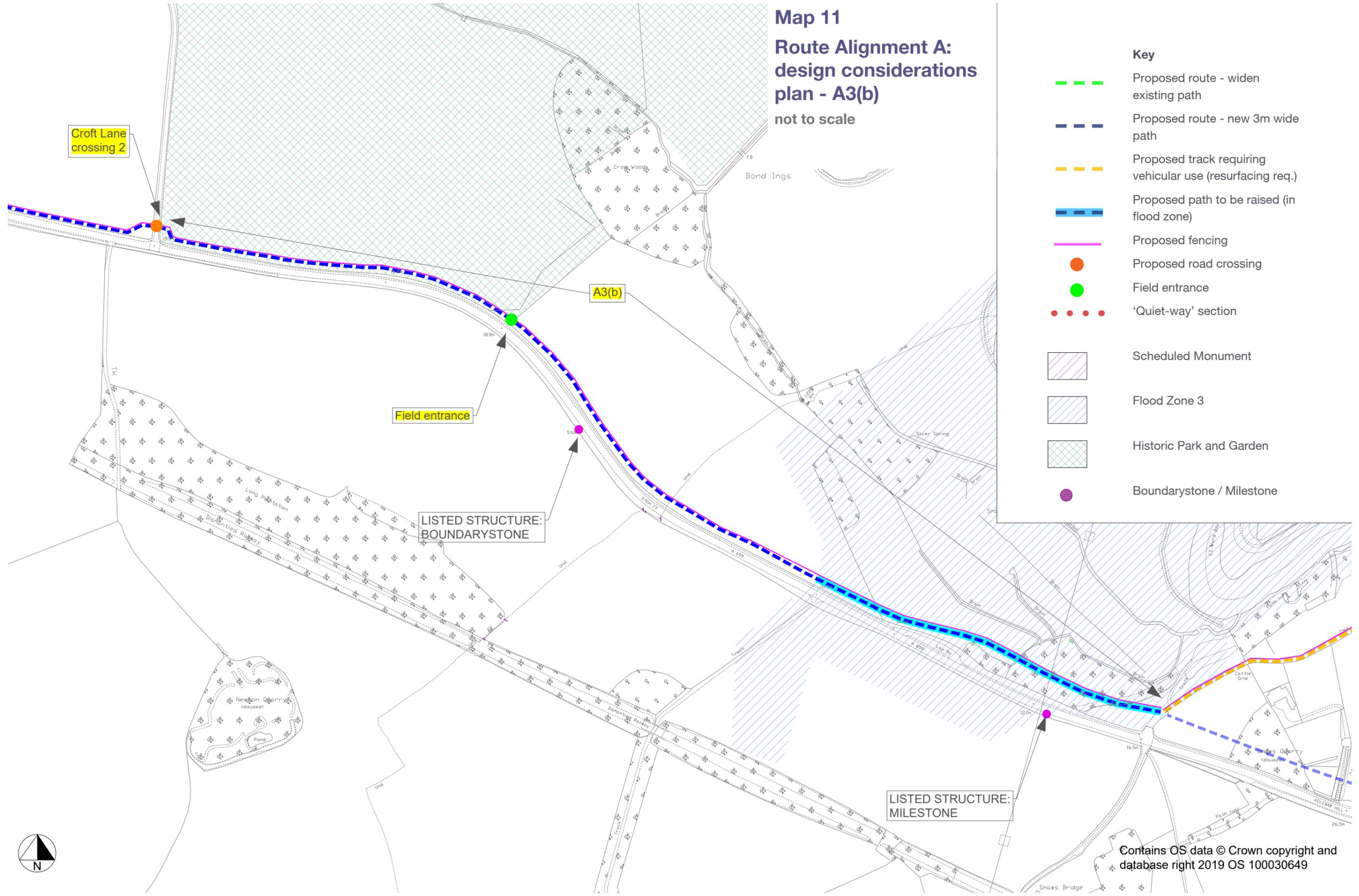
Croft Lane at this location currently has an unlimited speed restriction (**Figure 51**). Design guidance proposes a grade separated crossing (i.e. either a bridge or underpass) for crossings of roads with speed limits of 60mph.



Figure 51. Facing Croft Lane (1) Source: Google Maps

A reduction in the speed limit to 30mph for a short section of the Croft Lane here would enable a raised table crossing. CD 195 states a parallel pedestrian/cyclist crossing to be the preferred crossing type for this situation (note that traffic flow figures for Croft Lane have yet to be confirmed). The crossing should be positioned a safe distance from the junction (as per design guidance documents), and a bent-out path alignment proposed, see **Figure 52**. Design to be developed in collaboration with North Yorkshire County Council.

**Map 11**  
**Route Alignment A:**  
**design considerations**  
**plan - A3(b)**  
 not to scale



- Key**
- Proposed route - widen existing path
  - Proposed route - new 3m wide path
  - Proposed track requiring vehicular use (resurfacing req.)
  - █ Proposed path to be raised (in flood zone)
  - Proposed fencing
  - Proposed road crossing
  - Field entrance
  - 'Quiet-way' section
  - Scheduled Monument
  - Flood Zone 3
  - Historic Park and Garden
  - Boundarystone / Milestone



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Figure 52. Illustration of a bent-out crossing. Source <https://www.cycling-embassy.org.uk/wiki/a-question-of-priority>

**A3(a) (map 10)**

A3 is a section of length approximately 1.7km in total. Verge width is very limited for the initial 500m stretch of this, and therefore alignment inside the field edge is proposed here.

The initial (approximately) 180m lies within a Flood Zone 3 area (see **Appendix 4**), and a raised path profile or decking construction is proposed here (**Figure 53**). Consultation with the Environment Agency is necessary regarding this and other alignments lying in designated Flood Risk zones.



Figure 53. Example of raised path profile. Source <https://www.hollandbiketours.com/our-tours/fast-polder-cycling/>

Field access considerations (**Figure 54**) include suitable path construction for farm vehicles, warning signs and bollards to prevent vehicular access. Cattle grids may also be required - to be discussed with the land owner at Detailed Design stage.



Figure 54. Field access point in segment A3(a) Source: Google Maps

**Crossing of south leg of Croft Lane (2) (map 10)**

A bent-out crossing identical to the first Croft Lane crossing is proposed (**Figure 55**).



Figure 55. Facing Croft Lane (2) Source: Google Maps

**A3(b) (map 11)**

The remaining stretch of segment A3 is of length just over 1km. The verge has enough width in some places for widening while other areas are too narrow. There is a change in elevation between the field and highway, therefore an alignment entirely within the field boundary is proposed (subject to agreement with landowner). Land has not been closely inspected owing to access rights.

Consultation and approval relating to Historic Park and Garden status is required (**Appendix 1**).

Fence and/or hedge works is suggested as per section A2(b).



Figure 56. Segment A3(b): alignment inside field edge. Source: Google Maps

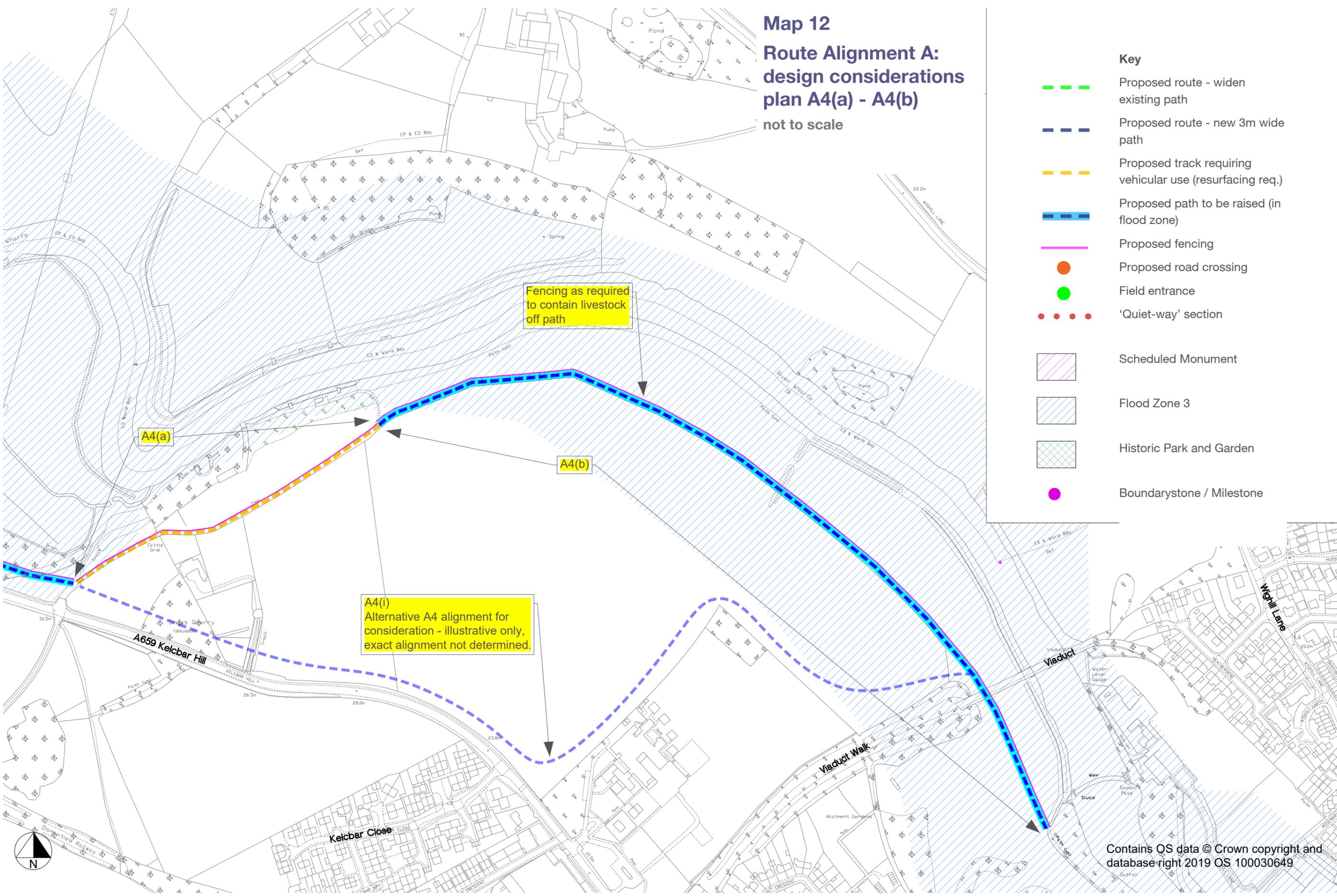
There are at least two field entrances in this stretch. The last 400m of this section is indicated to lie within a Flood Zone Risk 3. A raised path profile or decking is suggested, to be discussed with the Environment Agency.

Approaching the end of the section, vegetation becomes dense. This is indicated to be an area of Priority Habitat, and conservation measures may be required (see Ecological Assessment chapter). The proposed alignment through this area should require minimum (or total avoidance if possible) tree felling.

At the end of segment A3 and beginning of A4, the path alignment will need to take into account a slight gradient upwards, maintaining a maximum gradient of 1:20 on the proposed track.

**Map 12**  
**Route Alignment A:**  
**design considerations**  
**plan A4(a) - A4(b)**  
 not to scale

- Key**
-  Proposed route - widen existing path
  -  Proposed route - new 3m wide path
  -  Proposed track requiring vehicular use (resurfacing req.)
  -  Proposed path to be raised (in flood zone)
  -  Proposed fencing
  -  Proposed road crossing
  -  Field entrance
  -  'Quiet-way' section
  -  Scheduled Monument
  -  Flood Zone 3
  -  Historic Park and Garden
  -  Boundarystone / Milestone



**A4(a) (map 12)**

The open land here contains grazing livestock at times, and fencing along the north west track side is an option. Cattle grids may be required. The suggested alignment follows an existing track and is expected to be used by vehicles accessing a nearby property and Yorkshire Water plant. Suitable path construction for vehicular use to be provided.

Route design detail for A4 (a) and (b) to be developed in conjunction with the land owner.



Figure 57. Track in A4(a), view facing north east

**A4(b) (map 12)**

The path then leaves the existing track and runs alongside the field edge. As this is within a Flood Zone 3 region a raised path profile or decking is suggested, to be discussed with Environment Agency. Fencing to be discussed with land owner.

Alternative alignments for A4(a) and (b) within the same land parcel are a consideration, for example continuation from the end of A3(b) along the field edge adjacent to the road and then aligning around the school boundary (indicated on Map 8 by line A4i). This would avoid the Flood Zone region next to the river, and may have higher perceived safety than the riverside route, in darkness.

On approaching land below the viaduct, the route taken is dependent on the selected river crossing and town centre links.

Note that the latter part of segment A4(b) runs through a Site of Importance for Nature Conservation, see Ecologic Assessment chapter and **Appendix 1**.



Figure 58. View from end of riverside path at potential end point of segment A4(b); facing north west  
Source: Google Maps

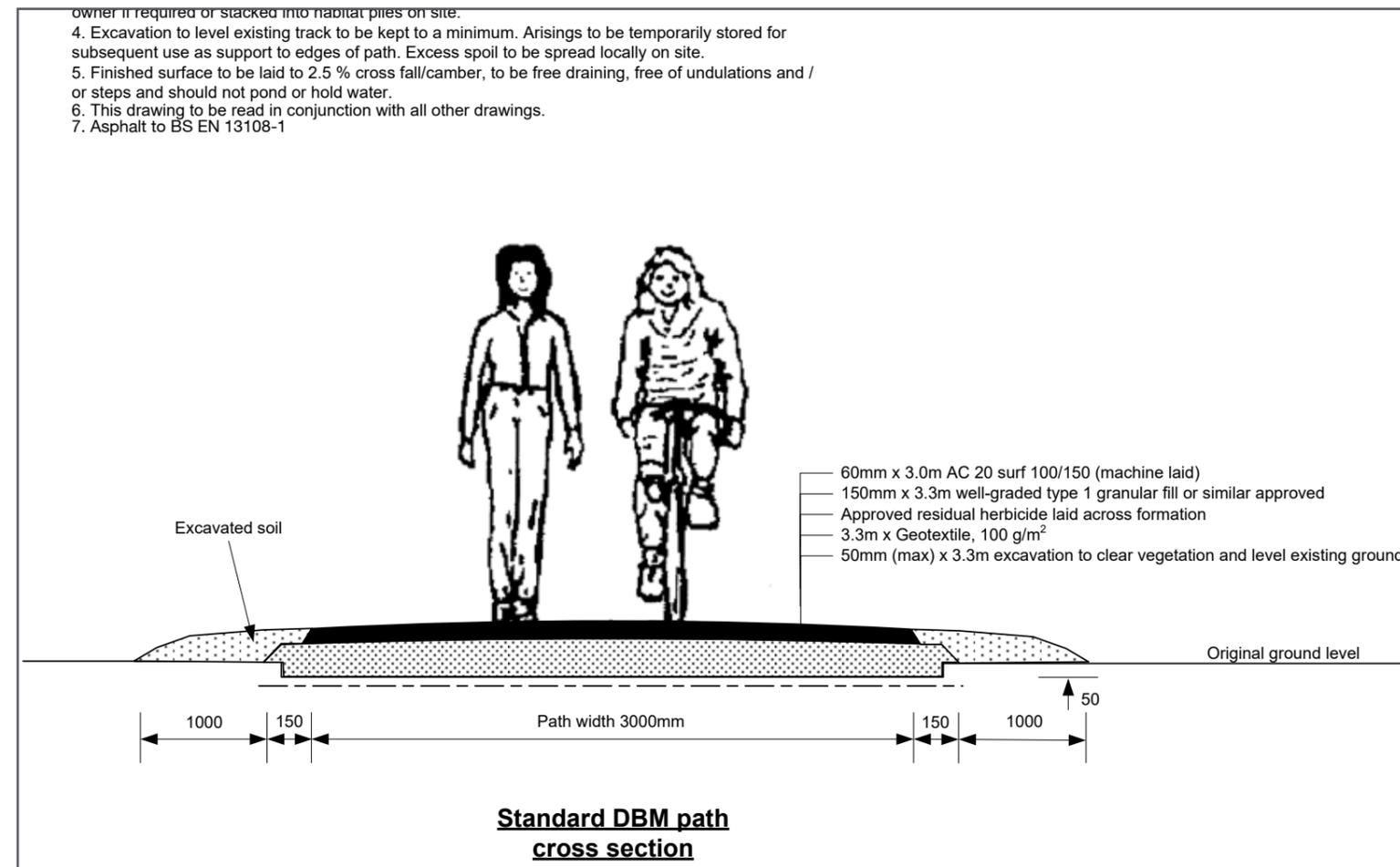
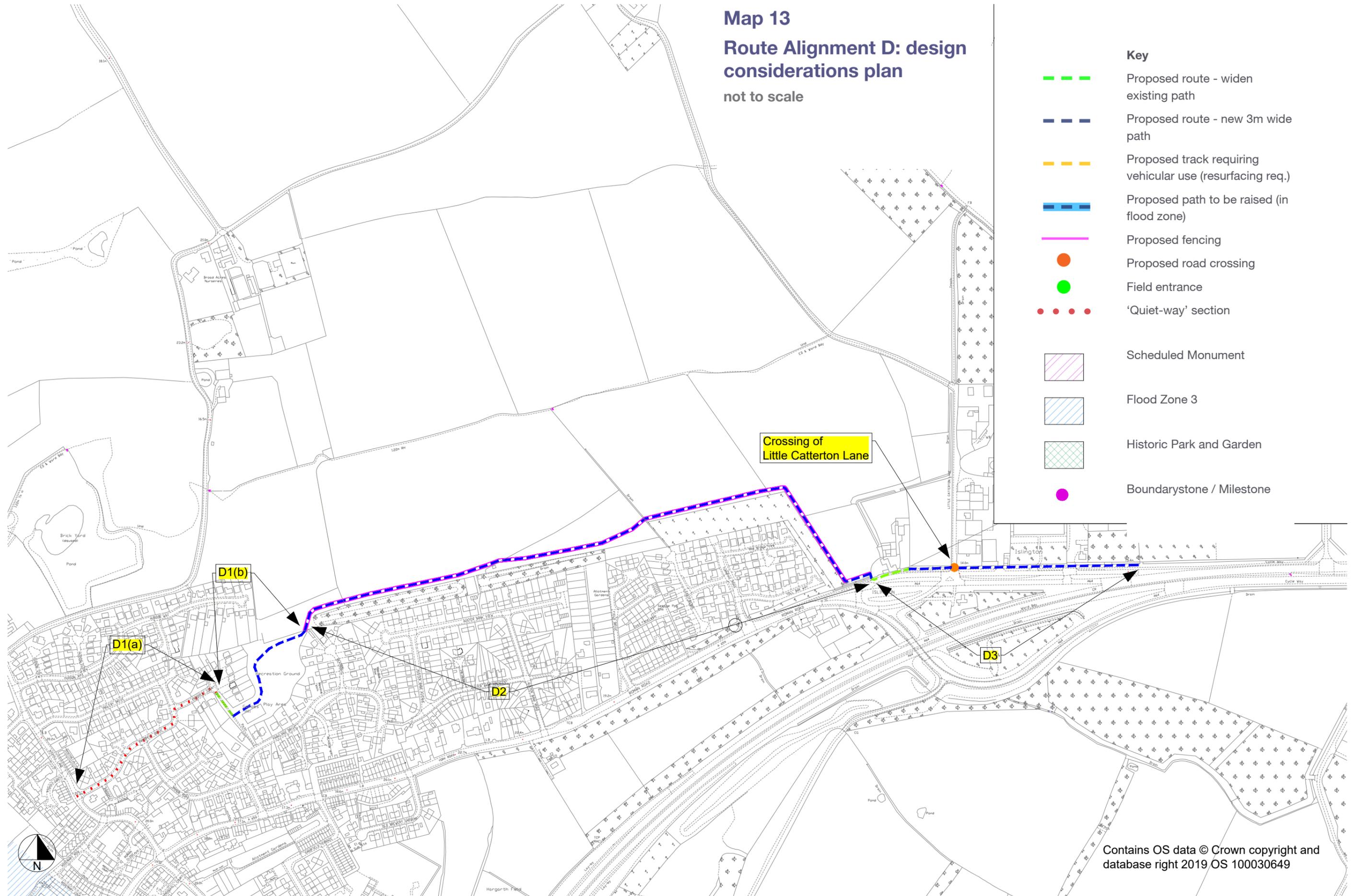


Figure 59. Sustrans Standard DBM path cross section.  
Source: Sustrans

# Map 13

## Route Alignment D: design considerations plan

not to scale



## South Branch - Alignment D (Map 13)

### D1(a)

This on-road section commences from Wighill Lane, turning onto either Ingleby Drive or Prospect Drive and continues to the end of Prospect Court. To meet Sustrans criteria for an NCN Quietway in a built up area, a 20mph speed limit would be introduced, with confirmation that traffic flow volume is less than 2500 vehicles per day required. Other measures including signage - and traffic calming if deemed necessary - would be introduced to ensure a safe on-road route as far as possible.

Note that Wighill Lane requires design consideration. The extent of route on the road is not yet known and will depend on river crossing and eastern alignment selected. The Department for Transport's AAdf (Annual Average daily flow) figures suggest traffic flow counts of over 4000 - this exceeds Sustrans required maximum of 2500 for quiet-way routes (Appendix 3).

### D1(b)

At the end of Prospect Court the route follows an existing traffic-free track (Figure 60) to the recreation field. The existing path is of width approximately 2m and hard surfaced. There is space for widening to 3m.



Figure 60. Cut-through at end of Prospect Court  
Source: Google Maps

The alignment then meanders around the edge of the recreation ground (Figure 61). A 3m strip of surfaced path to standard detail SD01 (Figure 59), positioned close to the boundary, is suggested.

The path would exit into the adjacent field. Hedge removal would be required. A chicane-style barrier is advised here to slow cycles down as they enter the recreation field from the east. Clarification of the recreation ground landowner is required; and design to be developed with landowner's agreement.



Figure 61. Wighill Playground Source: Sustrans

### D2

Subject to landowner's agreement, a shared-use path along the edge of the field (Figure 62) is suggested. Fencing would separate the field from the track. Note that a visual inspection of this segment has not yet been carried out due to access rights.



Figure 62. Alignment D2 Map base: Google Maps

The path could exist the field at an existing culvert and field entrance in the south west corner (Figure 63). The condition of the culvert is not known. Appropriate parapet fencing would be required.



Figure 63. D2: field exist over culvert Source: Sustrans

### D3

On exiting the east field as described in D2, a one-way 'Access Only' side road of the A659 to York is encountered. Ownership (assumed to be Local Authority) is yet to be confirmed. Vehicles are often parked along the north kerbside. It is suggested that the existing footpath along the north side of the road is widened to 3m width, narrowing the road and prohibiting parking here. Enquiries are required to ascertain who would be affected by the removal of these parking spaces. The side road is just outside of the 30mph speed limit - it is suggested that the 30mph, or a new 20mph speed limit, be enforced for the length of the access road. A verge of 0.5m minimum width between the path and carriageway would then suffice to meet CD 195 design standards. Protective barriers in the verge are advised. See Figure 64.

Turning left to proceed along the access road, two dwellings are located immediately on the left. Access and visibility for these must be maintained. Design to be developed in collaboration with North Yorkshire Council.

After passing the two properties, the verge on the north side of the existing footpath widens and it is proposed that the footpath be widened to a shared-



Figure 64. D3: alignment from field Base map: Google Maps



Figure 65. D3: Properties on access road Source: Google Maps

use 3m path into this space, extending up to Little Catterton Lane - see Figure 65 above.

### Crossing of Little Catterton Lane



Figure 66. Little Catterton Lane junction Source: Google Maps

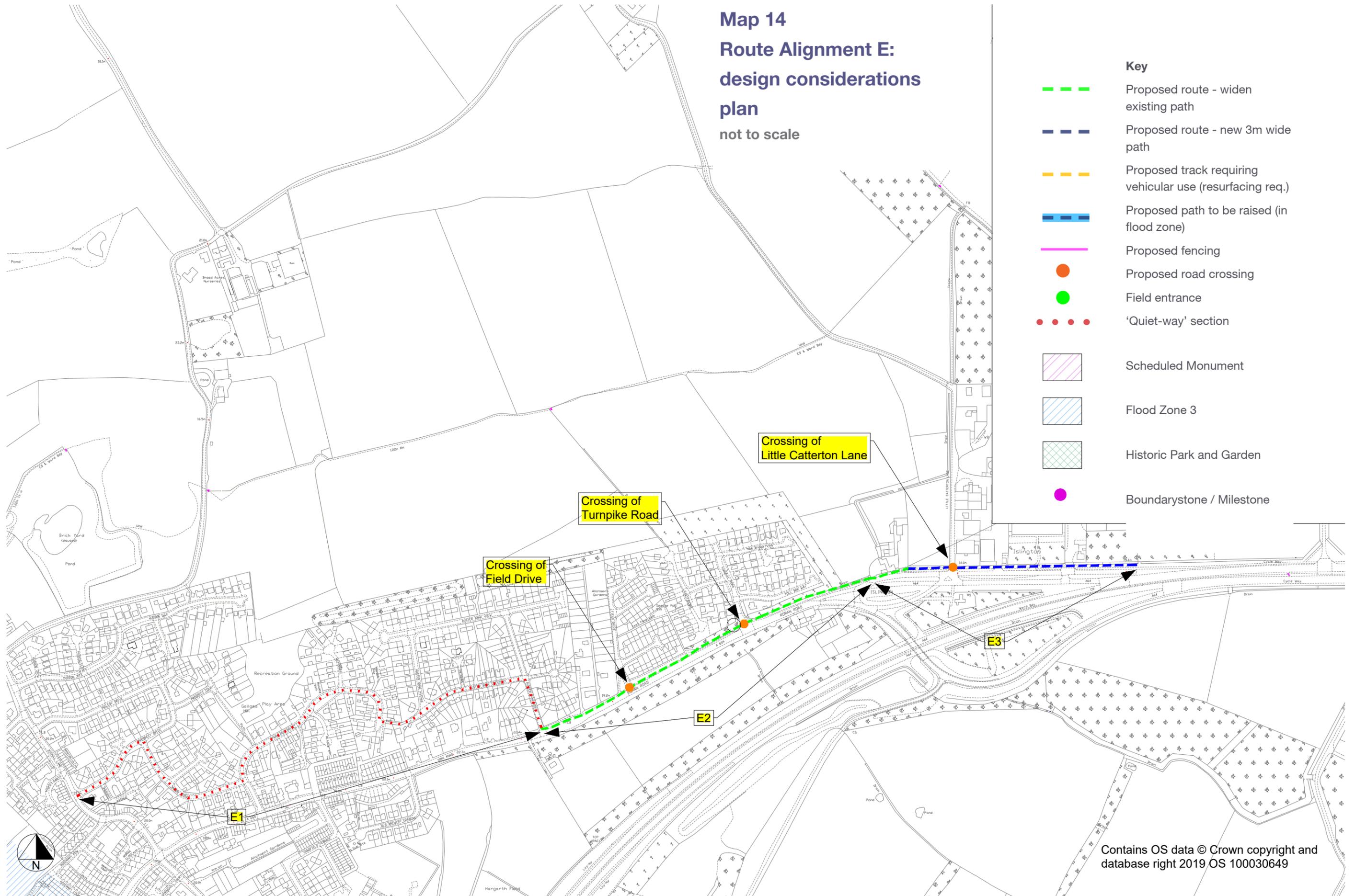
Decreasing the speed limit of the access road and Little Catterton Lane on their approach to the junction to 30mph, and creating a bent-out style crossing with raised table, is suggested. The crossing would be set back as far as possible from the junction - this is limited by the back highway boundary. Reconfiguring the road layout at this junction to enable the required spacing between junction and proposed crossing may be possible, subject to discussions with North Yorkshire County Council Highways.

# Map 14

## Route Alignment E: design considerations plan

not to scale

- Key**
-  Proposed route - widen existing path
  -  Proposed route - new 3m wide path
  -  Proposed track requiring vehicular use (resurfacing req.)
  -  Proposed path to be raised (in flood zone)
  -  Proposed fencing
  -  Proposed road crossing
  -  Field entrance
  -  'Quiet-way' section
  -  Scheduled Monument
  -  Flood Zone 3
  -  Historic Park and Garden
  -  Boundarystone / Milestone



## South Branch - Alignment E (Map 14)

### E1

An on-road section commencing from Wighill Lane: turn onto Prospect Drive, right onto Manor Road, left onto Parkland Drive then continue to the end of cul-de-sac. Follow cut-through path leading to Auster Bank Crescent. Existing chicane barriers require altering to increase accessibility. Follow Auster Bank Crescent to end, right onto Auster Bank Road, continue to the A659.

To meet Sustrans criteria for an NCN Quietway in a built up area, a 20mph speed limit with confirmation that traffic flow volume is less than 2500 vehicles per day is required. Other measures including signage, and traffic calming if deemed necessary, would be introduced to ensure as far as possible a safe on-road route. Wighill Lane in particular may require measures such as speed tables to be put in place.

### E2

A stretch of approximately 550m along the A659. This is a main road into Tadcaster and although the carriageway is wide, the Department for Transport's AAdf figures suggest a daily traffic count of over 7000 - well exceeding requirements for a Quietway route.

A shared-use path of 3m width (formed by widening the existing footpath) or construction of a two-way cycle track adjacent to the existing footpath alongside the A659 is proposed - both with horizontal verge or kerb separation. Speed limit here is currently 30mph. This proposal has not yet been discussed with North Yorkshire County Council and detailed design not yet carried out to confirm feasibility.

A new path in the south verge would require crossing points on the A659, which would cause hold-ups in traffic flow if at-level rather than grade separated, and be of significant additional cost. Therefore a north-side alignment is suggested. This would also enable the route to be more easily accessible from the residential area north of this segment.

For the option of a shared-use path on the north side footway, widening by 1m (or more if possible to create a 2.5m to 3m wide path), plus creation of horizontal verge separation of 0.5m from the carriageway, is suggested.

Some narrowing of carriageway may be possible. Where highway space is too limited for creation of the required path width, purchase of adjacent land strips along the north side of the highway is suggested as an option to explore. Some of these land strips are populated by hedges and trees which would require clearing.

Purchase of land strips from two residential properties in the approximate 60m stretch just west of Field Drive may be involved, although one plot here contains mature trees close to the road and it would be preferable not to remove these. Alternatively, if enough width cannot be obtained from carriageway narrowing alone for this 60m stretch, carriageway realignment into the south verge to create space on the north side is a consideration. See **Figure 67**.

Street furniture would require repositioning along the length of E. Repositioning of the bus shelter at the front of the footway near Auster Bank Road, so that the shared-use path can run behind it, is recommended.



Figure 67. A659 west of Field Drive, facing east  
Source: Google Maps

Two crossings of side roads are involved: Field Drive and Turnpike Road. Tightening radii to approximately 10m is suggested and creation of bent out crossings set back from the A659. The road island at the Turnpike Road junction would be widened if space permits, to accommodate a design cycle length of 2.8m.

Carriageway realignment of the last 100m stretch of E2 where the north verge narrows may be required. Advice to be sought from North Yorkshire County Council.



Figure 68. East end of A659, facing east, prior to joining segment E3 - verge narrows. Source: Google Maps

Segregated cycle infrastructure - cycle lanes or a cycle track - is Sustrans' preferred design for highway alignments (see **Figure 69**). However, space is limited in this stretch and substantial encroachment into adjacent privately owned land would likely be necessary. The scheme would also be significantly more costly. Therefore, although a shared-use path has been costed in the Costings section of this study, **segregated infrastructure is to be kept open as a option for discussion with North Yorkshire County Council**.

### E3

This is identical to D3 above, however fencing would not be required for E3.



Figure 69. Example of a segregated cycle track  
Source: <https://www.forocoaches.com/foro/showthread.php?t=5611047>

## 6. Ecological Assessment

### SCOPE

A two-stage ecological assessment has been carried out for alignments A and D of this feasibility study, total length being approximately 4.9km. Focus has been on the off-road sections of these routes. The findings have been presented as an Ecological Constraints and Opportunities Plan (ECOP), completed by a Professional ecologist and full member of CIEEM. The full report can be found in **Appendix 5**.

### METHOD APPROACH

**Stage 1 - Ecological Desk Study** - comprised of an abbreviated ecological desk study to identify potential ecological features of national importance and included a review of the following information:

- Designated sites of international importance within a 5km radius of the route options
- Statutory sites within a 1km radius of the route options
- Priority habitats present along the proposed route options and surrounding environs.

**Stage 2 - Ecological Constraints and Opportunities Plan or Preliminary Ecological Appraisal** - included a route specific desk study and Phase 1 habitat survey carried out onsite on 5th February 2020. Note that private ownership and inaccessibility prevented access to the majority of alignment D. Where possible, the inaccessible areas were assessed remotely. Further Phase 1 habitat survey work of this alignment D forms part of the 'further ecological assessment required' (see **p10 of Appendix 5**).

### FINDINGS

Based on the current alignments and data gathered as part of the PEA, the scheme will not impact upon any wildlife sites of international or national importance.

Castle Hill deleted SINC (Site of Importance for Nature Conservation) would be directly impacted by construction of route alignment A. Although of 'deleted' status (see **Appendix 5** for further information), the site is likely still to be of nature conservation value. It is estimated that approximately 0.075ha of habitat

would be lost or damaged. Subject to good design, this is not considered likely to undermine its ecological integrity.

Potential indirect impacts on designating species for Brickyard Pond SINC have been identified. Based on the relative distance between the SINC and route alignment D, the scale of this impact is anticipated to be low, however potential ecological impacts and corresponding adverse effects cannot be fully scoped-out at this stage.

Please note that current conclusions about likely impacts on Castle Hill deleted SINC and Brickyard Pond SINC may change depending upon the final layout. Once a more detailed alignment is available including the requirement for any regrading, storage or access routes, these should be shared with the project ecologist, with consultation held with the local planning ecologist prior to planning submission.

Unsympathetic route design of route alignment A would likely lead to the loss of Priority Habitat, including trees and ground flora associated with lowland deciduous woodland, native hedgerow, coast and flood plain grazing marshes and rivers.

To minimise these impacts the following measures should be used to inform the detailed design of route alignment A:

- **Any path construction within existing areas of woodland should look to re-purpose existing desire lines, or tracks. The utilisation of 'no dig' construction methods will also be essential,**
- **A minimum 30m buffer should be left between the edge of the proposed construction zone and River Wharfe (including its tributaries),**
- **A minimum 10m buffer should be left between the edge of the proposed construction zone and any existing ponds,**
- **In locations where route construction will intersect with hedges, the final alignment should be designed to cross in areas where hedgerows are already in poor condition (e.g. over mature, or supporting existing gaps);**
- **Any direct (e.g. repointing/reinforcement) or**

**indirect impacts (e.g. up-lighting) on Tadcaster Viaduct should be avoided. If impacting work on the viaduct is proposed, further ecological assessment and approval is to be sought; and**

- **Path construction within the areas of coastal and floodplain grazing marsh should be located along existing desire lines, or paths to minimise potential habitat loss. [Note: alignment of section A4 (Map 12 on page 28) to be reviewed at Detailed Design stage.]**

A net biodiversity gain is likely to be required as part of any future proposal. The extent of net gain relative to the current baseline is forecast to be 10% . Therefore, any losses of priority, or higher value habitat will need to be compensated at a ratio of 7:1 with respect to area, or 5:1 where enhancement is proposed. These requirements may increase the overall footprint of the development and trigger the requirement for a larger area of land to be leased or purchased, relative to the boundaries of the path and adjoining verge (c.4-5m). A biodiversity gain calculation could be completed once a more detailed alignment has been prepared. It is recommended that this is done as early as possible during the project programme.

It should be noted that the Environment Bill, 2019 (currently being progressed through parliament, as of Oct 2019) would require any new habitats to be created, or enhanced as part of the scheme to be maintained for at least 30 years. An allowance within any future budget will need to be made for this. Additional compensation would be required to offset the loss of other lower value habitats (e.g. poor semi-improved grassland, tall ruderal vegetation).

Enhancement measures could include the enrichment of retained grassland along the edge of the new path with suitable wildflower seed, infill planting of defunct sections of retained hedgerow or improved habitat management. The installation of wildlife boxes, or dedicated wildlife features (e.g. reptile hibernacula, or an artificial otter holt) would also generate benefits for wildlife.

A detailed tree survey to BS5387:2012 should

be commissioned of all mature trees (over 7.5cm diameter at 1.2m height) within a 20m corridor either side of the two route options. This information should be used to inform route design and indicate key trees which will require retention and protection. This survey should be commissioned as early as possible during the design process.

The location of any existing stands of invasive weeds should be mapped (survey best timed for spring/early summer) and overlaid on to detailed design drawings, with a suitable method statement produced to prevent their spread.

All site clearance works will need to be scheduled outside of the bird breeding season (March to August inclusive), with the timing of works along route alignment A (and potentially route alignment D) and reptiles informed by further assessment.

Any introduction of artificial lighting in to currently unlit areas could have a significant adverse effect on the value of these habitats for nocturnal animals and in particular bats. Therefore further assessment with respect to bats will be required, coupled with detailed and informed lighting design. It is anticipated that a mixture of day time and nocturnal assessments would be required, which would likely span 10-12 months and would need to include at least one summer season (May-Sept. inclusive).

### NEXT STEPS

Further detailed assessment will be required, see p10 of Appendix 5.

Assessments will need to be combined within a single Ecological Impact Assessment (EclA) report for the purposes of planning.

Based on the range of further assessment to be completed including the relatively high intensity of the surveys with respect to bats and great crested newts, these are estimated to cost approximately £40-45k + VAT. These surveys will need to be completed in advance of planning being applied for. It should be noted that if protected species are confirmed and

will be impacted adversely by the proposal Natural England derogation licenses may be required (which are subject to additional costs and processing time), but these cannot be determined at this stage.

The surveys and associated reporting would take approximately 12-16 months to complete from the date of instruction. As part of construction, a further 50-60k would need to be set aside to enable pre and post construction habitat enhancement works.

Subject to sufficient pre-planning, including making budgeting and time allowances for the purchase of additional land to allow for a biodiversity net gain, and sufficient funds and lead time for further assessment (i.e. 12-16 month) and consultation, route alignment A and/or D from an ecological perspective should be deliverable.

#### MAIN POINTS

- Route alignment D could not be fully accessed for survey.
- Advised against lighting the path. Impacting works on the viaduct would require further ecological assessment and approval.
- Advised to stay at least 30m away from any water courses (especially the River Wharfe) and to ensure a full suite of pollution control measures are implemented.
- Tree removal to be minimised (through sensitive design informed by an arboricultural assessment) - all trees over 40cm DBH (diameter at breast height) will need to be worked around, Existing tracks or permissive routes to be re-purposed. Within the areas of grassland at the eastern end of route alignment A, re-purposing of existing permissive paths is requested.
- Hedgerow removal to be minimised, with the route cutting through the poorest sections. Allow for new hedgerow planting at a ratio of 5:1 in terms of length.
- The scheme would impact directly on one former wildlife site of county importance, with some limited scope for indirect impacts on a current one. Likely will need to do some consultation up-front with the planning ecologist.
- Allow 12-16 months for collation of the baseline data (there are quite a few ponds with suitability for great crested newts, and there is scope for quite a few other species - especially badgers).
- Allow £30-45k for ecology survey costs as part of detailed design + £50-60k for post construction habitat creation and maintenance.

## 7. Land Registry Information

Following careful consideration of viable route options, some privately owned and business-owned land must be utilised in order to create the desired NCN connection. While Creation Orders may enable acquisition of the land, agreement and cooperation of affected landowners will greatly assist progression of the scheme.

Significantly, several previous planning applications for similar foot/cycleway proposals in Tadcaster were withdrawn in relation to a land ownership issue (see Introduction).

Level of impact on land owners with regard to number affected and extent of disruption has been a consideration in ascertaining suitability of routes. For example, an alignment along a field edge is preferential to an alignment through the middle of a field.

Sustrans carried out extensive land ownership desktop research to identify key stakeholders along the proposed alignments. **Table 2** and the following

maps present the findings. No official contact with landowners has yet been made.

Alignment A affects six landowners in total including North Yorkshire County Council.

Alignment D affects two landowners.

Alignment E affects six to eight landowners (dependent on whether Land 17 is affected).

Land parcels 6, 9 and 10 are believed to be in the ownership of The Old Brewery (or a subsidiary of). Parcel 6 ownership requires confirmation as details have not been accessible via the Government Land Registry portal.

**Table 1** indicates estimated total area of land acquisition from private and business landowners for each alignment is required. These values will be applied in the Costings chapter.

**Table 1. Land acquisition areas required**

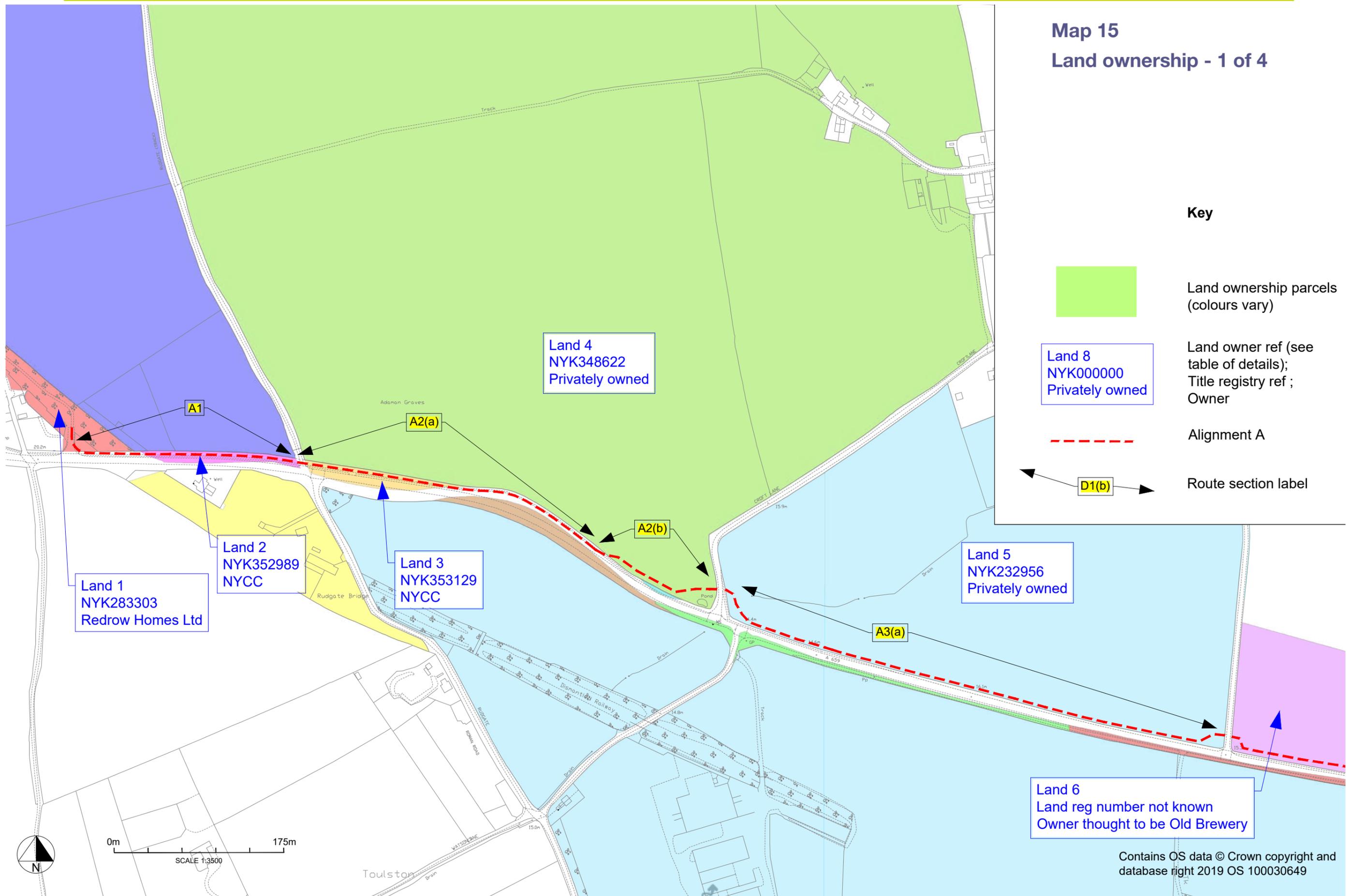
Alignment	Segment	Approximate dimensions of land required	Total area in m <sup>2</sup>	Total land required for alignment, in m <sup>2</sup> [see note 1]
A	A1	20m length x 5m width	100	16000
	A2	140m x 5m width	700	
	A3(a)	west: 135m x 5m width; east: 420m x 5m	2800	
	A3(b)	1200m x 5m	6000	
	A4(a)	360m x 5m	1800	
	A4(b)	920m x 5m	4600	
D	D2	970m x 5m	4850	4850
E	E2	100m x 2m width; and 130m x 2m width	460	460

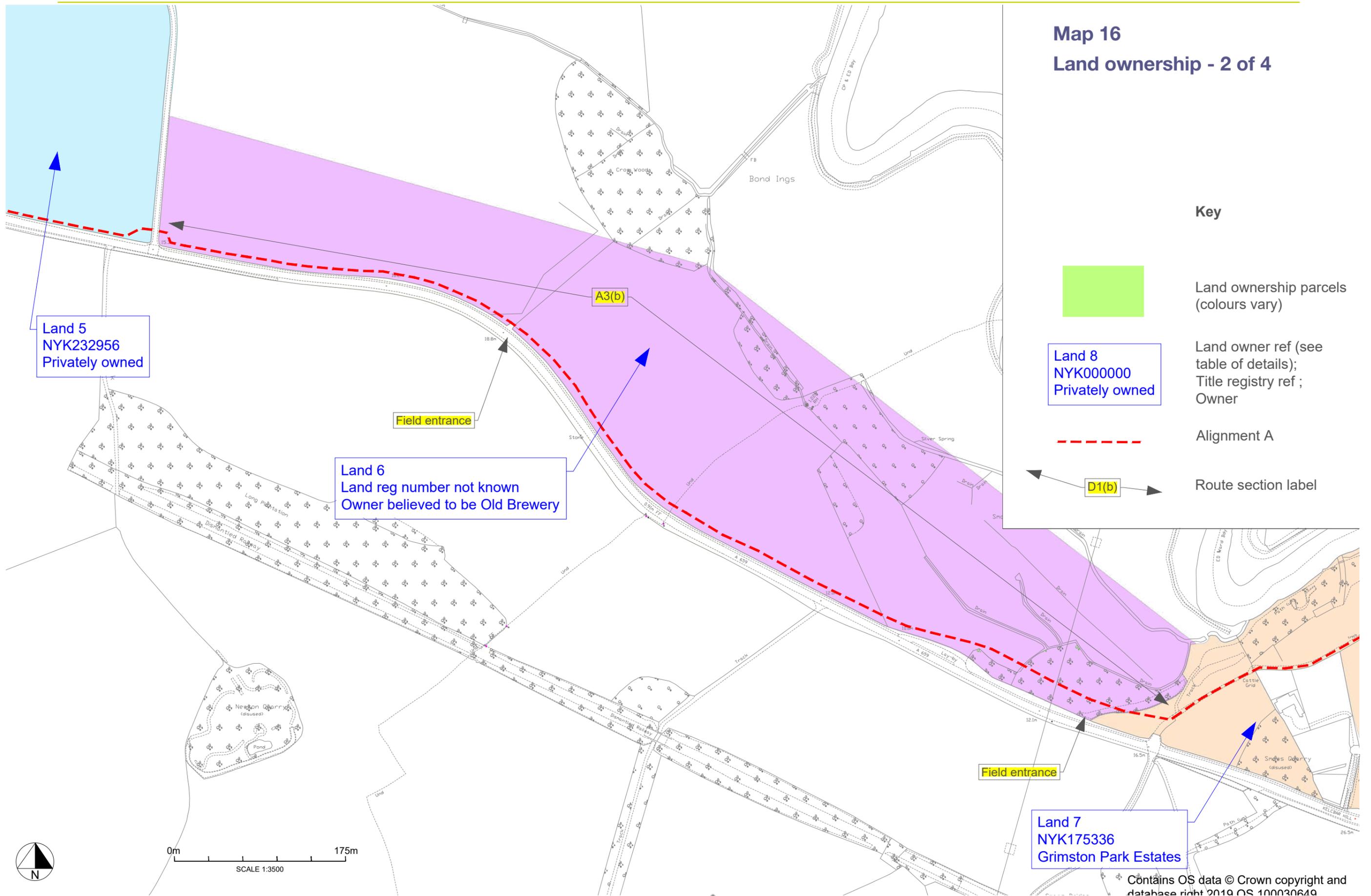
Note 1 - Detail of current land designation hasn't yet been ascertained.

**Table 2. Title registry**

Map Ref	Title Number	Registered Owner
Land 1	NYK283303	Redrow Homes Ltd
Land 2	NYK352989	North Yorkshire County Council
Land 3	NYK353129	North Yorkshire County Council
Land 4	NYK348622	Privately owned
Land 5	NYK232956	Privately owned
Land 6	Not known	Old Brewery? Not confirmed
Land 7	NYK175336	Grimston Park Estates
Land 8	NYK399191	Privately owned
Land 9	NYK187066	Healaugh Farms (Subsidiary of Old Brewery)
Land 10	NYK195566	Healaugh Farms (Subsidiary of Old Brewery)
Land 11	NYK348822 & NYK348823	North Yorkshire County Council
Land 12	NYK368409	Selby District Council
Land 13	NYK57424	Oxton Farms
Land 14	NYK55835	Healaugh Farms
Land 15	NYK115077	Privately owned
Land 16	Not known	Not known
Land 17	Two land parcels	Privately owned

# Map 15 Land ownership - 1 of 4





**Map 16**  
**Land ownership - 2 of 4**

**Key**

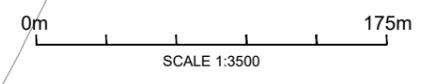
- Land ownership parcels (colours vary)
- Land 8  
NYK000000  
Privately owned Land owner ref (see table of details); Title registry ref ; Owner
- Alignment A
- A3(b) D1(b) Route section label

Land 5  
 NYK232956  
 Privately owned

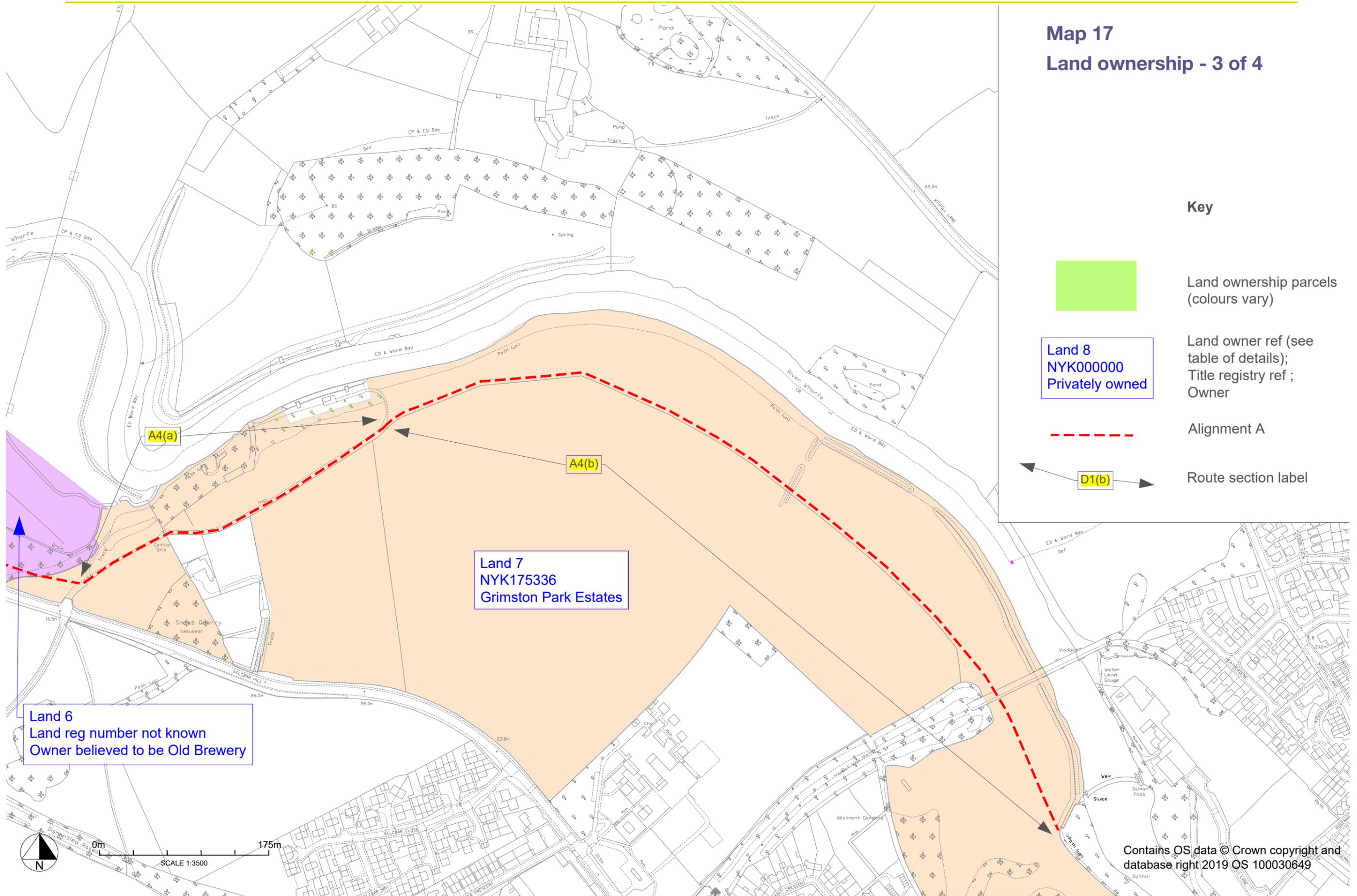
Land 6  
 Land reg number not known  
 Owner believed to be Old Brewery

Land 7  
 NYK175336  
 Grimston Park Estates

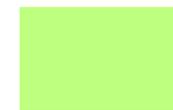
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# Map 17 Land ownership - 3 of 4



### Key



Land ownership parcels (colours vary)

Land 8  
NYK000000  
Privately owned

Land owner ref (see table of details);  
Title registry ref ;  
Owner



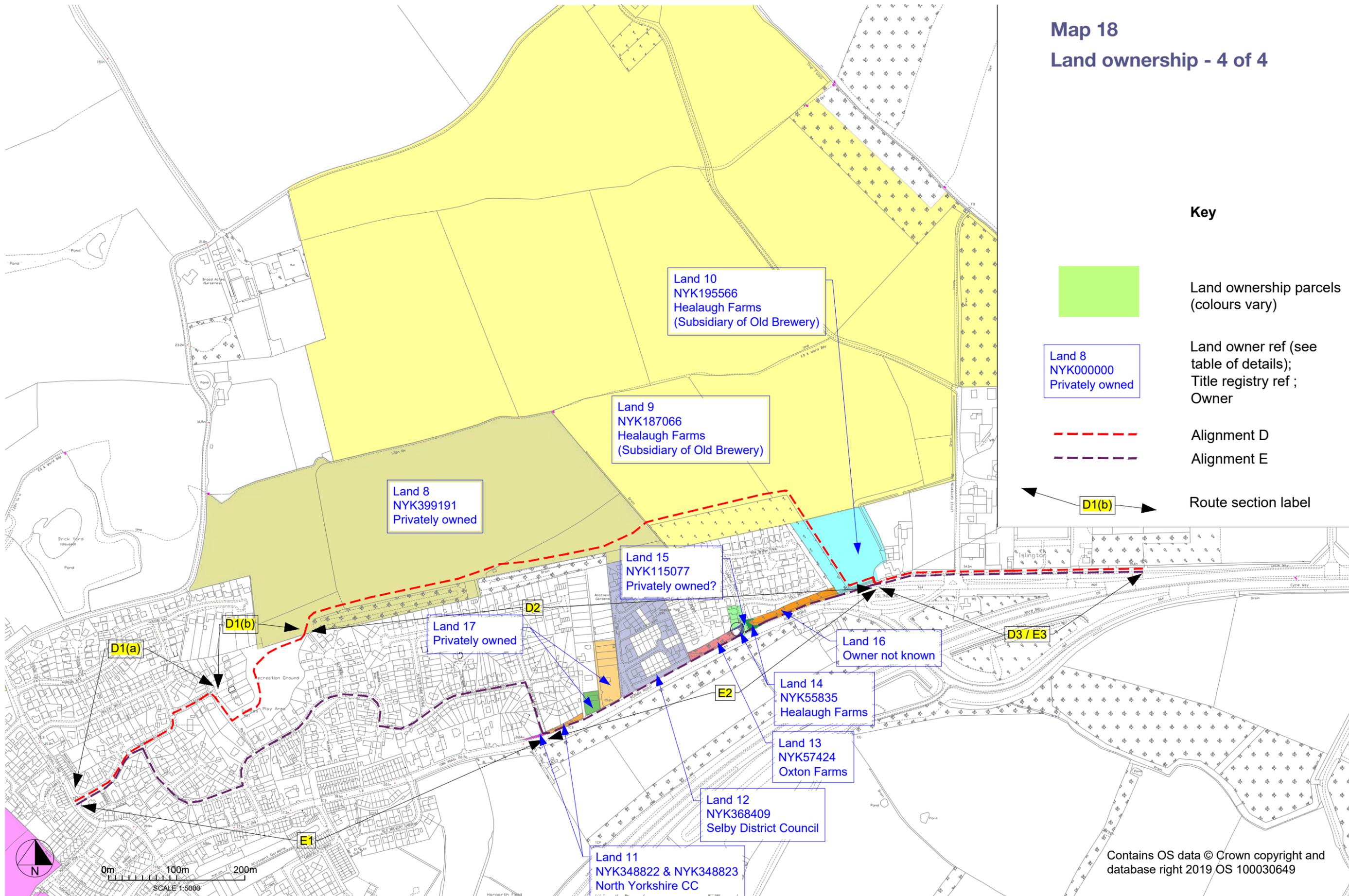
Alignment A



Route section label

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# Map 18 Land ownership - 4 of 4



### Key

- Land ownership parcels (colours vary)
- Land 8  
NYK000000  
Privately owned Land owner ref (see table of details); Title registry ref; Owner
- Alignment D
- Alignment E
- D1(b) Route section label

Land 8  
NYK399191  
Privately owned

Land 10  
NYK195566  
Healaugh Farms  
(Subsidiary of Old Brewery)

Land 9  
NYK187066  
Healaugh Farms  
(Subsidiary of Old Brewery)

Land 15  
NYK115077  
Privately owned?

Land 17  
Privately owned

Land 16  
Owner not known

Land 14  
NYK55835  
Healaugh Farms

Land 13  
NYK57424  
Oxton Farms

Land 12  
NYK368409  
Selby District Council

Land 11  
NYK348822 & NYK348823  
North Yorkshire CC

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0m 100m 200m  
SCALE 1:5000

## 8. Cost Estimates

### Capital Costs

Outline costs have been prepared with explanatory notes for the three alignments, A, D and E. These costs are based on the design options discussed within this report and are intended to be indicative only.

**Table 3** summarises estimated costs for Alignment A, D and E. More detailed costs are on the following pages.

A shared-use path alongside the A659 has been priced for Alignment D to illustrate a minimum-cost option. Segregated infrastructure is normally Sustrans preferred design choice, and it is suggested that both options be explored in future consultation and design work.

Costs for each item have been estimated using data from recent works undertaken by Sustrans and Low and High estimates are given to provide a cost range. Variation of costs within this range will depend on factors such as:

- Local Engineering Complexity
- Difficulty of reaching the site
- Variation in expense of particular materials
- Local ground conditions

There are also a number of potential costs that have not been factored in at this stage, and additional items may need to be added as development of the

project progresses. For example:

- **Further costs relating to land acquisition.** Table 1 in Land Registry Information details extent of land affected in private or business ownership, for each segment. Land belonging to District, County and Town Councils has not been included.
- **Costs relating to the archaeological sites of the Scheduled Monument in Alignment A.** Listed Building Consent may be required for the route running underneath the viaduct and also possibly for the three listed structures (mile stones and boundary stones) on the A659 north of Tadcaster.
- **Costs relating to Statutory Undertakers Equipment** (cables, pipes etc)
- **Further costs relating to conservation and ecological requirements.** i.e. invasive species control or habitat creation (see Ecological Assessment chapter for cost approximations).

Note also that estimated costs for decking in sections of path lying in flood zone have been included. A raised path may be preferred - detailed design to be considered at a later stage.

An optimism bias of 40% has been included for a project at outline design and feasibility stage. VAT and inflation have not been accounted for.

### Maintenance Considerations

The key to achieving a route that remains popular over the years to come will be the development of an effective maintenance regime. Future maintenance costs can be minimised by provision of a robust cycle track and drainage specification. A specification should be used that should need only minor repair for around the next 20 years. Maintenance can be further reduced by ensuring robust vegetation clearance during construction. This may mean cutting back saplings for up to 2m on either side of the track. This may make the corridor feel bare during the first season, but one of the primary causes of track repair is the growth of tree roots within the sub-base beneath the path surface. Going forward, to retain the usability of the track a maintenance regime should be put in place that ensures regular vegetation cut-backs, inspections and repairs. Regular, small interventions can reduce the risk of more serious problems arising. In some instances a “commuted sum” can be included as part of the capital construction costs that can be held by the Local Authority or third party to ensure ring-fenced funds over a period of time. This would specify an inspection regime and allowances for works and materials. Agreement as to the quantity of inspections and maintenance requirements will need to be agreed with whoever maintenance is allocated to, but an example is given opposite.

There are ways to reduce this cost including:

Undertaking more rigorous tree works during initial construction that might reduce tree management later on.

- Local agreements to contractors to undertake tree works at a reduced rate.
- Use of volunteer working parties to carry out vegetation clearance.
- Combining tree inspections with work to known problems.

Sustrans work with local volunteers to maintain

and inspect National Cycle Network Routes in many locations across the UK. Interventions can range from making sure the signs are still in place to vegetation management and ditch clearance. The level of interest and work available is very much dependent on local enthusiasm. These volunteers can help reduce costs by reporting problems at an early stage and by helping out with voluntary work. If the route (or parts of the route) were to be taken on by the Local Authority’s Public Rights of Way team, then it may be included in their wider maintenance programme. Please note that the above figures do not include costs associated with inspection and maintenance of the proposed bridges.

**Table 3. Estimated construction costs**

Alignment	Alignment Length	Cost range	
		Low	High
A	3750m	£1,955,782.50	£3,420,690.00
D	1900m	£546,525.00	£891,537.50
E	1900m	£424,340.00	£620,375.00



Figure 70. Greenway construction site, Sustrans

**Table 4. Estimated construction costs for Alignment A**

Route Section (refer to Maps 15-18)	Element	Unit	Rate		Quantity	Cost range		Notes
			Low	High		Low	High	
A1	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	250	£31,250.00	£40,000.00	
A1 whole	Signing (standard NCN wayfinding)	lm	£1	£2	250	£250.00	£500.00	
A1	Barrier removal/adjustment	item	£1,000	£3,000	1	£1,000.00	£3,000.00	Removable bollards where path emerges adjacent to A659
A1	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.01	£300.00	£1,500.00	
A1	Vehicle restraint barriers alongside A659 where path emerges	lm	£55	£370	30	£1,650.00	£11,100.00	
<b>A1</b>	<b>Section Subtotal (length approx 250m)</b>					<b>£34,450.00</b>	<b>£56,100.00</b>	
2 whole	Signing (standard NCN wayfinding)	lm	£1	£2	470	£470.00	£940.00	
A2 / A3	Interventions at side roads: raised table crossings, signing	item	£4,000	£6,500	2	£8,000.00	£13,000.00	Croft Lane crossings 1 & 2
A2(a)	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	320	£40,000.00	£51,200.00	
A2(b)	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	150	£18,750.00	£24,000.00	
A2(b)	Drainage	lm	£30	£50	150	£4,500.00	£7,500.00	
A2(b)	Fencing (specify and adjust rates)	lm	£50	£100	150	£7,500.00	£15,000.00	
A2(b)	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.07	£2,100.00	£10,500.00	
<b>A2</b>	<b>Section Subtotal (length approx 470m)</b>					<b>£81,320.00</b>	<b>£122,140.00</b>	
A3 whole	Signing (standard NCN wayfinding)	lm	£1	£2	1740	£1,740.00	£3,480.00	
A3(a)	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	460	£57,500.00	£73,600.00	
A3(a)	Fencing (specify and adjust rates)	lm	£50	£100	560	£28,000.00	£56,000.00	
A3(a)	Drainage	lm	£30	£50	560	£16,800.00	£28,000.00	
A3(a)	Boardwalk	lm	£300	£500	180	£54,000.00	£90,000.00	
A3(a) & (b)	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.88	£26,400.00	£132,000.00	
A3(b)	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	1180	£147,500.00	£188,800.00	
A3(b)	New traffic-free high spec sealed route (incl path adjacent to road) 3m wide	lm	£150	£200	20	£3,000.00	£4,000.00	2 x field entrances
A3(b)	Fencing (specify and adjust rates)	lm	£50	£100	1200	£60,000.00	£120,000.00	
A3(b)	Drainage	lm	£30	£50	1200	£36,000.00	£60,000.00	
A3(b)	Boardwalk	lm	£300	£500	390	£117,000.00	£195,000.00	
<b>A3</b>	<b>Section Subtotal (length approx 1750m)</b>					<b>£547,940.00</b>	<b>£950,880.00</b>	

Table 5. Estimated construction costs for Alignment A (cont.)

Route Section (refer to Maps 15-18)	Element	Unit	Rate		Quantity	Cost range		Notes
			Low	High		Low	High	
A4 whole	Signing (standard NCN wayfinding)	lm	£1	£2	1280	£1,280.00	£2,560.00	
A4(a)	New traffic-free high spec sealed route (incl path adjacent to road) 3m wide	lm	£150	£200	360	£54,000.00	£72,000.00	
A4(a)	Drainage	lm	£30	£50	360	£10,800.00	£18,000.00	
A4(a) & (b)	Fencing (specify and adjust rates)	lm	£50	£100	1280	£64,000.00	£128,000.00	
A4(a) & (b)	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.64	£19,200.00	£96,000.00	
A4(a)/(b)	Barrier removal/adjustment	item	£1,000	£3,000	1	£1,000.00	£3,000.00	Removable bollard(s) between A4(a) and A4(b)
A4(b)	Drainage	lm	£30	£50	920	£27,600.00	£46,000.00	
A4(b)	Boardwalk	lm	£300	£500	920	£276,000.00	£460,000.00	
<b>A4</b>	<b>Section Subtotal (length approx 1300m)</b>					<b>£453,880.00</b>	<b>£825,560.00</b>	
<b>ALL A SECTIONS</b>	<b>Works total excluding VAT (total length approx 3770m)</b>					<b>£1,117,590.00</b>	<b>£1,954,680.00</b>	
ALL A SECTIONS	Design & Preparation	%			10%	£111,759.00	£195,468.00	
ALL A SECTIONS	Contractor's preliminaries	%			15%	£167,638.50	£293,202.00	
<b>ALL A SECTIONS</b>	<b>Subtotal with design &amp; preliminaries</b>					<b>£1,396,987.50</b>	<b>£2,443,350.00</b>	
ALL A SECTIONS	Optimism bias	%			40%	£558,795.00	£977,340.00	
<b>ALIGNMENT A</b>	<b>GRAND TOTAL excluding VAT</b>					<b>£1,955,782.50</b>	<b>£3,420,690.00</b>	

Table 6. Estimated construction costs for Alignment D

Route Section (refer to Maps 15-18)	Element	Unit	Rate		Quantity	Cost range		Notes
			Low	High		Low	High	
D whole	Signing (standard NCN wayfinding)	lm	£1	£2	1850	£1,850.00	£3,700.00	
D1(a)	Quiet-way rural road treatment	lm	£5	£10	280	£1,400.00	£2,800.00	
D1(b)	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	200	£25,000.00	£32,000.00	
D1(b)	Drainage	lm	£30	£50	280	£8,400.00	£14,000.00	
D1(b)	Widen existing traffic-free route by 1m, full width bitmac resurface	lm	£75	£100	70	£5,250.00	£7,000.00	
D1(b), D2	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.485	£14,550.00	£72,750.00	
D2	Drainage	lm	£30	£50	970	£29,100.00	£48,500.00	
D2	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	970	£121,250.00	£155,200.00	
D2	Fencing (specify and adjust rates)	lm	£50	£100	970	£48,500.00	£97,000.00	
D3	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	400	£50,000.00	£64,000.00	
D3	Fencing (specify and adjust rates)	lm	£50	£100	60	£3,000.00	£6,000.00	
D3	Interventions at side roads: raised table crossings, signing	item	£4,000	£6,500	1	£4,000.00	£6,500.00	Crossing of Little Catterton Lane
<b>D TOTAL</b>	<b>Section Subtotal (length approx 1900m)</b>					<b>£312,300.00</b>	<b>£509,450.00</b>	
<b>ALL D SECTIONS</b>	<b>Works total excluding VAT (total length approx 1900m)</b>					<b>£312,300.00</b>	<b>£509,450.00</b>	
ALL D SECTIONS	Design & Preparation	%			10%	£31,230.00	£50,945.00	
ALL D SECTIONS	Contractor's preliminaries	%			15%	£46,845.00	£76,417.50	
<b>ALL D SECTIONS</b>	<b>Subtotal with design &amp; preliminaries</b>					<b>£390,375.00</b>	<b>£636,812.50</b>	
ALL D SECTIONS	Optimism bias	%			40%	£156,150.00	£254,725.00	
<b>ALIGNMENT D</b>	<b>GRAND TOTAL excluding VAT</b>					<b>£546,525.00</b>	<b>£891,537.50</b>	

Table 7. Estimated construction costs for Alignment E

Route Section (refer to Maps 15-18)	Element	Unit	Rate		Quantity	Cost range		Notes	
			Low	High		Low	High		
E whole	Signing (standard NCN wayfinding)	lm	£1	£2	1900	£1,900.00	£3,800.00		
E1	Quiet-way rural road treatment	lm	£5	£10	950	£4,750.00	£9,500.00		
E2	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£75	£100	1080	£81,000.00	£108,000.00	2m widening for 540m length	
E2	Widen road island on Turnpike Road crossing	item	£700	£1,500	1	£700.00	£1,500.00		
E2	C'way realignment into south verge, 2m x 100m stretch	lm	£200	£300	200	£40,000.00	£60,000.00		
E2	Reposition phone box, 1 no.	no	£1,500	£3,000	1	£1,500.00	£3,000.00		
E2	Reposition telegraph pole, 2 no.	no	£1,500	£2,000	2	£3,000.00	£4,000.00		
E2	Reposition lighting columns, 5 no.	no	£1,000	£1,500	5	£5,000.00	£7,500.00		
E2	Reposition bus shelter on A659 near Auster Bank Road	no	£5,000	£10,000	1	£5,000.00	£10,000.00		
E2	Interventions at side roads: raised table crossings, signing, speed reduction etc	item	£4,000	£6,500	2	£8,000.00	£13,000.00	Crossings of Field Drive and Turnpike Road	
E2	Land acquisition and consent (negotiation, legal, mitigation)	ha	£30,000	£150,000	0.046	£1,380.00	£6,900.00	2m strips: 100m + 130m lengths	
E3	New traffic-free bitmac route (incl path adjacent to road) 3m wide	lm	£125	£160	330	£41,250.00	£52,800.00		
E3	Widen existing traffic-free route by 1m, full width bitmac resurface	lm	£75	£100	120	£9,000.00	£12,000.00	2m widening for 60m length	
E3	Fencing (specify and adjust rates)	lm	£50	£100	60	£3,000.00	£6,000.00		
E3	Traffic management	item	£8,000	£15,000	1	£8,000.00	£15,000.00		
E3	C'way realignment, approx 60m stretch	lm	£250	£350	100	£25,000.00	£35,000.00		
E3	Interventions at side roads: raised table crossings, signing	item	£4,000	£6,500	1	£4,000.00	£6,500.00	Crossing of Little Catterton Lane	
<b>E TOTAL</b>	<b>Section Subtotal (length approx 1900m)</b>						<b>£242,480.00</b>	<b>£354,500.00</b>	
<b>ALL E SECTIONS</b>	<b>Works total excluding VAT (total length approx 1900m)</b>						<b>£242,480.00</b>	<b>£354,500.00</b>	
ALL E SECTIONS	Design & Preparation	%			10%	£24,248.00	£35,450.00		
ALL E SECTIONS	Contractor's preliminaries	%			15%	£36,372.00	£53,175.00		
<b>ALL E SECTIONS</b>	<b>Subtotal with design &amp; preliminaries</b>						<b>£303,100.00</b>	<b>£443,125.00</b>	
ALL E SECTIONS	Optimism bias	%			40%	£121,240.00	£177,250.00		
<b>ALIGNMENT E</b>	<b>GRAND TOTAL excluding VAT</b>						<b>£424,340.00</b>	<b>£620,375.00</b>	

## 9. Community & Stakeholder Engagement

Community consultation relating specifically to this piece of work is yet to be carried out and is considered an essential part of the scheme. Sustrans key principles of community engagement are described below. Stakeholder engagement is also yet to be completed and is a vital next step in the scheme's progression. A list of the main identified stakeholders is provided below, together with details of consultations that have taken place so far.

### Community Engagement

Effective community engagement is central to achieving Sustrans' vision – a world in which people choose to travel in ways that benefit their health and the environment. We engage with people to create quality public spaces and support communities to enable them to travel actively. We aim to ensure that people are involved in the development and running of Sustrans' projects where they live and work. We want communities to have pride and a sense of ownership in what these projects achieve. This approach improves quality, effectiveness and sustainability. We work, as appropriate, across a spectrum of community engagement from gathering peoples' views all the way through to devolving decision making, taking care to build the necessary steps to achieve our shared goals.

### Principles of community engagement

We have adopted 10 guiding principles to ensure that effective community engagement takes place throughout our work.

#### 1. Integrate engagement

Work to make community engagement a thread which runs through all of the processes involved in projects; from design and development to delivery and governance.

#### 2. Resource to succeed

Assess the costs (and benefits) of community engagement. Resource the project to ensure that it happens effectively at each stage; establishing an agreed delivery plan with realistic timescales.

#### 3. Understand communities

- Work with local people to understand their needs, aspirations, diversity and the local context. Be clear on whether any community engagement has already taken place in an area and what capacity the community has to get involved.

#### 4. Set Ground rules

Set effective and clear ground rules with the community and partners. Including defining boundaries and agreeing contacts for specific activities. Seek to agree how community engagement will genuinely involve the local people at each stage of the project.

#### 5. Communicate

Plan clear and appropriate communications to suit the communities being engaged. Be aware of diversity within the community. Ensure interested stakeholders have the opportunity to communicate their views. Inspire.

#### 6. Innovative/flexible consultation

Make the best of existing ways of talking to people, such as citizens' panels and community forums, but also use creative, interactive and flexible techniques to enable people to be involved on their terms. Plan ahead but be prepared to respond to need.

#### 7. Feedback

For all stakeholders, show how the results of community involvement are feeding into the project at each stage.

#### 8. Deliver

Ensure that all agreements and plans are implemented.

#### 9. Measure success

Assess the impact of community involvement on Sustrans' projects and the communities involved. Learn from this for future projects.

#### 10. Leave a legacy.

Help create a sustainable community by planning in opportunities for continued involvement (beyond the life of a funded project).

### Stakeholder Consultations

Main known stakeholders for this scheme are:

(bold type indicates groups contacted, discussions are detailed below):

- **North Yorkshire County Council**
- **Selby District Council**
- **Tadcaster Town Council**
- **Tadcaster & Rural Community Interest Company**
- **Environment Agency**
- Landowners: Redrow Homes Ltd, **The Old Brewery**, Grimston Park Estate, plus others - see chapter 7
- Schools: three primary schools and Tadcaster Grammar School
- Other parish councils including: **Newton Kyme cum Toulston, Thorp Arch**, Boston Spa
- **Local cycling club**: Meeting July 2019
- **Tadcaster Walkers are Welcome group**: Emails exchanged

- **Residents Committee of new Redrow housing development near Thorp Arch / Newton Kyme**: Emails exchanged October 2019. Keen to see a cycle route connection to Newton Kyme from the Redrow estate.

Stakeholders consulted with:

**Tadcaster Town Council**, meeting in Aug 2019 with Cllr Fiona Greig and Cllr Greg Lodge. Main points raised:

- Supportive of an NCN route proposal
- Closure of Kirkgate to traffic and creation of public realm space here was mentioned as an option to investigate
- For neighbourhood plan: desire to make roads cycle friendly
- Suggestion of a new pedestrian bridge
- Suggested links to business parks
- Would like a river crossing for residents of east Tadcaster to reach schools west of the river

**Tadcaster and Rural Community Interest Company**, meeting in Sept 2019. Main additional points raised:

- Would like the route to run through the town centre if possible, to bring regeneration
- Riverside route as a cycle route may not be popular as it's currently a nice walking route
- The breweries generate traffic, HGVs will continue using roads in town centre
- Don't feel especially safe on the widened path near bottom of Rudgate

### Selby District Council

Contact has been made, meeting to be arranged to discuss. Details of LCWIP for Tadcaster will be provided to Sustrans when they become available.

### North Yorkshire County Council

Contact has been made, meeting to be arranged to discuss. Details of LCWIP for Tadcaster will be provided to Sustrans when they become available.

### Environment Agency

#### Update March 2020:

**Sustrans has recently been alerted to a flood alleviation scheme that the Environment Agency are planning for Tadcaster.**

**Information now received from them indicates improvement works to both sides of the River Wharfe between the disused railway viaduct and the A659 road bridge in Tadcaster, some of which may have the potential to incorporate elements of the preferred route described in this study.**

**Sustrans intends to continue liaising with the Environment Agency regarding this.**

### Landowners

Several landowners are affected by the routes proposed in this study. Collaboration with those affected is particularly important and a route that has landowner's consent is much preferred to use of Creation Orders for land acquisition.

An informal meeting was held between Sustrans and the Company Secretary of The Old Brewery in December 2019 as a starting point in communications. Potential routes were discussed. No other landowners have yet been contacted.

## 10. Business Case and Policy Match

Most business cases seek to generate a BCR to justify spend. The UK has developed a tool known as AMAT that can generate a BCR for cycling and walking schemes without overly onerous calculations and is WebTAG compliant. This summary sets out to explain the economic appraisal of this feasibility study. It provides details of the individual revenue components as well as presenting the investment as a package. The main aims and ambitions of the project are set out in the Introduction and responds to The North Yorkshire Local Transport Plan and The Selby District Core Strategy Local Plan.

The AMAT outputs include information on benefits that can be attributed to a project including those associated with:

- Congestion Benefits
- Infrastructure Development
- Accident Savings
- Local Air Quality Improvement
- Noise Reduction
- Greenhouse Gas reduction
- Reduced risk of premature death
- Absenteeism reduction
- Journey ambience improvement
- Indirect taxation (can be negative for cycling)

To use the AMAT tool requires data regarding predicted cycle numbers. This can be difficult and time consuming, especially when the route is new and no baseline data is available.

Instead Sustrans has developed a method, applied to recent DfT funding bids that seeks to work round this problem.

Instead of predicting cycle use for a particular route, the numbers of predicted walkers and cyclists are input into the AMAT such that a Benefit Cost Ratio (BCR) of close to 2.0 is achieved (This is the BCR figure regarded as “Good” by the UK DfT).

The levels of use required to achieve a Good rating are then given an achievability narrative and routes compared against similar past schemes to examine

the probability of achieving those levels. Routes are examined against the Sustrans report “Improving Access for Local Journeys” ( IALJ) available online.

NOTE: BCRs are generated over a 25 year period from completion of the project.

The AMAT tool has been applied to Alignments A and D combined, and alignments A and E combined. The assessment estimated 500 cyclists and 110 people walking along the new route daily.

This economic appraisal summary note presents detail on the likely costs and benefits associated with this package of measures. The note sets out the assumptions and methodology before appraising the package.

A BCR of between 3.22 (low construction cost) and 1.87 (high construction cost) for alignments A and D together, is indicated. See **Figure 71 to 70**.

A BCR of between 3.39 (low construction cost) and 1.99 (high construction cost) for alignments A and E combined, is indicated. See **Figure 73 to 72**.

It has been demonstrated that the overall package of capital and revenue measures for the route alignments represents value for money and the revenue impacts of the package are shown to be additive to the capital components of the scheme.

**Analysis of Monetised Costs and Benefits (in £'000s)**

Congestion benefit	99.63
Infrastructure	0.95
Accident	37.99
Local Air Quality	0.76
Noise	2.53
Greenhouse Gases	4.58
Reduced risk of premature death	3042.50
Absenteeism	644.66
Journey Ambience	918.56

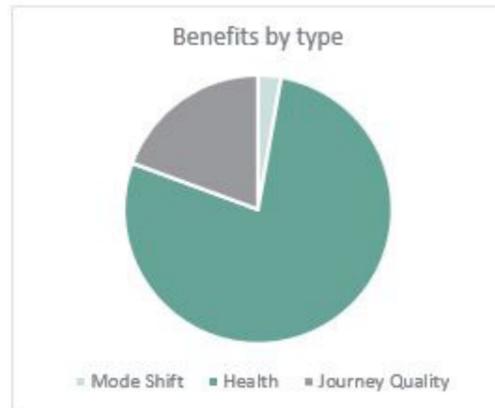
Indirect Taxation	-15.06
Government costs	1471.22
Private contribution	0.00

PVB	4736.15
PVC	1470.27

<b>BCR</b>	<b>3.22</b>
------------	-------------

**Benefits by type:**

Mode Shift	131.38	2.8%
Health	3687.16	77.8%
Journey Quality	918.56	19.4%



The illustrative case study in WebTAG unit A5.1 uses slightly different assumptions on the valuation of decongestion benefits which result in a higher estimated benefit there. This is due to the specific nature of the case study and to fully replicate this approach here would have increased the complexity of this tool with no apparent benefit.

Figure 71. AMAT output for alignments A and D (based on low construction cost)

**Analysis of Monetised Costs and Benefits (in £'000s)**

Congestion benefit	99.63
Infrastructure	0.95
Accident	37.99
Local Air Quality	0.76
Noise	2.53
Greenhouse Gases	4.58
Reduced risk of premature death	3042.50
Absenteeism	644.66
Journey Ambience	918.56

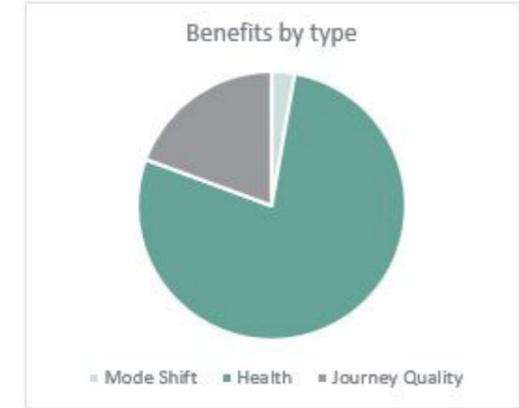
Indirect Taxation	-15.06
Government costs	1399.42
Private contribution	0.00

PVB	4736.15
PVC	1398.46

<b>BCR</b>	<b>3.39</b>
------------	-------------

**Benefits by type:**

Mode Shift	131.38	2.8%
Health	3687.16	77.8%
Journey Quality	918.56	19.4%



The illustrative case study in WebTAG unit A5.1 uses slightly different assumptions on the valuation of decongestion benefits which result in a higher estimated benefit there. This is due to the specific nature of the case study and to fully replicate this approach here would have increased the complexity of this tool with no apparent benefit.

Figure 73. AMAT output for alignments A and E (based on low construction cost)

**Analysis of Monetised Costs and Benefits (in £'000s)**

Congestion benefit	99.63
Infrastructure	0.95
Accident	37.99
Local Air Quality	0.76
Noise	2.53
Greenhouse Gases	4.58
Reduced risk of premature death	3042.50
Absenteeism	644.66
Journey Ambience	918.56

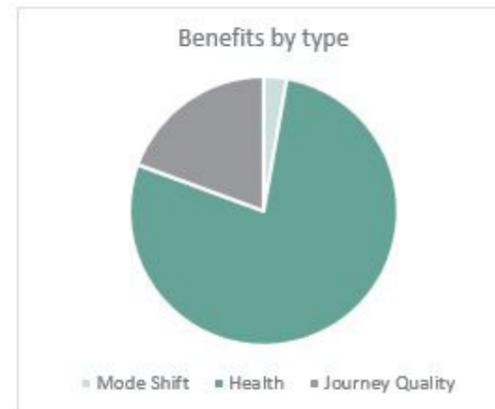
Indirect Taxation	-15.06
Government costs	2535.42
Private contribution	0.00

PVB	4736.15
PVC	2534.46

<b>BCR</b>	<b>1.87</b>
------------	-------------

**Benefits by type:**

Mode Shift	131.38	2.8%
Health	3687.16	77.8%
Journey Quality	918.56	19.4%



The illustrative case study in WebTAG unit A5.1 uses slightly different assumptions on the valuation of decongestion benefits which result in a higher estimated benefit there. This is due to the specific nature of the case study and to fully replicate this approach here would have increased the complexity of this tool with no apparent benefit.

Figure 72. AMAT output for alignments A and D (based on high construction cost)

**Analysis of Monetised Costs and Benefits (in £'000s)**

Congestion benefit	99.63
Infrastructure	0.95
Accident	37.99
Local Air Quality	0.76
Noise	2.53
Greenhouse Gases	4.58
Reduced risk of premature death	3042.50
Absenteeism	644.66
Journey Ambience	918.56

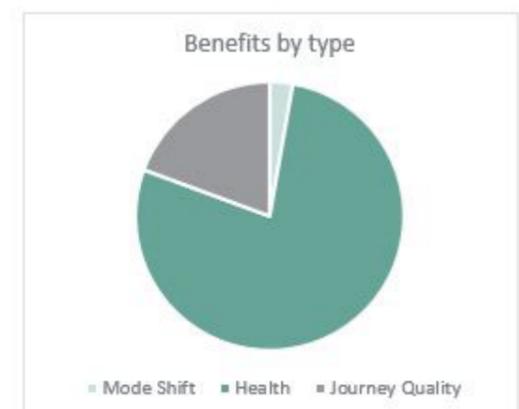
Indirect Taxation	-15.06
Government costs	2376.12
Private contribution	0.00

PVB	4736.15
PVC	2375.17

<b>BCR</b>	<b>1.99</b>
------------	-------------

**Benefits by type:**

Mode Shift	131.38	2.8%
Health	3687.16	77.8%
Journey Quality	918.56	19.4%



The illustrative case study in WebTAG unit A5.1 uses slightly different assumptions on the valuation of decongestion benefits which result in a higher estimated benefit there. This is due to the specific nature of the case study and to fully replicate this approach here would have increased the complexity of this tool with no apparent benefit.

Figure 74. AMAT output for alignments A and E (based on high construction cost)

# 11. Risk Assessment

Table 8. Risk Assessment - Alignment A (1 of 2)

Project Title:	Wetherby to Tadcaster	Date RAG Report Initiated:	13/01/2020
Client:	Highways England	Date of current edition:	13/01/2020
Project Manager:	Avril Sanderson	RAG Author:	Amanda Ginns

Risk ID No.	Site	Identified risk	Assigned to:	Date Assigned:	Current situation (RAG)	Actions	Mitigation Risk (RAG)
001	A1_A659	Risk of not meeting NCN route standard for shared path width			Available width appears adequate but hasn't been confirmed.	Accepting reduced width shared-use path	Path has reduced width if necessary.
002	A2(a)_A659	Risk of not meeting NCN route standard for shared path width			Available width appears adequate but hasn't been confirmed.	Accepting reduced width shared-use path	Path has reduced width if necessary.
003	A2(b)_A659	Private ownership of land can lead to high land negotiation/ purchasing costs			No engagement to date.	Early engagement	Anticipated land acquisition agreement reached.
004	A2(b)_A659	Approval required regarding Scheduled Monument status			No consultation with relevant body to date.	Arrange archaeological survey and consult with relevant Council dept. If necessary, amend design to stay in highway verge, and accept reduced width shared-use path.	Anticipated approval to align path inside field edge. If not approved, keep alignment in highway verge.
005	Croft Lane (1)	Risk of North Yorks CC not in agreement with proposals regarding crossing			No consultation with relevant body to date.	Consult with North Yorkshire CC	Amend design to meet North Yorks CC requirements.
006	A3(a)_A659	Private ownership of land can lead to high land negotiation/ purchasing costs			No engagement to date.	Early engagement	Land acquisition agreement reached.

Table 9. Risk Assessment - Alignment A (2 of 2)

Risk ID No.	Site	Identified risk	Assigned to:	Date Assigned:	Current situation (RAG)	Actions	Mitigation Risk (RAG)
008	Croft Lane (2)	Risk of North Yorks CC not in agreement with proposals regarding crossing			No consultation with relevant body to date.	Consult with North Yorkshire CC	Amend design to meet North Yorks CC requirements.
009	A3(b)_A659	Private ownership of land can lead to high land negotiation/ purchasing costs			No engagement to date.	Early engagement	Land acquisition agreement reached.
010	A3(b)_A659	Risk regarding approval requirements regarding Historic Park and Garden status			No consultation with relevant body to date.	Early contact with relevant council department to ascertain likelihood/requirements of approval	Anticipated approval to align path inside field edge. If not approved, re-visit design - crossing to opposite verge may be possible.
011	A3(b)_A659	Risk regarding approval requirements regarding Conservation status at east end			No consultation with relevant body to date.	Early contact with relevant council department to ascertain likelihood/requirements of approval.	Anticipated approval if tree felling is avoided. If not approved, re-visit design - crossing to opposite verge is an alternative.
012	A3(b)_A659	Risk regarding section of path lying in Flood Zone 3 - amendments to design may be required			No consultation with Environment Agency to date.	Consult with Environment Agency and amend design if needed	Following consultation with EA, amend path construction if required.
013	A4(a)_Riverside	Private ownership of land can lead to high land negotiation/ purchasing costs			No engagement to date.	Early engagement	Land acquisition agreement reached.
014	A4(b)_Riverside	Private ownership of land can lead to high land negotiation/ purchasing costs			No engagement to date.	Early engagement	Land acquisition agreement reached.
015	A4(b)_Riverside	Risk regarding section of path lying in Flood Zone 3 - amendments to design may be required			No consultation with Environment Agency to date.	Consult with Environment Agency and amend design if needed	Following consultation with EA, amend path construction if required, or realign outside flood zone.
016	Alignment A_All	Ecology - risks identified in Ecological Assessment chapter			Mitigation and further assessment required.	Consult with ecologists and arrange further assessment in required timeframe.	Adaptions at Detailed Design stage. Associated costs to be factored in.

Table 10. Risk Assessment - Alignment D

Project Title:	Wetherby to Tadcaster	Date RAG Report Initiated:	13/01/2020
Client:	Highways England	Date of current edition:	13/01/2020
Project Manager:	Avril Sanderson	RAG Author:	Amanda Ginns

Risk ID No.	Site	Identified risk	Assigned to:	Date Assigned:	Current situation (RAG)	Actions	Mitigation Risk (RAG)
001	D1(a)_on-road	Risk of traffic flow rate too high for NCN Quietway standard			Traffic flow rate not known.	Check traffic flow data.	Expected to be acceptable flow rates.
002	D1(b)_Recreation ground	Landowner not known.			Landowner details not available on Government Land Registry portal.	Further enquiries as to landowner.	Assumed to be District/Town/County council-owned and assumed support.
003	D1(b)_Recreation ground	Risk of objections from residents			No engagement to date.	Early community engagement.	Anticipated support.
004	D2	Private ownership of land can lead to high land negotiation/ purchasing costs			No consultation to date.	Early engagement	Anticipated land acquisition agreement reached.
005	D2	Risk of design amendments required due to land features (land not yet surveyed by Sustrans)			Land hasn't been accessed or surveyed.	Arrange approval for site visit with landowners at an early stage of route confirmation	Amend design if required.
006	D3	Risk of North Yorks CC not in agreement with proposals and/or proposed alterations in carriageway alignment not possible			No consultation to date.	Early engagement	If not approved, work with North Yorks CC to produce approved design.
007	D3	Risk of objections from residents			No engagement to date.	Early community engagement.	Anticipated support.
008	D3	Risk of objections from vehicle owners parking alongside road			No engagement to date.	Early community engagement to gain support.	Anticipated support following encouragement to use new cycle infrastructure.
009	D - All	Ecology (risks identified, partially complete - see Ecological Assessment chapter)					

Table 11. Risk Assessment - Alignment E

Project Title:	Wetherby to Tadcaster	Date RAG Report Initiated:	13/01/2020
Client:	Highways England	Date of current edition:	13/01/2020
Project Manager:	Avril Sanderson	RAG Author:	Amanda Ginns

Risk ID No.	Site	Identified risk	Assigned to:	Date Assigned:	Current situation (RAG)	Actions	Mitigation Risk (RAG)
001	E1_on-road	Risk of traffic flow rate being too high for NCN Quietway standard			Traffic flow rate not known.	Check flow rate / carry out traffic count survey	Expected to be acceptable flow rates.
002	E2	Private ownership of land can lead to high land negotiation/ purchasing costs			No consultation to date.	Early engagement	Anticipated land acquisition agreement reached.
003	E2	Risk of North Yorks CC not in agreement with proposals; and/or proposed alterations in carriageway alignment not possible			No consultation to date.	Early engagement with North Yorks CC	If not approved, work with North Yorks CC to produce approved design.
004	E3	Risk of North Yorks CC not in agreement with proposals; and/or proposed alterations in carriageway alignment not possible			No consultation to date.	Early engagement	If not approved, work with North Yorks CC to produce approved design.
005	E3	Risk of objections from residents			No engagement to date.	Early community engagement	Anticipated support.
006	E3	Risk of objections from vehicle owners parking alongside road			No engagement to date.	Early community engagement to gain support	Anticipated support following encouragement to use new cycle infrastructure.
007	E - All	Ecology (assessment not yet carried out)					

## 12. Summary and Next Steps

This feasibility study provides recommendations for what Sustrans believes to be the most deliverable alignments to provide a multi-user route in the missing section of NCN route 665. Recommendations for the town centre and river crossing have also been made. Next steps are outlined below. If key stakeholders agree that development of this alignment should continue, then a number of steps will be required to progress.

Community and stakeholder consultations are undoubtedly a key next step in this scheme. Discussion between landowners, residents, councils, schools, local businesses and other affected parties to agree route proposals is essential - with regard to the town centre and river crossing section as well as the east and west alignments A, and D or E.

A stakeholder management plan should build on the work in this report and define a means to ensure all stakeholders are identified and an efficient and open means of communicating with them devised.

Feedback, ideas and objections should continue to be logged and any adverse effects of development mitigated to the land owners approval wherever possible.

It is anticipated that all parties will be in agreement as to the regeneration opportunity the overall proposal presents for Tadcaster and surrounding communities.

Several high risks have been identified in the Risk Assessment section. Further work has been identified for completion prior to confirmation of east and west alignments. Specifically, consultations with Selby District Council / North Yorkshire County Council and Historic England regarding route sections through historic-designation sites. Further Ecological Assessment requirements have also been identified. In addition, collaborative work with North Yorkshire County Council regarding proposed highway designs is essential.

Note that development of the three alignments -

west, east and town centre - would not necessarily need to be at the same time. Each can be developed independently in separate phases, with each being usable and beneficial to the NCN network and Tadcaster in its own right. For example east and/or west alignments could proceed independently of the river crossing.

### Detailed Design

Should the proposals in this report be deemed deliverable then detailed designs will need to be produced. Although much of the route will be straightforward to deliver in engineering terms, there are locations requiring detailed surveying and engineering design.

### Planning

A planning application will be required before any construction work can be completed and ideally before an attempt to secure funding is made. The planning considerations have become more onerous in recent times and mitigation against ecological impact and flooding can have a major effect and design and scheme cost.

Documents will need to be prepared that take into account all likely requests from the relevant planning department. An early discussion with planners can give an indication of potential issues.

### Funding and timescales

Timescales will be dependent on the requirements of the funding streams available. There are a number of factors that could affect the construction period

timescale:

- A tight funding deadline may mean that multiple lengths need to be constructed at the same time.
- Tree works need to be undertaken outside of the bird nesting season (end of February to beginning of October).
- Ecology studies for reptiles and bats need to be undertaken at certain times of year, as per ecology assessment.
- Planning Approvals are time limited and all works will need to fit within allowances.

Key to securing funding is proving local support and a deliverable design.

### Future potential

Associated with work covered in this study, other nearby links with potential for development into the NCN network include:

- A link to the nearby village of Newton Kyme;
- An east-west link between Tadcaster and the NCN 66 towards Leeds, which is accessible at Junction 44 of the A1(M). This would fill a further gap in the NCN, enabling a near-complete cycle route between York and Leeds.

### Conclusion

To summarise, aspects identified as particularly requiring ongoing attention in this scheme include:

- Community, stakeholder and landowner

consultations

- Historically designated sites within vicinity of route proposals
- Ecological assessment and conservation measures
- Collaborative work with Selby District Council, North Yorkshire County Council and Parish Councils

This report shows that a route forming the missing link in the NCN route 665 at Tadcaster is possible and can be made to work for a whole range of users including walkers, cyclists, wheelchair users, adapted bike users etc. but it will only be achievable with political support together with the good will of landowners and by taking their views into consideration.

#### Update March 2020:

Sustrans has recently been alerted to a flood alleviation scheme that the Environment Agency are planning for Tadcaster.

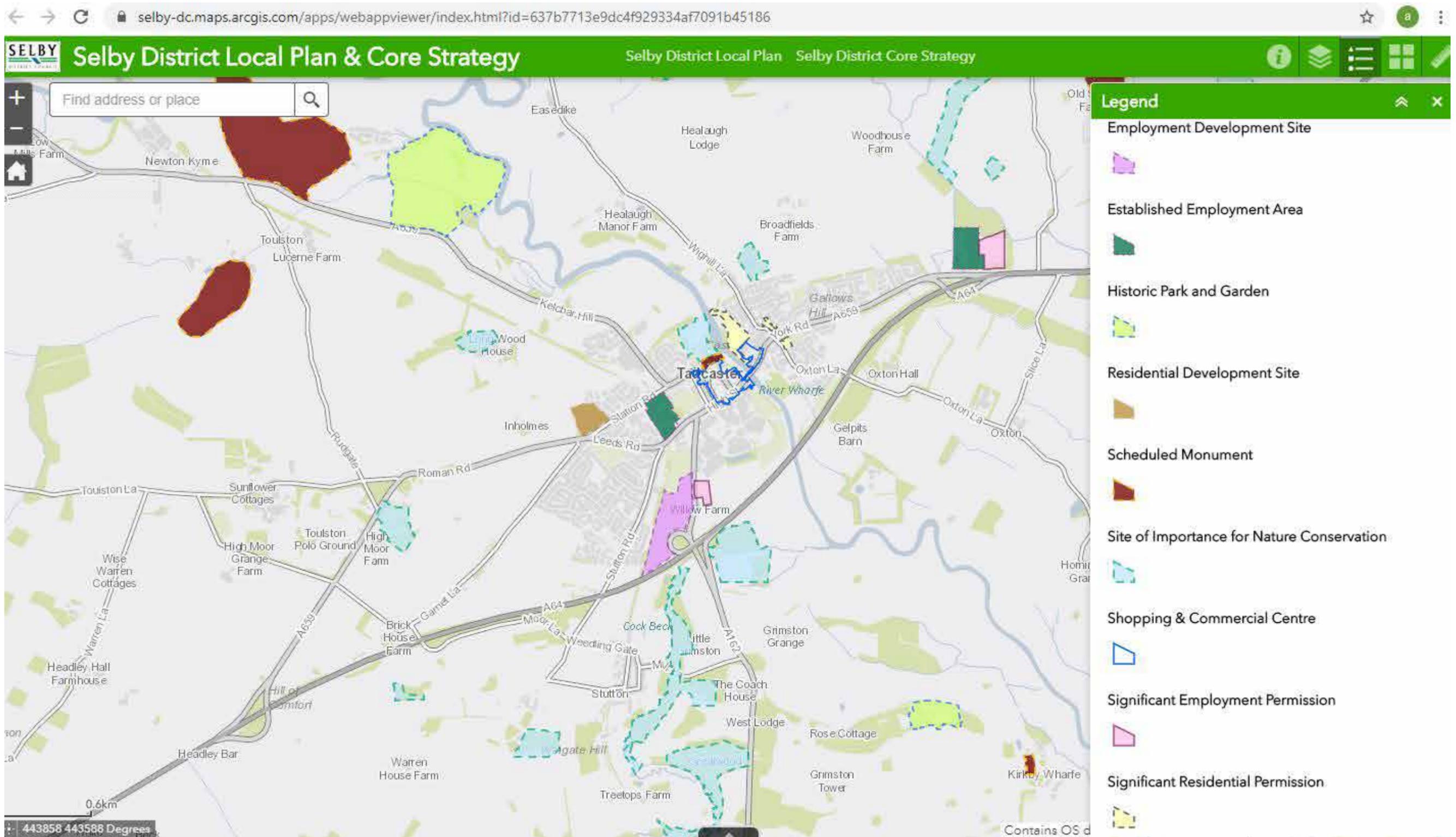
Information now received from them indicates improvement works to both sides of the River Wharfe between the disused railway viaduct and the A659 road bridge, some of which may have the potential to incorporate elements of the preferred route described in this study.

Sustrans intends to continue liaising with the Environment Agency regarding this.

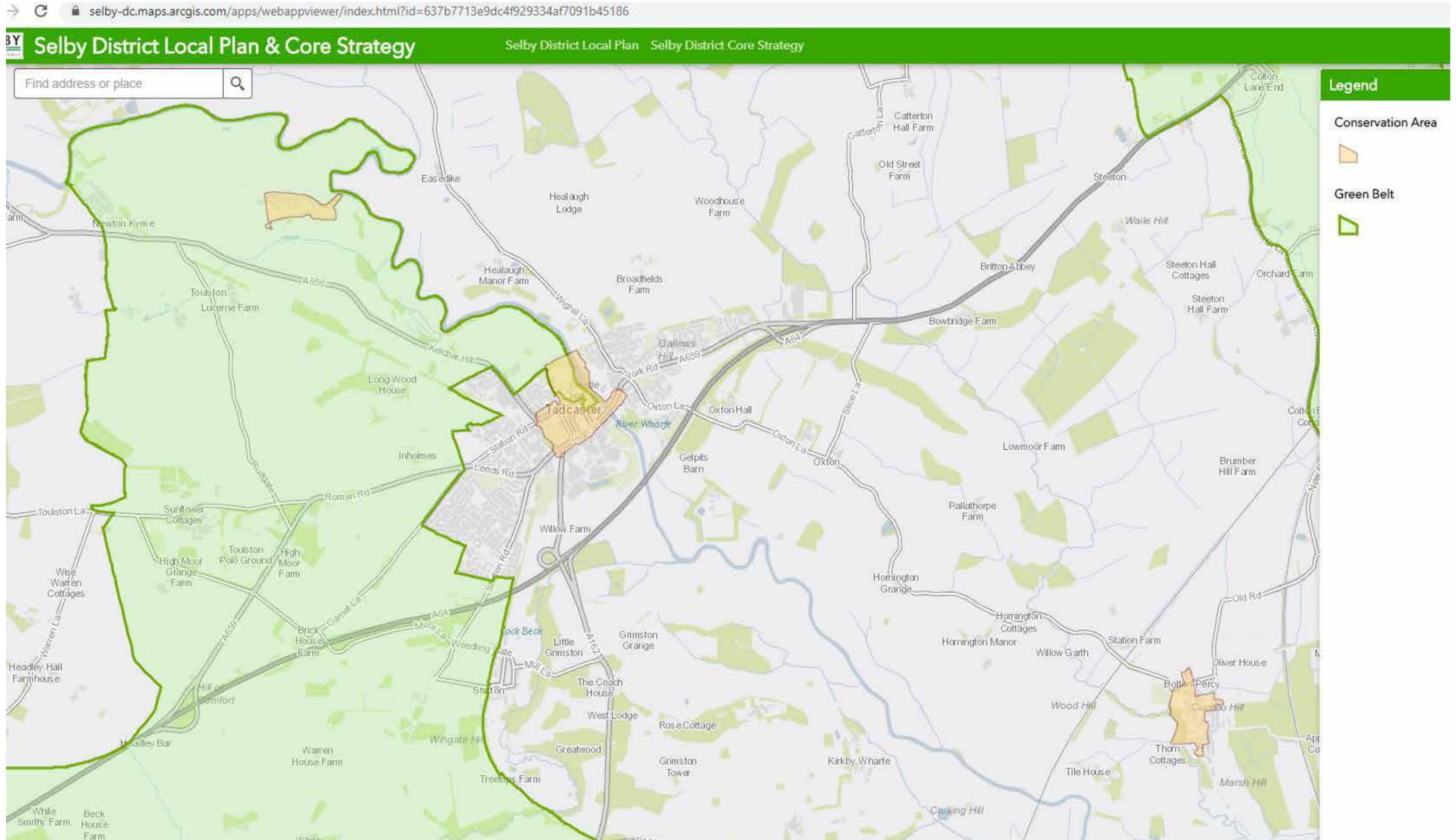
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# Appendix 1: SDC Mapping

Maps produced from Selby District Local Plan & Core Strategy online tool

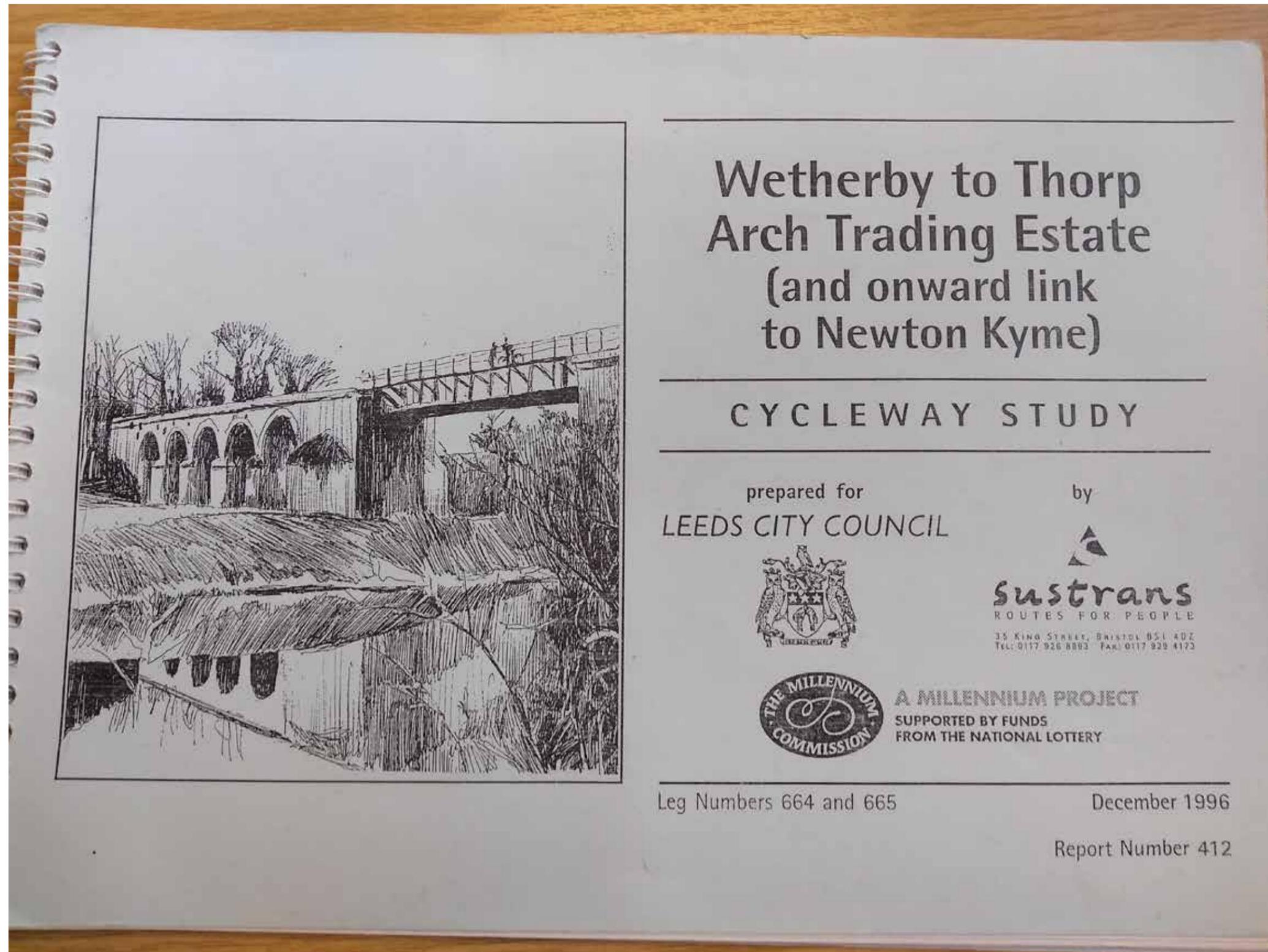


Maps produced from Selby District Local Plan & Core Strategy online tool

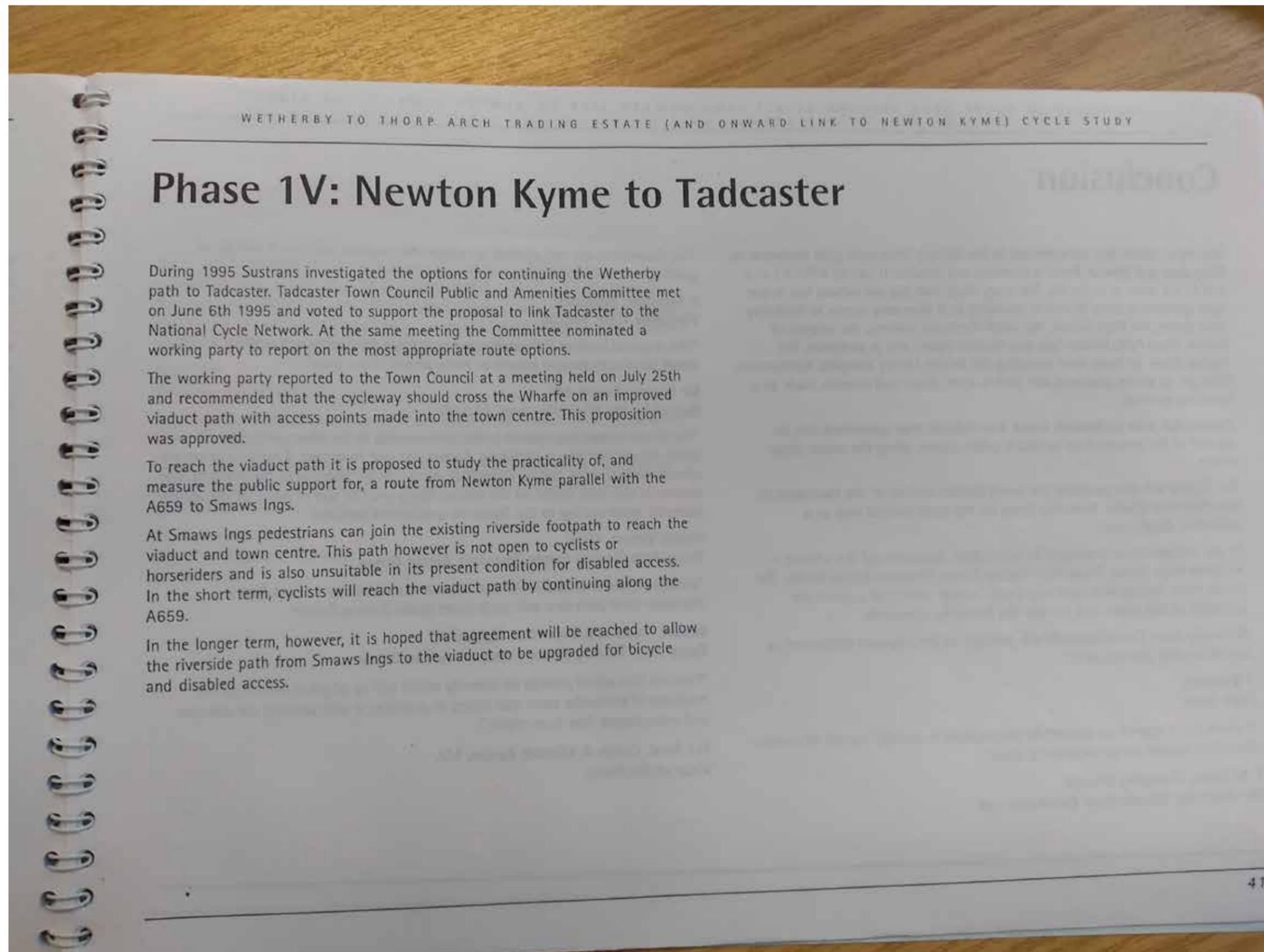


## Appendix 2: Sustrans' 1996 study

Pages from Sustrans 1996 Wetherby to Thorp Arch Trading Estate study



Pages from Sustrans 1996 Wetherby to Thorp Arch Trading Estate study



# Appendix 3: DfT Road Traffic Statistics

Department for Transport's Road Traffic Statistics - Annual Average daily flow (AADf) data for sites in Tadcaster

**Site number: 931465**

**Site details**

Region	Yorkshire and The Humber
Local authority	North Yorkshire
Road name	U
Road classification	'C' and Unclassified roads
Managed by	Local authority
Road type	Minor
Easting, northing	448740, 443840
Latitude, longitude	53.88846270, -1.25992193

**Location**

**Annual Average daily flow**

Year	Count method	Pedal cycles	Two wheeled motor vehicles	Cars and taxis	Buses and coaches	Light goods vehicles	Heavy goods vehicles	All motor vehicles
2009	Manual count	65	44	3367	32	522	95	4060

**Site number: 28452**

**Site details**

Region	Yorkshire and The Humber
Local authority	North Yorkshire
Road name	A659
Road classification	'A' road
Managed by	Local authority
Road type	Major
Start junction	A162
End junction	A659 Kirkgate
Link length	0.30km (0.19 miles)
Easting, northing	448470, 443230
Latitude, longitude	53.88300582, -1.26412577

**Location**

**Annual Average daily flow**

Year	Count method	Pedal cycles	Two wheeled motor vehicles	Cars and taxis	Buses and coaches	Light goods vehicles	Heavy goods vehicles	All motor vehicles
2018	Estimated using previous year's AADF on this link	137	42	9551	195	1355	345	11488

**Site number: 37891**

**Site details**

Region	Yorkshire and The Humber
Local authority	North Yorkshire
Road name	A659
Road classification	'A' road
Managed by	Local authority
Road type	Major
Start junction	A659 Kirkgate
End junction	A64
Link length	1.60km (0.99 miles)
Easting, northing	449710, 444000
Latitude, longitude	53.88980878, -1.24513919

**Location**

**Annual Average daily flow**

Year	Count method	Pedal cycles	Two wheeled motor vehicles	Cars and taxis	Buses and coaches	Light goods vehicles	Heavy goods vehicles	All motor vehicles
2018	Estimated using previous year's AADF on this link	17	47	6061	132	920	261	7422

**Site number: 73708**

**Site details**

Region	Yorkshire and The Humber
Local authority	North Yorkshire
Road name	A659
Road classification	'A' road
Managed by	Local authority
Road type	Major
Start junction	LA Boundary
End junction	A659 High St
Link length	4.20km (2.61 miles)
Easting, northing	446000, 444500
Latitude, longitude	53.89464386, -1.30150775

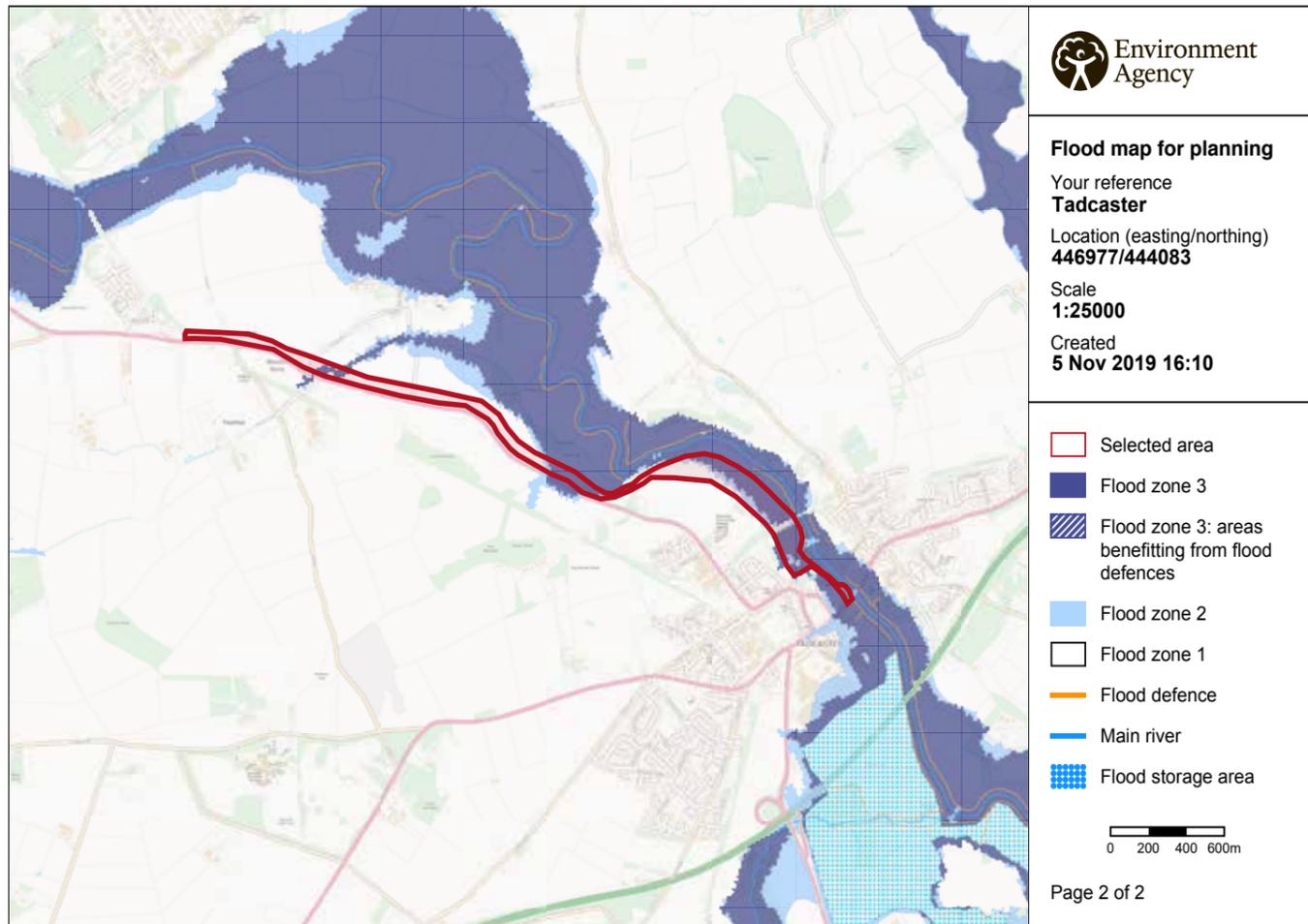
**Location**

**Annual Average daily flow**

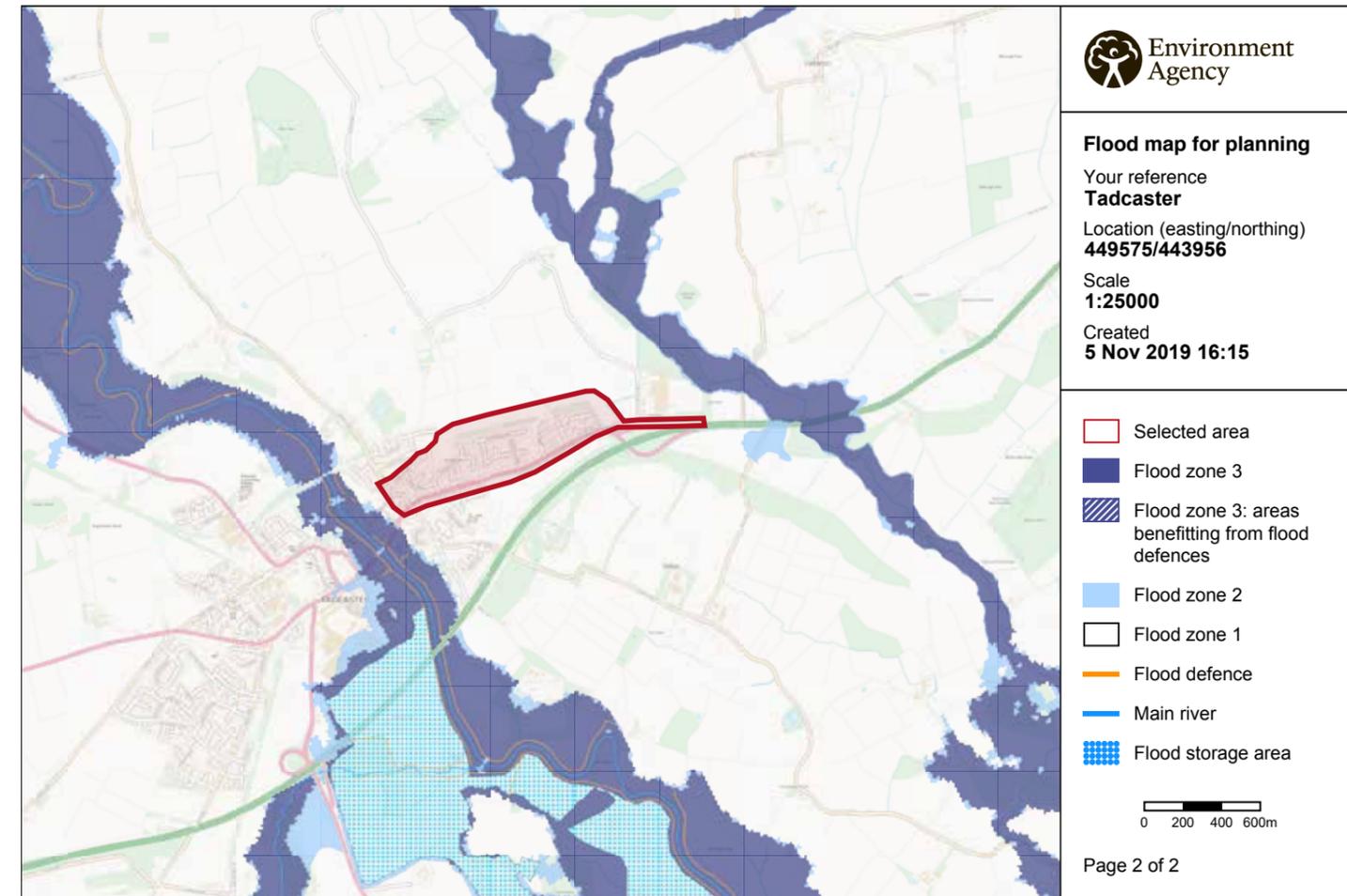
Year	Count method	Pedal cycles	Two wheeled motor vehicles	Cars and taxis	Buses and coaches	Light goods vehicles	Heavy goods vehicles	All motor vehicles
2018	Manual count	32	52	3843	23	536	35	4489

# Appendix 4: Flood Maps

Prints from Environment Agency's 'Flood map for planning' online tool



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## Appendix 5: Ecological Assessment

This feasibility study has been informed by a two stage ecological assessment.

### Stage 1 – Ecological Desk Study

The first stage comprised of an abbreviated ecological desk study to identify potential ecological features of national importance (e.g. Sites of Special Scientific Interest). The data search comprised of review of records held by Natural England presented on the MAGIC website (<https://magic.defra.gov.uk/>) and included a review of the following information:

- Designated sites of international importance within a 5km radius of the route options
- Statutory sites within a 1km radius of the route options
- Priority habitats present along the proposed route options and surrounding environs.

### Stage 2 – Ecological Constraints and Opportunities Plan or Preliminary Ecological Appraisal

- The second stage of the ecological assessment included a route specific, desk study and Phase 1 habitat survey. The habitat survey included an assessment of the following elements:
  - Route Option 1 – Toulston to Tadcaster
  - Route Option 2 – North Tadcaster
- The findings of the assessment are presented as an Ecological Constraints and Opportunities Plan (ECOP<sup>1</sup>). Preparation of the ECOP was completed by a Professional Ecologist and Full Member of CIEEM.

### Scope

This report focuses on a detailed evaluation of relevant 'off-road' sections of two route options, which combined measure approximately 4.9km (see Figure 6.5).

The Toulston to Tadcaster Route (Option1) will occupy the road verge of the A560 and adjoining areas of arable land to the north which are bounded by agricultural hedgerows and small woodland copses. The middle and eastern sections of the route will be located within areas of permeant pasture

<sup>1</sup> An ECOP is a useful method of illustrating the key points gathered from PEA baseline studies and, depending on the purpose of reporting, an ECOP may accompany or replace a PEA Report. Source: Appendix 4, CIEEM 2017

and arable land, with the path to the east to be built through grassland, woodland and scrub parallel with the River Wharfe.

The North Tadcaster Route (Option 2) is located along the northern fringes of the town. Access to the greater part of the route was highly restricted. Sections visible as part of the survey included existing play areas (close mown grassland) to the west, scrub and species poor grassland to the east.

The traffic free cycle path is forecast to be a sealed surface, with a minimum of 3m width, with a 1m verge. It is understood the new path would not be lit.

### Desk study

Route Options 1 and 2 are located more than 5km from any wildlife sites of international importance. Owing to the degree of separation and scale of the proposed works, no significant adverse ecological impacts are anticipated on any sites of international importance to wildlife conservation.

Route Options 1 and 2 are also located more than 1km from any wildlife sites of national importance. The scheme is therefore not considered likely to give rise to any significant adverse impacts upon sites of national importance. A Site of Special Scientific Interest (SSSI) designated for its geological interest only is located approximately 800m from Route Option 1. As site is not of ecological interest it is scoped-out from further assessment.

The data search did identify six wildlife sites of county importance within 1km of the two route options. Further information regarding these non-designated wildlife sites is summarised in Table 1 below.

Site Name and Designation	Description	Distance of Site from either Route Option 1, or 2
Castle Hill deleted SINC	This site comprises an area of grassland, ponds and woodland adjacent to the River Wharfe	Route Option 1 – section of route south of Tadcaster Viaduct
Brickyard Pond SINC	A disused clay pit pond surrounded by trees	~185m north-west of the site
Smaws Wood SINC	An area of semi-mature woodland	~290m south of the site
Catterton Rash deleted SINC	From aerial photos this area is a linear strip of woodland adjacent agricultural fields and Catterton Beck.	~530m north-east of the site

Catterton Wood SINC	Ancient and semi-mature broad-leaved woodland.	~630m north-east of the site
River Wharfe, Otley & Mid Wharfedale/Wetherby SEGI/SSI	The River Wharfe is a SEGI/SSI where it flows through West Yorkshire.	~670m north-west of the site
Key: SINC – Site of interest to Nature Conservation, SEGI - Sites of Ecological/Geological Importance, SSI - Sites of Scientific Interest		

**Table 1:** Non-statutory wildlife sites of county importance within 1km of Route Options 1 and 2, Tadcaster

A range of protected species have been recorded within 1km of the preferred route. Those which will require further consideration and may form a constraint to the development include: roosting, commuting and foraging bats, badgers *Meles meles*, otter *Lutra lutra*, nesting birds, commoner and rarer species of amphibian (including great crested newt *Triturus cristatus*), plants (mostly English bluebell *Hyacinthoides non-scripta*) including at least two species listed under Schedule 9 of the WCA (1981)<sup>2</sup> and water vole *Arvicola amphibious*.

The survey also returned records for two Annex II<sup>3</sup> freshwater fish species: Atlantic salmon *Salmo salar* and grayling *Thymallus thymallus*.

Other notable species identified by the search included Western European hedgehog *Erinaceus europaeus* (S42<sup>4</sup> species) and brown hare *Lepus europaeus* (S42<sup>3</sup> species).

### Field survey

All accessible parts of the route were assessed on foot by Will Steele (Haycock and Jay Associates) on the 5<sup>th</sup> February, 2020. Areas in private ownership, or directly inaccessible were assessed remotely, where possible using binoculars. It should be noted that discrete areas and habitats along sub-sections of Route 1 and the majority of Route 2 were inaccessible (see Target Note 1 (TN1), Figure 6.6). These would need to be assessed at a later stage.

The survey identified a range of grassland, tall ruderal, scrub, wetland and woodland habitats along the two route options. Sections of mature native hedgerow and standing water were also recorded.

<sup>2</sup> Wildlife and Countryside Act, 1981 (as amended) – Schedule 9 refers to non-native species, which are illegal to plant, or encourage to spread in England.

<sup>3</sup> European Protected Species as per Conservations of Species and Habitats Regulations, 2018 (as amended)

<sup>4</sup> NERC Act, 2006

Habitats considered to be of low ecological value and of Site level importance only (CIEEM, 2018<sup>5</sup>) included: bare ground, arable land, species poor and amenity grassland, non-native hedgerow and tall ruderal vegetation. Habitats considered to be of local importance included native scrub, free standing trees, semi-improved grassland and scattered broadleaved trees.

Priority habitats mapped as part of the assessment which the preferred route alignment either borders or crosses included areas of:

- Broadleaved semi-natural and plantation woodland (particularly associated with the central sections of Route Option 1),
- Coastal and floodplain grazing marsh (Route Option 1 – eastern end; TN2, Figure 6.6),
- Native hedgerow (Route Option 1 – entire length),
- Rivers (River Wharfe bounding eastern section of route Option 1); and
- Standing water (principally in association with Option 1).

These habitats are considered to be of high ecological value and of district to county level importance (CIEEM, 2018).

The survey identified suitable opportunities for roosting (principally in association with mature trees within woodland blocks and Tadcaster Viaduct; TN3, Figure 6.6), foraging and commuting bats across the route options assessed, with several areas being currently unlit. Habitat suitable for commoner species of nesting birds was also found within and bounding the two route options. No sign of badger were found, however the areas of scrub and woodland located along the route were considered to provide suitable sett building opportunities for badger, with foraging and commuting features for this species identified in association with sections of hedgerow, arable land and grassland along the different route options.

Twelve ponds of poor to good suitability for great crested newt (European protected species) were mapped within 500m of the route alignment of the two route options (except a short section of Route Option 1, adjacent to the River Wharfe).

No signs of reptile were found as part of the assessment (however this is not unexpected due to the timing of the assessment), potential for these species was identified within areas of scrub, woodland edge and field margins adjacent to the River Wharfe (Route Option 1).

<sup>5</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester

The River Wharfe and associated ditch adjacent to Route Option 1 (TN4, Figure 6.6) was also considered to provide suitable habitat for white-clawed crayfish *Austropotamobius pallipes* (Annex II, European Protected Species).

No signs of either otter, or water vole were recorded. The banks of the River Wharfe and connecting ditches along Route Option 1, were considered suitable for these species to forage along, or establish burrows in the latter case.

## Evaluation

A plan summarising the key ecological constraints is presented below (Figure 6.6).

In summary:

- Construction of the proposed route will not impact upon any wildlife sites of international, or national importance.
- Based on the distance and comparatively small scale of the proposed construction works, four of the six wildlife sites of county importance can be 'scoped-out', as they are at least 250m away.
- Brickyard Pond SINC, is located approximately 180m north-west of Route Option B and 550m north-east of Route Option A. The habitats within this site are sufficiently distant, and separated from either route by a series of man-made barriers (e.g. roads) with minimal ecological connectivity between. Indirect impacts and effects on designating species for the SINC (which are currently unknown) are considered unlikely for similar reasons, although great crested newts if present could potentially disperse from this SINC in to suitable terrestrial habitat along the western portion of Route Option 2.
- Construction of Route Option 1 would have direct impacts upon Castle Hill deleted SINC. The SINC carries a 'deleted' status as it has been re-surveyed and found not to meet the necessary criteria to warrant maintenance of the SINC designation. However, the site is likely to be of nature conservation value.
- Based on the current alignment, 0.044ha of habitat within the former SINC would be lost, with a further 0.03ha damaged. This area in total (c.0.075ha) amounts to approximately 1.75% of the area covered under the historic designation (see TN5, Figure 6.6).

- In the absence of mitigation construction of Route Option 1 will also impact upon Priority Habitat<sup>6</sup> including lowland mixed deciduous woodland, native hedgerow and coastal floodplain grazing marsh. These habitats are classified as being of high to very high distinctiveness (on the Defra 2.0 Calculator). Poor design could lead to the loss, or reduction in quality of these areas.
- Construction of Route Option 2 may also impact upon Priority Habitat subject to further assessment. The route is proposed within a developing block of broadleaved plantation woodland, which currently does not meet the Priority Habitat criteria, but likely would in 10-15 years' time (Target Note 6, Figure 6.6).
- The scheme is also likely to impact upon native hedgerow. Native hedgerow is a Priority Habitat, with more species rich sections potentially subject to further protection under the Hedgerow Regulations, 1997<sup>7</sup>. The anticipated loss of hedgerow is comparatively small (less than 50m), and restricted to Route Option 1 only. Further assessment and mitigation for hedgerow loss will be required.
- The scheme is also likely to lead to the loss of habitats of local ecological value including species poor-semi improved grassland, scrub and tall ruderal vegetation. The loss of these habitats will require compensation.
- Smaller sections of native and non-native scrub and plantation woodland, as well as hedgerow will also need to be cut back to accommodate the new path. These actions could impact upon nesting birds and will require mitigation and compensation.
- No signs of invasive plant species have been recorded, however the timing of the assessment may have inhibited the identification of annual flowering species such as Himalayan balsam which are likely to be prevalent along the banks of the River Wharfe (and its tributaries). Further assessment for invasive plant species will be required at the detailed design stage.
- Ponds with suitability for great crested newts (GCN) have been recorded within 250m of the two route options (except for a short section of Route Option 1 adjacent to the River Wharfe). If present, in these ponds, there is some potential for GCN to be occupying habitats to be developed.
- Bats have been identified as important ecological features across the two route options, with a range of species considered likely to forage and commute along either route. Significant tree or hedgerow removal, works to Tadcaster Viaduct, or the introduction of artificial lighting could have negative impacts upon these species. The extent of habitat loss is considered to

<sup>6</sup> Priority Habitat – Habitats detailed within Section 41 of the NERC Act, 2006 as being of Principal Importance to nature conservation in England

<sup>7</sup> Hedgerow Regulations, 1997

be low, but small scale changes leading to the loss or damage of existing roost sites is possible in the absence of further assessment and mitigation.

- No signs of badger have been found, but suitable foraging and sett-building habitats has been identified in association with areas of scrub, hedgerow and woodland, mostly along Route Option 1. Route construction could lead to the accidental entrapment of individuals if present, and the potential destruction or disturbance of badgers if works are within 30m of any active setts.
- Reptiles could be disturbed, or injured during site clearance works associated with route construction through areas of scrub, woodland, hedgerow and arable headland.
- The River Wharfe and connecting tributaries associated with Route Option 1 have the potential to provide sheltering and breeding opportunities for white clawed crayfish and water vole. The disturbance or loss of habitat for either of these species would be a criminal offence. These watercourses were also considered suitable places of rest for otter. Works within 50m of an active otter resting place could give rise to significant disturbance, which would be a criminal offence.

## Conclusion

- Based on the current alignment and data gathered as part of the PEA, the scheme will not impact upon any wildlife sites of international or national importance.
- Development of Route Option 1 will lead to minor habitat loss through Castle Hill deleted SINC (see TN5, Figure 6.6). Although this site no longer qualifies as being of county importance, the site is still considered likely to be important within the district. The amount of habitat to be lost or damaged within the former SINC, is approximately 0.075ha in total. Based on the size and composition of the site; the extent of this loss and damage (subject to good design) during the construction of Route Option 1 is not considered likely to undermine its ecological integrity.
- Potential indirect impacts on designating species for Brickyard Pond SINC have been identified. This SINC is a site of importance to nature conservation at the county scale. These impacts may arise during construction of Route Option 2, dependent upon a detailed review of the citation for this site (which is not currently available<sup>8</sup>). Based on the relative distance between the SINC and Route Option 2, the scale of this impact is anticipated to be low, however potential ecological impacts and corresponding adverse effects cannot be fully scoped-out at this stage.

<sup>8</sup> As of 03.03.2020

- Please note that current conclusions about likely impacts on Castle Hill deleted SINC and Brickyard Pond SINC may change depending upon the final layout. Once a more detailed alignment is available including the requirement for any regrading, storage or access routes, these should be shared with the project ecologist, with consultation held with the local planning ecologist prior to planning submission.
- Unsympathetic route design would likely lead to the loss of Priority Habitat, including trees and ground flora associated with lowland deciduous woodland (Route Option 1), native hedgerow (Route Option 1), coast and flood plain grazing marsh (Route Option 1) and rivers (Route Option 1).
- To minimise these impacts the following measures should be used to inform the detailed design of Route Option 1:
  - o Any path construction within existing areas of woodland should look to re-purpose existing desire lines, or tracks. The utilisation of 'no dig' construction methods will also be essential,
  - o A minimum 30m buffer should be left between the edge of the proposed construction zone and River Wharfe (including its tributaries),
  - o A minimum 10m buffer should be left between the edge of the proposed construction zone and any existing ponds,
  - o In locations where route construction will intersect with hedges, the final alignment should be designed to cross in areas where hedgerows are already in poor condition (e.g. over mature, or supporting existing gaps);
  - o Any direct (e.g. repointing/reinforcement) or indirect impacts (e.g. up-lighting) on Tadcaster Viaduct should be avoided; and
  - o Path construction within the areas of coastal and floodplain grazing marsh should be located along existing desire lines, or paths to minimise potential habitat loss.
- A net biodiversity gain is likely to be required as part of any future proposal. The extent of net gain relative to the current baseline is forecast to be 10%<sup>9</sup>. Therefore, any losses of priority, or higher value habitat will need to be compensated at a ratio of 7:1 with respect to area, or 5:1 where enhancement is proposed. These requirements may increase the overall footprint of the development and trigger the requirement for a larger area of land to be leased or purchased, relative to the boundaries of the path and adjoining verge (c.4-5m). A biodiversity

<sup>9</sup> [https://publications.parliament.uk/pa/bills/cbill/2019-2019/0003/cbill\\_2019-20200003\\_en\\_1.htm](https://publications.parliament.uk/pa/bills/cbill/2019-2019/0003/cbill_2019-20200003_en_1.htm)

gain calculation could be completed once a more detailed alignment has been prepared. It is recommended that this is done as early as possible during the project programme.

- It should be noted that the Environment Bill, 2019 (currently being progressed through parliament, as of Oct 2019) would require any new habitats to be created, or enhanced as part of the scheme to be maintained for at least 30 years. An allowance within any future budget will need to be made for this. Additional compensation would be required to offset the loss of other lower value habitats (e.g. poor semi-improved grassland, tall ruderal vegetation).
- Enhancement measures could include the enrichment of retained grassland along the edge of the new path with suitable wildflower seed, infill planting of defunct sections of retained hedgerow or improved habitat management. The installation of wildlife boxes, or dedicated wildlife features (e.g. reptile hibernacula, or an artificial otter holt) would also generate benefits for wildlife.
- A detailed tree survey to BS5387:2012 should be commissioned of all mature trees (over 7.5cm diameter at 1.2m height) within a 20m corridor either side of the two route options. This information should be used to inform route design and indicate key trees which will require retention and protection. This survey should be commissioned as early as possible during the design process.
- The location of any existing stands of invasive weeds should be mapped (survey best timed for spring/early summer) and overlaid on to detailed design drawings, with a suitable method statement produced to prevent their spread.
- All site clearance works will need to be scheduled outside of the bird breeding season (March to August inclusive), with the timing of works along Route Option 1 (and potentially Route Option 2) and reptiles informed by further assessment.
- Any introduction of artificial lighting in to currently unlit areas could have a significant adverse effect on the value of these habitats for nocturnal animals and in particular bats. Therefore further assessment with respect to bats will be required, coupled with detailed and informed<sup>10</sup> lighting design. It is anticipated that a mixture of day time and nocturnal assessments would be required, which would likely span 10-12 months and would need to include at least one summer season (May-Sept. inclusive).
- Further detailed assessment will be required with respect to:

<sup>10</sup> Lighting design should follow best practice - <https://www.theilp.org.uk/documents/guidance-note-8-bats-and-artificial-lighting/>

Further Ecological assessment (Phase 2 surveys)	Route option requiring further assessment
Extended Phase 1 habitat survey	Route Option 2 - following access to survey being granted by the relevant landowners
Badgers	Route Option 1 and 2
Bats – Tree surveys and activity surveys	Activity surveys only required if lighting, or works to Tadcaster Viaduct are proposed.  Tree surveys – Route Options 1 and 2
Botanical survey - Coastal and floodplain grazing marsh	Route Option 1 – section of route parallel with River Wharfe (see TN2, Figure 6.6)
Great crested newts	Route Option 1 and 2
Hedgerow assessment	Route Options 1 and 2
Reptiles	Route Option 1 (and potentially 2)
Otter / water voles / white clawed crayfish	Route Option 1. Only otter survey required if 30m buffer left between proposed construction zone and the River Wharfe and its associated tributaries

**Table 2:** Further ecological assessments required to inform detailed design of Route Options 1 and 2, Tadcaster.

- These assessments will need to be combined within a single Ecological Impact Assessment (EclA) report for the purposes of planning.
- Based on the range of further assessment to be completed including the relatively high intensity of the surveys with respect to bats and great crested newts, these are estimated to cost approximately £40-45k + VAT. These surveys will need to be completed in advance of planning being applied for. It should be noted that if protected species are confirmed and will be impacted adversely by the proposal Natural England derogation licenses may be required (which are subject to additional costs and processing time), but these cannot be determined at this stage
- The surveys and associated reporting would take approximately 12-16 months to complete from the date of instruction. As part of construction, a further 50-60k would need to be set aside to enable pre and post construction habitat enhancement works.
- Subject to sufficient pre-planning, including making budgeting and time allowances for the purchase of additional land to allow for a biodiversity net gain, and sufficient funds and lead

time for further assessment (i.e. 12-16 month) and consultation, either Route Option 1 or 2 from an ecological perspective should be deliverable.



Figure 6.1: Semi-natural woodland – Route Option 1



Figure 6.2: Dense scrub – Route Option 1

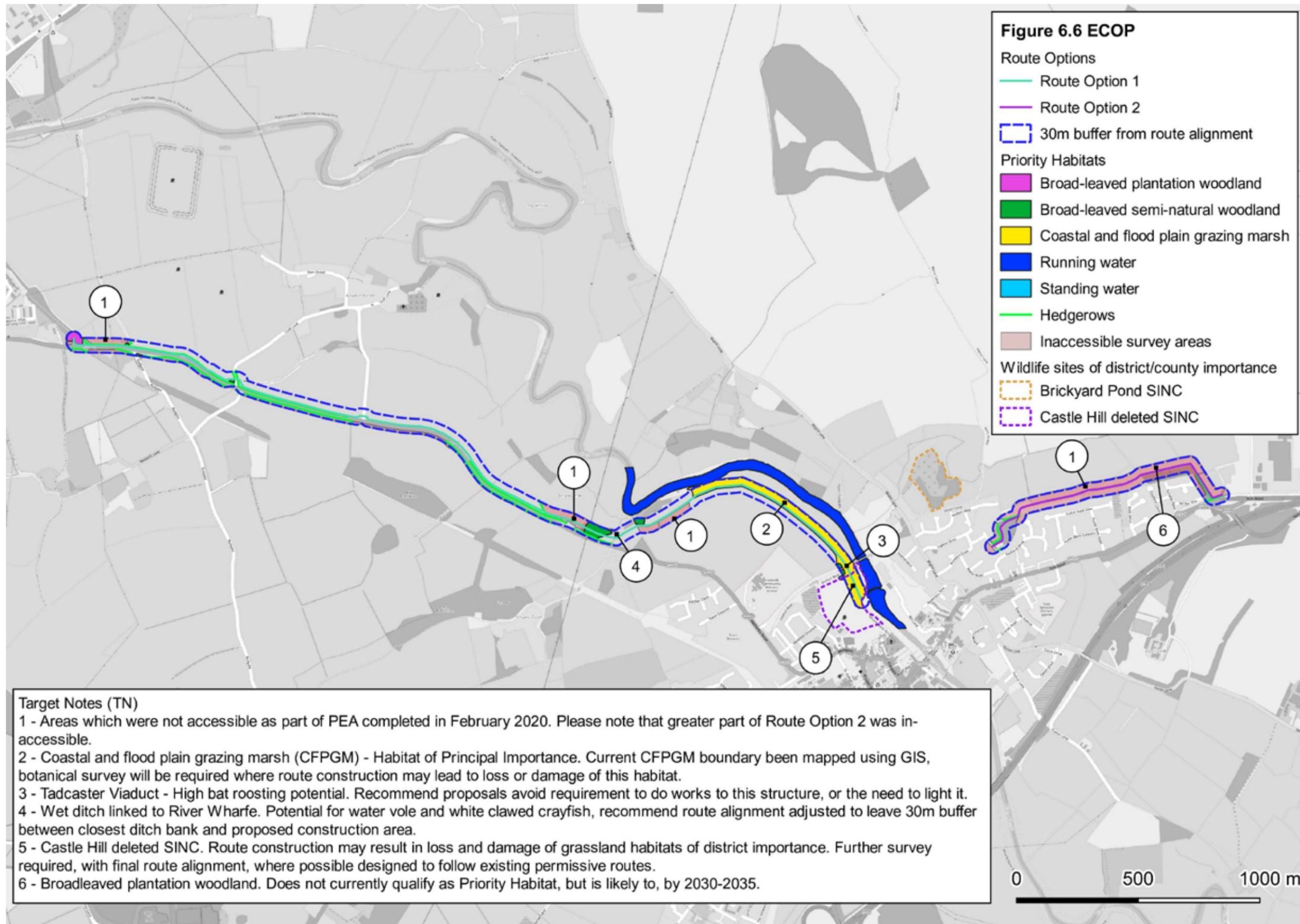


Figure 6.3: Floodplain grazing marsh (TN2, Figure 6.6)



Figure 6.4: Tadcaster Viaduct (TN3, Figure 6.6)





# Appendix 6: Designations

Prints from Government MagicMaps online application

The screenshot displays the MAGIC online application interface. At the top, the search bar contains "Tadcaster, North Yorkshire". The map shows several areas highlighted in orange, indicating designations. A legend on the left side of the screen lists various categories:

- Wild Bird General Licence Restriction Zone (England)
- Historic Statutory
  - Scheduled Monuments (England) - points
  - Scheduled Monuments (England)
- World Heritage Sites (England)
  - World Heritage Sites (England) - points
  - World Heritage Sites (England)
- Buffer Zone
- World Heritage Site
- Listed Buildings (England)
- Historic Non-statutory
  - I
  - II
  - II\*
- Registered Battlefields (England)
  - Registered Battlefields (England) - points
  - Registered Battlefields (England)
- Registered Parks and Gardens (England)
  - Registered Parks and Gardens (England) - points
  - Registered Parks and Gardens (England)
- Non-statutory

The map also shows a scale bar (0 to 0.3km), a north arrow, and a coordinate system (OSGB36, 1:10,000). An inset map in the top right corner shows the location of the study area relative to Wetherby and Tadcaster. The bottom right corner of the map contains the text: "(c) Crown Copyright and database rights 2019. Ordnance Survey 100022861."

Prints from Government MagicMaps online application

The screenshot shows the MAGIC online application interface. At the top, there is a search bar with the text "Tadcaster, North Yorkshire" and a scale of 1:5,000. The main map area displays a detailed street map of Tadcaster, North Yorkshire, with various heritage sites overlaid. A yellow hatched area is highlighted on the map, indicating a specific site of interest. The map includes labels for various locations such as "TADCASTER", "ROMAN SETTLEMENT", "Riverside Community Primary School", "Castle Hill Motte & Bail", and "Dog Kennels Wood". A scale bar at the bottom left indicates a distance of 100 meters. The interface also includes a "Table of Contents" on the left side, listing various heritage categories and their corresponding symbols. The bottom right corner of the map area contains the text "(c) Crown Copyright and database rights 2019. Ordnance Survey 100022861".

Prints from Government MagicMaps online application

← → ↻ magic.defra.gov.uk/MagicMap.aspx

**MAGiC** Tadcaster, North Yorkshire OSGB36 1:20,000

**Table of Contents**

- Marine
- Wetland
- Woodland
  - Ancient Woodland (England)
    - Ancient and Semi-Natural Woodland
    - Ancient Replanted Woodland
    - Priority Habitat Inventory - Deciduous Woodland (England)
    - Forestry Commission Legal Boundary (England)
    - National Forest Inventory (GB)
      - Assumed woodland
      - Broadleaved
      - Cloud \ shadow
      - Conifer
      - Coppice
      - Coppice with standards
      - Failed
      - Felled
      - Ground prep
      - Low density
      - Mixed mainly broadleaved
      - Mixed mainly conifer
      - Shrub
      - Uncertain
      - Windthrow
      - Young trees
    - Priority Habitat Inventory - Traditional Orchards (England)
    - Woodpasture and Parkland BAP Priority Habitat (England)
- Other
- Species
- Land Based Schemes

Coords: (445026,442382) Grid Ref:SE45024238

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## APPENDIX 7: Surfacing Options

General requirements for path surface materials for Greenway routes would be a smooth riding surface, good drainage properties, long-term durability, low maintenance, use of sustainable and/or recycled materials and suitability to sensitive locations. A range of surface options exist, which offer various advantages and disadvantages. A summary of the surface options Sustrans has experience using is included below.

### Dense Bitumen-Macadam (DBM) or Asphalt

**Cost:** £50m<sup>2</sup> (approx)

Sustrans default path surface option is a bound surface, either dense bitumen macadam (DBM) or hot rolled asphalt (HRA).

Aggregate and bitmac and mixed together and laid on a stone base to make a hard smooth path.

#### Advantages

- Smooth surface provides a high ride quality
- Non-porous surface allows water to drain away from path
- Suitable for all-weather cycling and walking
- Long lasting (20-25 years)
- Easy to repair and maintain
- Low full-life cost

#### Disadvantages

- Higher initial costs than unbound surfaces
- Can be perceived to have an 'urban' appearance
- Drainage and runoff needs to be managed
- 'Slippery' surface may be unsuitable for horses



Figure 75. Newton Abbey

### Coloured asphalt surfaces

**Cost:** Typical material cost is 1½ - 2 times that of black/grey asphalt. Laying costs are the same as black asphalt.

The asphalt / bitmac is prepared using a clear binder and coloured aggregate. To enhance the finished colour, colour pigments may be added to the mixture, creating a strongly coloured finished product. This will fade over time to the colour of the aggregate used, as bitumen is worn from the riding surface. Asphalt made with clear binder and no pigment will show the natural aggregate colour. This method lasts longer.

#### Advantages

- As with DBM/ HRA
- Can produce a range of colours, including more 'natural' tones
- In rural areas, clear or coloured asphalt can be used to blend the path surface with its surroundings (typically brown, red or golden tones)

#### Disadvantages

- Higher material costs than DBM/ HRA
- Higher initial costs than unbound surfaces
- Drainage and runoff needs to be managed
- 'Slippery' surface may be unsuitable for horses



Figure 76. Coloured asphalt Wyke Beck Way, Roundhay Park, Leeds

### Asphalt with vegetable binders

**Cost:** Comparable to coloured bituminous surfaces

This is asphalt where the bitumen is replaced by a vegetable-based binder. It is laid as conventional asphalt, however the laying temperature tends to be lower.

#### Advantages

- As with DBM/ HRA
- The oil-based bitumen is avoided, and replaced with a (renewable) plant-based binder.
- Strength and surface smoothness are the same as with bitumen-based asphalts.
- The binder is colourless, therefore colour pigments can be added to create any path colour that is wanted, and the aggregate colour will show.

#### Disadvantages

- As with coloured asphalt surfaces



Figure 77. Vegecol at Basingstoke Canal, Woking

### Resin-bonded surfaces

**Cost:** £20 - £80 per m<sup>2</sup> to lay on suitable base

A resin is used to "glue" coloured gravel, fine aggregates, concrete or recycled car tyres over a stone, bitmac or concrete base.

Yorkshire Firm KPI product *Flexipave* has been used on TransPennine Trail in Royston leading to increased use by people cycling.

NuFlex have also installed paths in Lancashire.

#### Advantages

- Hard wearing surface low maintenance
- Surface can be porous ensuring permeability to water
- Recycled tyre surface is fairly forgiving in the event of a fall
- Can be in many colours, including more 'natural' tones
- Increased grip benefits horses

#### Disadvantages

- Fairly new path surface so long term durability not proven
- Flexible surfaces can be reduce cycling efficiency and increase effort
- Needs to be installed by experienced contractor



Figure 78. Flexipave surface

Not each path material will suit every location – steep hills, waterlogged sites, poor ground conditions and environmentally sensitive locations each require particularly careful consideration, and often bespoke designs. Also the presence of utilities below the path may influence the choice of surface.

Path surfaces suitable for cyclists may not be suitable to equestrians – dust paths tend to get chewed up by horses, and while cyclists normally prefer a smoother surface, horses fare better with more grip and surface texture. Having a parallel grass path for equestrians might be more useful rather than finding a surface material suitable to both cyclists and equestrians.

Detailed conversations with land owners, user groups and planners will be needed to determine the right surface materials and technical approach.

### Surface dressing: tar spray and chip

**Cost:** £15 - £35/m<sup>2</sup> on top of existing base

This treatment is applied to an existing bound surface, and comprises a thin layer of chippings applied to a surface dressing adhesive. It can also be directly applied to a stone base. It provides the appearance of loose gravel (in the colour of the gravel), however it is firmly held in place, and adds grip. This surface treatment is increasingly seen on roads, including on the approach to traffic lights or roundabouts, where increased skid resistance is wanted.

#### Advantages

- Can be used to change the colour of an existing (grey) asphalt path
- Can increase the grip of the path, making it more suitable for horses
- Can be used to increase skid resistance in particular areas such as on a gradient or sharp bend

#### Disadvantages

- Only suitable on existing smooth and even surface
- Any loose chippings can be dangerous to people cycling
- Resins can be very susceptible to failure if they are laid in the incorrect conditions, usually when too cold or wet
- Additional material and labour cost added to cost of the initial surface



Figure 79. Tar spray & chip surface\_(Paths for All)

### Self-Binding Surfaces eg. limestone dust

**Cost:** £15 - £30 m<sup>2</sup>

Self-binding gravel paths are versions of the standard limestone dust surface. The surface remains loose and dusty, but does ‘harden’ to the point of becoming impermeable in some heavily trafficked projects.

Require a sub-base 75 to 150mm thick. There are many different products available, and most are only marketed regionally – contractors and builder’s merchants should have local information.

#### Advantages

- More ‘natural’ looking finish that blends in with surroundings
- Cheaper to install than sealed surface
- Easily repaired

#### Disadvantages

- Higher whole-life costs than sealed surfaces due to increased maintenance requirements
- Unsuitable for locations where erosion likely to take place, such as slopes
- Might not be suitable for cycling (and walking) all weather
- Issues of overgrowing vegetation, ponding on water and pothole development



Figure 80. Toptrec surface, Scotland

### No dig construction

**Cost:** £ to £ m<sup>2</sup>

Where ground conditions prevent excavation such as over tree roots, the path may need to be constructed on the existing ground surface. This may be conditioned in Planning applications.

Interlocking plastic grids are laid on top of the existing ground and are filled with stone, the path is then finished with a base course and porous wearing course.

#### Advantages

- Porous, allowing drainage through to tree routes
- Avoids tree root severance or soil compaction, which can be seriously detrimental to tree health
- Cellular retention products can allow build-up of steep slopes

#### Disadvantages

- Not likely to be suitable for utility cycling except over very short sections



Figure 81. CellWeb

### Bound or unbound surface - rural path cost comparison

Sustrans initially surfaced many off-road sections of the NCN with unbound limestone or granite dust surfaces, which were considered most economic and more environmentally friendly at the time.

Experience over the last 15 to 20 years or so has shown however that already significant path sections have suffered erosion, rutting, ponding or other damage that make these paths very unattractive and unusable in very wet weather conditions.

Annual maintenance requirements for unbound surfaces are generally higher than for bound surfaces.

#### Bound surface whole-life costs

£30/m<sup>2</sup> without ancillaries. Path surface lasts 25–30 years, then major repairs and additional wearing course required (approx £15/m<sup>2</sup>). Annual maintenance cost £1-2 per m<sup>2</sup> per year. Therefore total cost for 50 year life-cycle per m<sup>2</sup> of path construction (at current cost):

- Initial construction £30
- Repair after 25 yrs £15
- Annual maintenance (50 x £1.50) £75
- **TOTAL £120/m<sup>2</sup>**

#### Unbound surface whole-life costs

£25/m<sup>2</sup> without ancillaries. Path surface lasts 12 years, then requires thorough repair / resurfacing (approx. £15/m<sup>2</sup>). Annual maintenance costs are higher than for bound surfaces, around £2 per m<sup>2</sup> per year. Therefore total cost for 50 year life-cycle per m<sup>2</sup> of path construction (at current cost):

- Initial construction £25
- Repairs after 12, 25 & 37yrs £45
- Annual maintenance (50 x £2) £100
- **TOTAL £170/m<sup>2</sup>**

## APPENDIX 8: Signage and Access

The proposed route needs to be sufficiently well signed so that it is easy to follow in both directions, but also to find from key access points along the way. The signing regime for this section also needs to bear in mind the signage design for the wider NCN 665. Signs will need to be adaptable so that they can be amended with minimum cost to include potential route extensions. Overall, it should be aimed at a clear and consistent information provisions whilst avoiding visual clutter. There will also be a need for a mixture of signing on and off the highway.



Figure 82. Direction sign with arrow



Figure 83. Pointing direction sign



Figure 84. Shared Use sign



Figure 85. Shared Use / Consideration sign



Figure 86. Covered information board giving route and local information



Figure 87. Example of signs set on a standard highway pole



Figure 88. Signs on wooden pole

Signs should be placed at every access / exit point along the route. At those points where the track intersects with routes to nearby settlements / places to visit, signs (with distances) should be used.

Sign styles and exact locations will need to be agreed with the relevant Highways and Public Rights of Way teams.

The signs opposite are cycle direction signs as specified in The Traffic Signs, Regulations and General Directions (TSRGD). These should be used to create a signing schedule during detailed design, but variations can be made for off highway locations if there is a desire to reduce visual impact. It must be remembered that for signing to work well, visibility and consistency are important.

The route would be incorporated into the National Cycle Network numbering system and so be included on NCN mapping and publicity.

The Track is open (for most of the part) for cyclists, and pedestrians and it is important that all users realise that the others have a right to be there and respect each other. On some routes Sustrans have erected signs to promote this such as the one shown adjacent on the Nidderdale Greenway between Harrogate and Ripley.

As well as formal direction signs, there will be other opportunities for marking the route such as mileposts and information boards. Map-based information boards could be placed at selected access points to help people appreciate what opportunities they have and to familiarise themselves with the locality. These boards should be positioned to face the direction of travel. Weatherproof leaflet holders

may also be provided. The longevity of information provided needs to be considered in relation to the likelihood of updating and general maintenance. Suggested locations for information boards should be suggested in detailed design. These signs have not been detailed in this report.

Additional Highway Warning signs can be useful at the approaches to cycle crossing points. These have not been detailed here but may be requested by the Local Authority.



Figure 90. A Shared Use sign utilising a bollard



Figure 89. Warning of Cyclists sign

It is important that the route can be used by as many groups as possible - entrance points to the paths need to allow for access by pushchairs, wheelchair and mobility scooter users on the majority of this particular route. Antisocial behaviour and unlawful access by vehicles, particularly motor bikes, can sometimes become a problem. To some extent this can be addressed by installing access controls such as bollards, 'A'-frames or lockable gates. As some of these types of physical barriers can be too restrictive for the above user groups, Sustrans' standard practice is to avoid their installation wherever possible.

It is therefore recommended at the current time that physical access barriers (apart from a minimum number of bollards, as discussed below) should be avoided.

At the planning application or public consultation stage, there may well be pressure to provide some sort of access control that more robustly prevents motorcycle use and A-frames may be suggested. This must be resisted if possible. A-frames can blight the scheme for many users, and almost all legitimate users will be inconvenienced by them. Even pedestrians will have to shuffle through the barriers and some mobility impaired pedestrians might be excluded altogether.

Other alternatives are available and the full range can be seen in Sustrans' "Guide to Controlling Access on Paths". Examples of arrangements used successfully are included opposite These include:

- Single bollard
- Staggered bollards
- Chicanes
- Adjustable A-Frames

It must also be remembered that, in many cases, access will also need to be maintained for maintenance vehicles.



Figure 91. Example of staggered bollards



Figure 92. Example of two bollards



Figure 93. Example of single lockable bollard



Audley Road filtered neighbourhood, artist's impression Source: Sustrans

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