Ely- Littleport Feasibility Study

Ely to Littleport walking and cycling routes

06 February 2024

Cover photo credit: Lee Wynd/Sustrans

About Sustrans

Sustrans is the charity making it easier for people to walk and cycle. We connect people and places, create liveable neighbourhoods, transform the school run and deliver a happier, healthier commute. Join us on our journey. **www.sustrans.org.uk.**

Registered Charity No. 326550 (England and Wales) SC039263 (Scotland).

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.

How we work

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

— **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.

What we do

Contact us

To find out more, please contact (martin.philpott@sustrans.org.uk)

All photos: Lee Wynd/Sustrans or Nigel Brigham/ Sustrans unless otherwise stated.

Document Number	14922
Revision Number	Rev 1
Date of Revision	6th February 2024
Purpose of Issue	General update with third option added
Author	Lee Wynd, Thom Haslam, Nigel Brigham, Hannah Lewis
Date of Issue	6th February 2024
Checked	Nigel Brigham
Date of Check	25th January 2024
Approved	Martin Philpott
Date of Approval	2nd February 2024

Contents

1. Executive summary

This report looks at potential new walking and cycling routes between Ely and Littleport. Existing links between the communities are dominated by the A10, the railway, the River Great Ouse and Lynn Road/ Ely Road (which is the former route of the A10 before the Ely Bypass was constructed). Most of the roads carry motorised traffic at volumes, speeds and conditions including the A10 itself, that are likely to be uncomfortable for many people considering walking or cycling.

East Cambridgeshire District Council (ECDC) are keen to provide better facilities for local residents, visitors and Sustrans is keen to provide a link to National Cycle Network Route 11, which currently ends in Ely and Little Downham.

The report considers three alignments, broadly speaking the A10 corridor, the river Great Ouse flood banks and the Lynn Road/ Ely Road corridor. All of the options involve the use of private land and detailed discussions will be needed with numerous landowners before any alignment can be finalised. All options also need to link with developments in both Ely and Littleport, because facilities provided as part of developments are needed for the alignments.

The report also investigates the existing provision within Littleport and Ely. Without good provision from people's doorsteps (or all the way to key destinations) some journeys will remain challenging, regardless of the rest of the route.

None of the options are easy and there is a good case for more than one route. The railway crossings needed for all options provide major challenges and form significant parts of this study.

Whilst Option 2 could be an attractive route it is considered too indirect (particularly for the northern part of Ely) and has too many challenges to be recommended.

Options 1 and 3 both build on infrastructure that is being delivered or is planned as part of new developments in Littleport and Ely, with Option 1 being the most consistent with those developments in terms of following the A10 corridor. It does, however, require significant amounts of land and funding. Option 3 would be cheaper and therefore better value for money, but it is less direct than Option 1 and requires a significant change to usage of the existing level crossing on Lynn Road. This would give those walking, wheeling and using public transport a significant advantage and would make good use of the A10 as a bypass, but clearly it will need community engagement and important choices to be made.

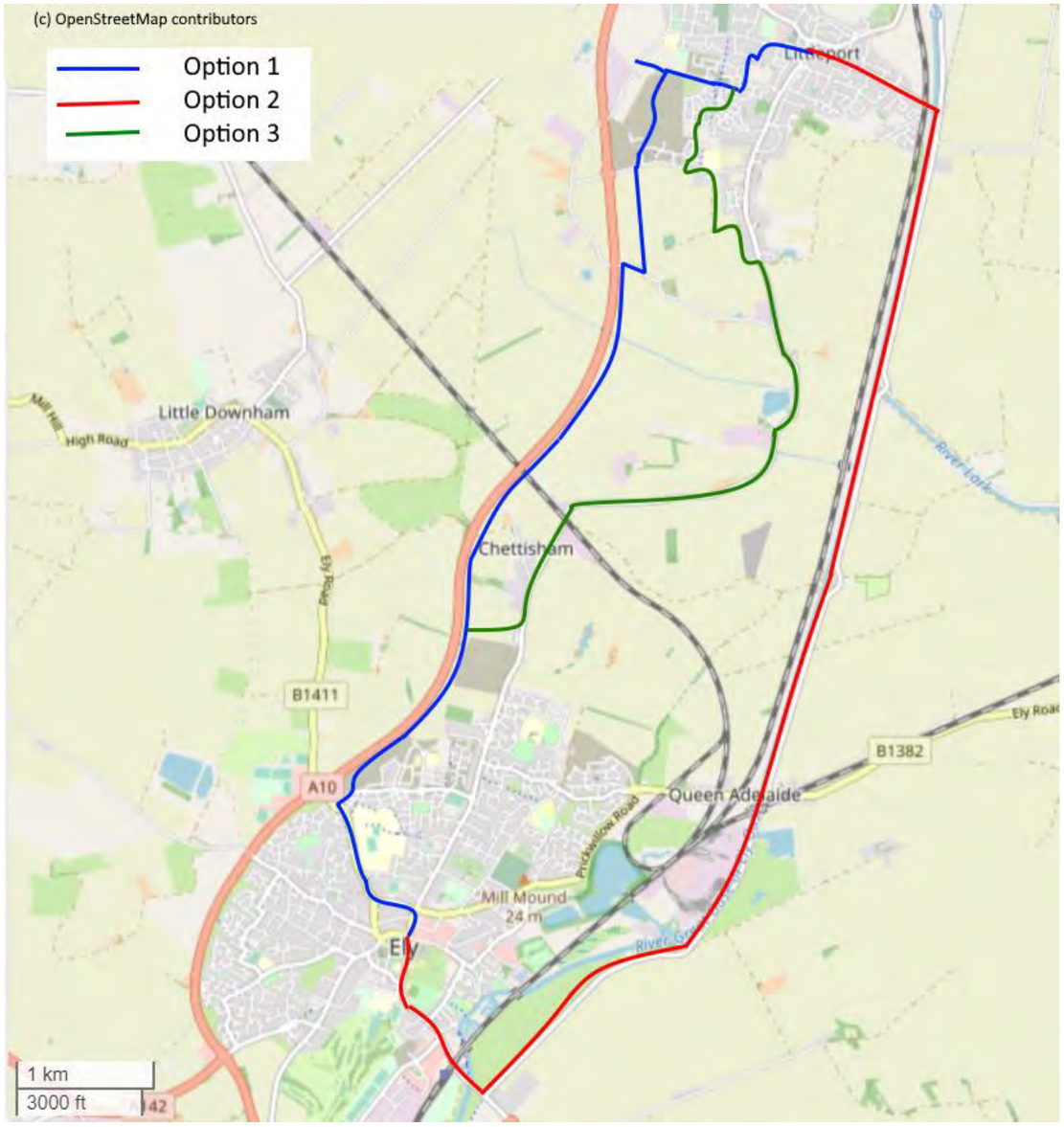


Figure 1 Route Options

2. Introduction

Sustrans has been asked to look at options for new walking and cycling routes between Ely and Littleport, in East Cambridgeshire. This request has come from ECDC who are looking to improve local facilities and want to progress plans for routes, so that when funding becomes available, they can bid for funding. The objective of the report is to identify the advantages and disadvantages of the various options, so that further consultation can be had with the local community, local employers, and landowners to consider the best way forward.

2.1 Background to the project

There is a well established cycling culture in Cambridgeshire generally, given the topography especially and the presence of the University of Cambridge. Links between Ely and Littleport were amongst the top three most requested walking and cycling routes in ECDC's Cycling and Walking Routes Strategy and at approximately 8.5km between the two population centres, this is a distance eminently suitable for cycling and walking for both commuting and leisure.

In addition, national policies have been giving high priority to walking and cycling as well as offering the potential for major funding in future.

Sustrans has also been reviewing the National Cycle Network and this review noted that the National Cycle Network is a local asset with incredible reach, connecting people and places across the UK and providing traffic-free spaces for everyone to enjoy.

The review identified that the Network is used by a broad range of people – walkers (for over half of journeys) and people on cycles, as well as joggers, wheelchair users and horse riders – but there is a lot more we can do to make it safe and accessible for everyone. The network's routes have great potential for improvement. The character and quality varies hugely, and whilst 54% of the network is good or very good, 46% is poor or very poor.

The review included a vision for a UK-wide network of traffic-free paths for everyone, connecting cities, towns and countryside, loved by the communities they serve.

2.2 Purpose of the project

- To describe the current problems, obstacles and propensity to walk and cycle in the area.
- To identify at least one high quality route that can be delivered between Ely and Littleport.
- To consider ways to improve links within both communities.
- To rank the route options in terms of benefits and costs and to consider ways to deliver improvements, including timetables and costings.

3. NCN principles

3.1 Why we have the NCN 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 enough to encourage cycling for all ages and abilities.

It should have good visibility to comply with design guidance to allow for comfortable sharing of the carriageway.

Signs and road markings should highlight the Network.

Figure 3.1: Safe crossing for all, helping continuity on traffic free routes (Photo: Sustrans)

Principle 2:

Wide enough to accommodate all users

Width of a route should be based on the level of anticipated usage, allowing for growth. A minimum width of 3m shall be delivered.

Where it is not possible to deliver this, all other avenues should be fully explored before path widths are reduced.

Physical separation between users should be considered where there is sufficient width and a higher potential for conflict between different users.

Structures should be designed to maximise movement space. A minimum path width between parapets of 4m shall be maintained.

Figure 3.2: At grade crossing of side road with separation for traffic, cyclists and pedestrians (Photo: Sustrans)

Principle 3:

Designed to minimise maintenance

A maintenance plan should be put in place during the development process.

Construction quality should be maximised to minimise future maintenance needs.

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.

Figure 3.3: Easily maintained (Photo: Sustrans)

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 route.

Signage should direct users of 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.

Figure 3.4: Clear signing (Photo: Sustrans)

Principle 5:

Smooth surface that is well drained.

Path surfaces should be suitable for all users, irrespective of age, ability or mobility needs.

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 number of path users.

Figure 3.5: Smooth, tarmac surface, accessible for all non-motorised users (Photo: Sustrans)

Principle 6:

Fully accessible to all legitimate users.

All routes should accommodate a cycle design vehicle 2.8 metres long x 1.2metres 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.

Figure 3.6a: Accessible for all (Photo: Sustrans)

Figure 3.6b: Corridors that provide continuity, that create short-cuts and are away from traffic, in attractive environments (Photo: Sustrans)

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.

Figure 3.7: Safe for all (Photo: Sustrans)

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 a slow approach speed to a crossing, have enough space for several users to wait safely.

Signalised road crossings should be designed to minimise the wait time for NCN users. Where possible advanced notification systems should be used.

All grade separated crossings should provide step-free access.

Figure 3.8: Safe crossing for all (Photo: Fig 10.4 from LTN 1/20)

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.

Figure 3.9: Attractive and interesting areas (Photo: Sustrans)

4. Guidelines and Standards

The most relevant guidance is listed on the Sustrans website at https://www.sustrans.org.uk/for-professionals/infrastructure . Local Authority Guidance and policies are also relevant. Examples of relevant guidance are given in this chapter.

General guidance for England

- **Department for Transport LTN 1/20 Cycle Infrastructure Design**
- **Highways England CD 195 Designing for cycle traffic**
- **Department for Transport Local Transport Notes**
- **LCWIP Technical Guidance for Local Authorities (DfT).**

Figure 4.1 - Guidance documents

Low Traffic Neighbourhoods

- Sustrans introductory guide to low-traffic neighbourhood design
- Manual for Streets
- Slow Streets Sourcebook (Urban Design London)
- Streetscape Guidance (Transport for London)
- Achieving lower speeds: the toolkit (TfL).

Local Authority Guidance and Policies

As the Strategic Transport Authority for Cambridgeshire and Peterborough, the Combined Authority published a Local Transport and Connectivity Plan in November 2023. The plan in reference to Active Travel includes the following:

" *We will deliver a clear package of policies, investments, and interventions aimed at ensuring that government's commitments within Gear Change are achieved. This includes a target that by 2030 at least half of all journeys in our towns and cities are walked, wheeled, or cycled. We will prioritise active travel whilst improving accessibility and connectivity for non-motorised transport where appropriate".*

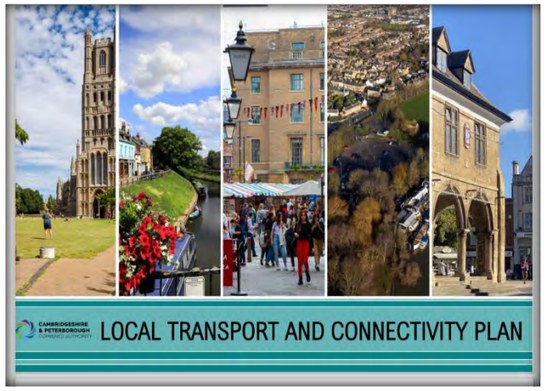


Figure 4.2 – Cambridgeshire and Peterborough Local Transport and Connectivity Plan

The East Cambridgeshire Local Plan sets out future plans for the District and includes the following within section 2.4.1 Spatial Vision:

"Better cycling and pedestrian facilities and links will be provided, including segregated cycle routes along key routes linking towns and villages……

"There will be better access to the countryside and green spaces for local communities which helps to improve people's quality of life…"

Figure 4.3 – East Cambridgeshire Local Plan

Within Littleport, the Local Plan identifies approximately 796 dwellings on 'infill' sites within the existing built-up area between 2013 and 2031. Further to this there are several areas identified for further development:

- Land west of Woodfen Road – up to 250 dwellings and up to 7 hectares of employment.
- Land west of Highfields – up to 300 dwellings adjacent to the existing Highfields housing estate, plus a potential future site between this and Grange Lane to the south.
- 1.6 hectares of B1 and B2 on land north of Wisbech Road.
- 4.77 hectares of B1/B2/B8 on land north of Wisbech Road.

With these proposed additions to Littleport there will only ever be increasing demand for better links to Ely, to access employment, leisure, and commercial facilities, and for its more numerous rail links to

destinations such as Norwich, Peterborough, Ipswich and Stansted Airport, plus other destinations further afield.

The Local Plan allocation areas for Littleport, Ely, Chettisham and Queen Adelaide are shown in figures 4.4 to 4.7. As can be seen, there is a lot of proposed expansion and activity in this area between Littleport and Ely.

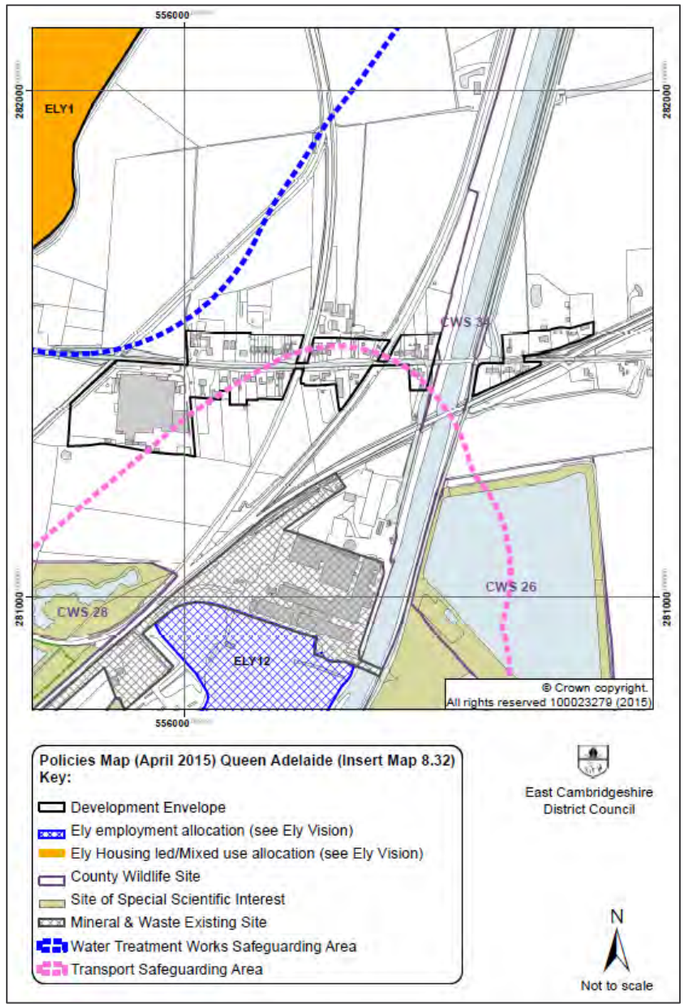


Figure 4.4 - ECDC Local Plan – Queen Adelaide Allocation Areas

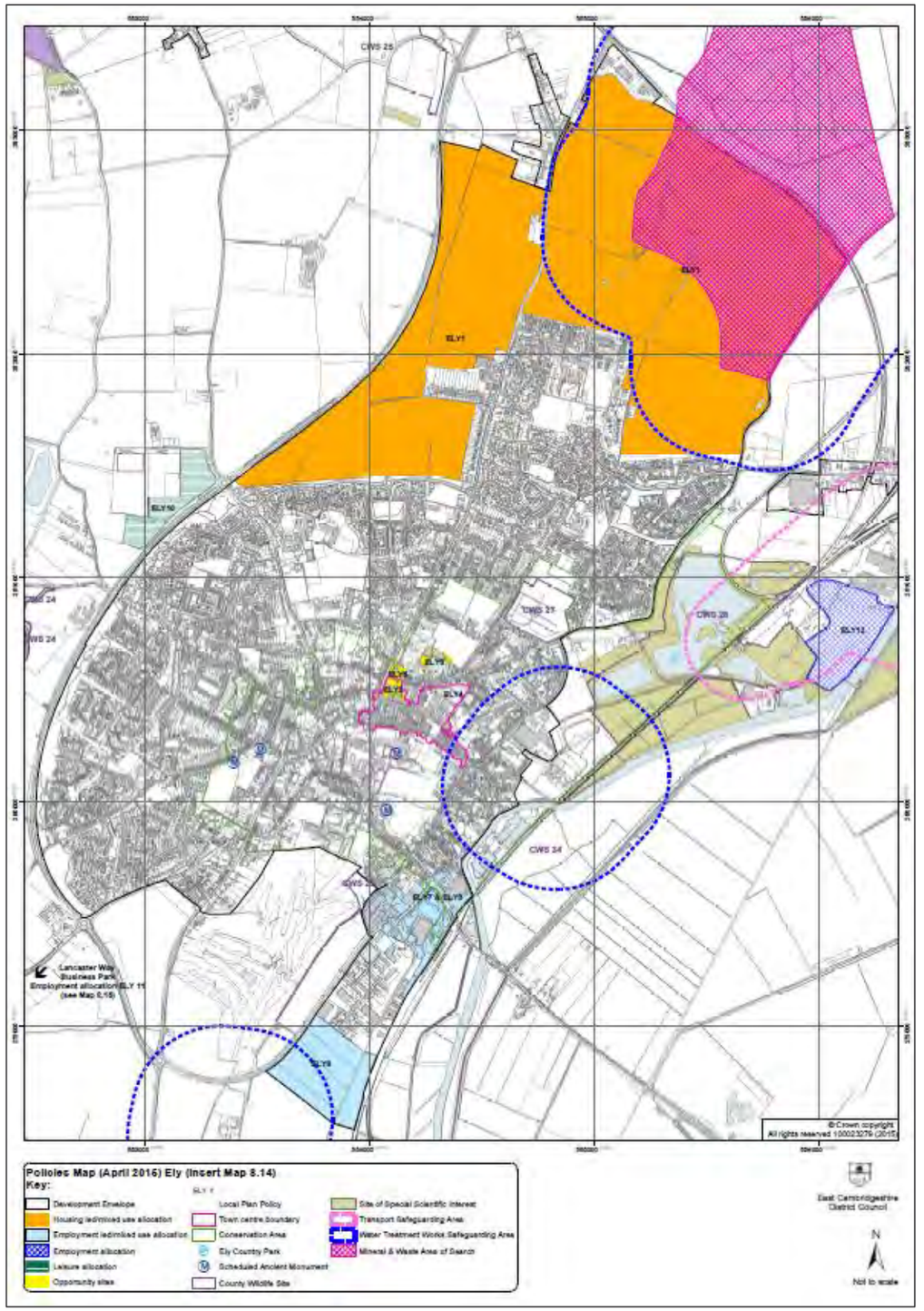


Figure 4.5 – ECDC Local Plan – Ely Allocation Areas

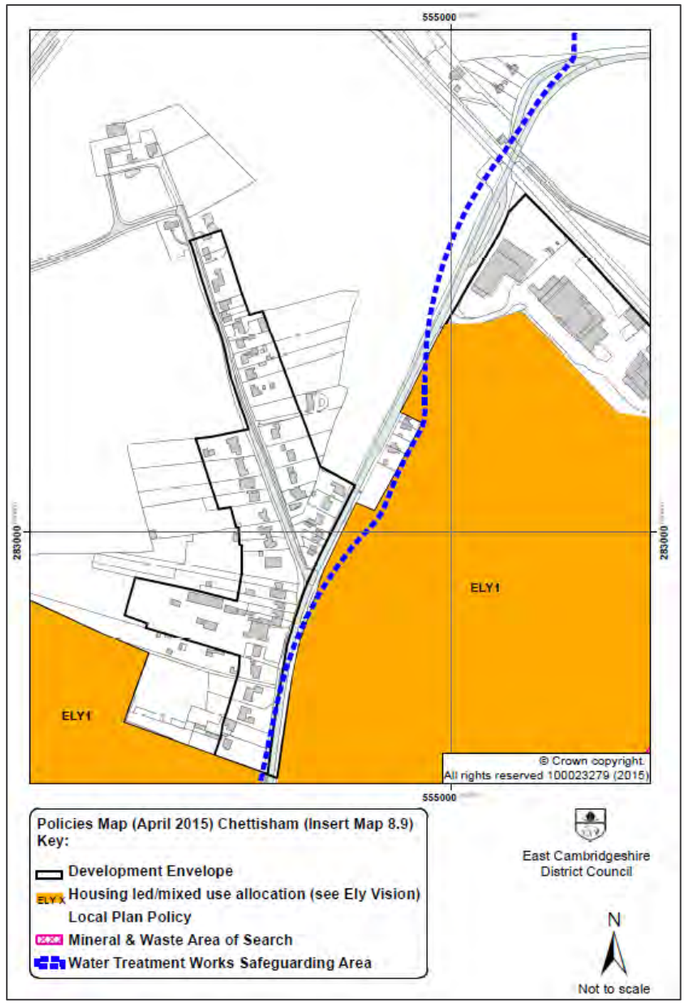


Figure 4.6 - ECDC Local Plan – Chettisham Allocation Areas

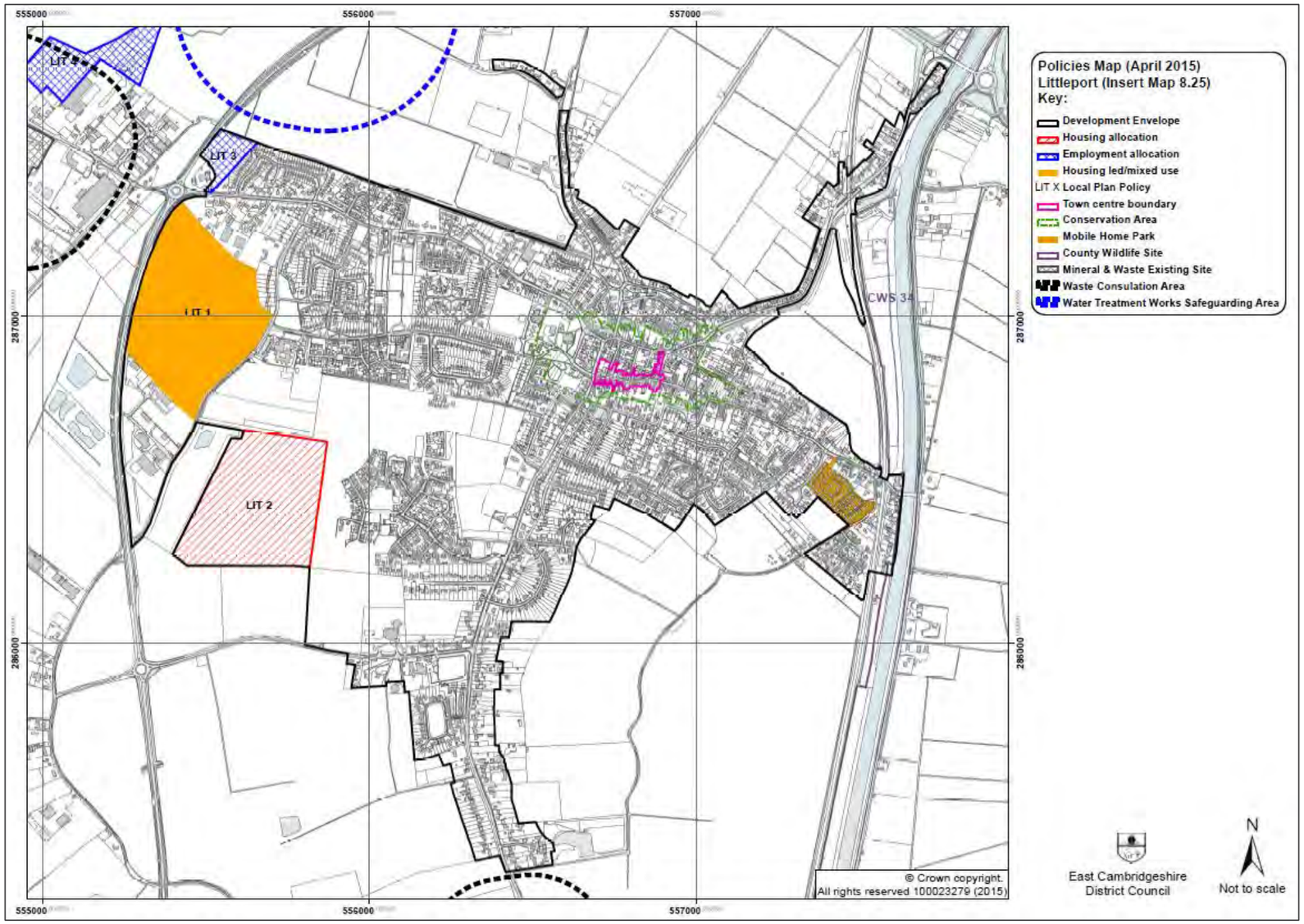


Figure 4.7 – ECDC Local Plan – Littleport Allocation Areas

East Cambridgeshire has produced a Cycling and Walking routes strategy which was informed by public consultation in 2020. It includes information on the responses and an analysis of all the options put forward, such as the many proposed cycling and walking routes as shown below.

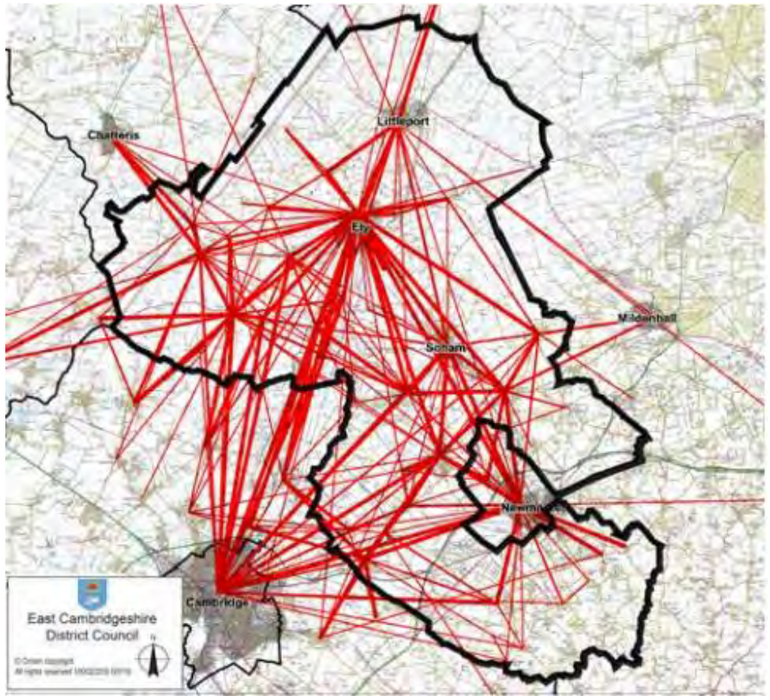


Figure 4.8 - Cycling Route Options from East Cambridgeshire Cycling and Walking Routes Strategy

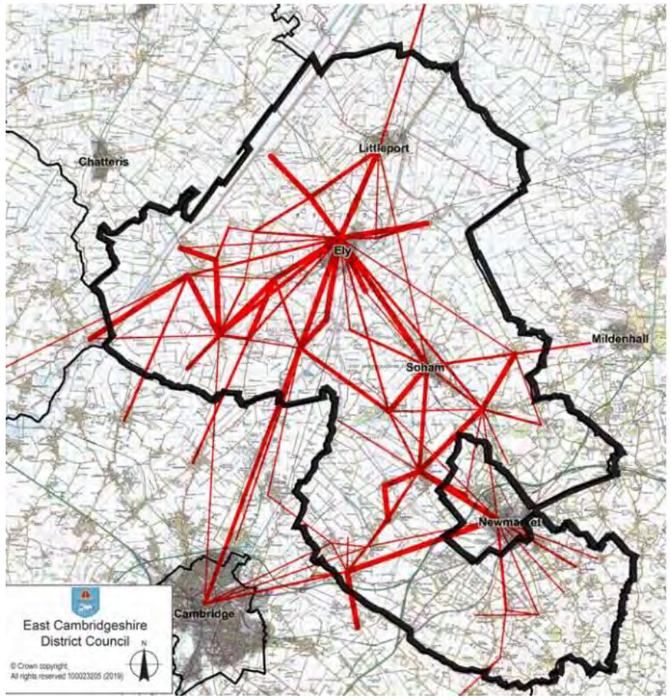


Figure 4.9 - Walking Route Options from East Cambridgeshire Cycling and Walking Routes Strategy

The report shows clear interest and demand for both cycling and walking route options between Littleport and Ely.

LTN 1/20 Cycle Infrastructure Design and its implications for design options.

The Government set out its ambitions to see a *"step change in cycling and walking in coming years"* in Gear Change – A bold vision for cycling and walking (Department for Transport, July 2020). The document sets out key design principles, which are the basis for the updated national guidance for highway authorities and designers, given in LTN1/20.

Figure 4.10 – LTN 1/20 Key design principles

Although LTN 1/20 is issued as guidance its adoption will also be a condition for Government funding of all local highways investment, as well as new cycle infrastructure.

"It will be a condition of any future Government funding for new cycle infrastructure that it is designed in a way that is consistent with this national guidance.

The Department for Transport will also reserve the right to ask for appropriate funding to be returned for any schemes built in a way which is not consistent with the guidance. In short, schemes which do not follow this guidance will not be funded." (Extract from Foreword LTN1/20)

LTN 1/20 has therefore been taken as the starting point when considering design options for this scheme. Some of the major implications in relation to the space needed for cycling, to ensure that the guidelines are met are:

- Properly protected bike lanes, cycle-safe junctions and interventions for low-traffic streets are needed for the whole scheme, with little scope for exceptions.
- Cycle infrastructure should be accessible to everyone from 8 to 80 and beyond.
- On urban streets, cyclists must be physically separated from pedestrians and should not share space with pedestrians.
- Cyclists must be physically separated and protected from high volume motor traffic, both at junctions and on the stretches of road between them.
- Cycle infrastructure should be designed for significant numbers of cyclists, and for non-standard cycles.

LTN 1/20 notes that physical separation of cyclists from motor traffic can be an option in all situations but may not be necessary at lower speeds and lower volumes of traffic. This is an important factor in scheme design, because measures that reduce traffic volumes and/ or speeds can change the requirements for provision for cyclists.

LTN 1/20 has many other implications for cycle infrastructure design and maintenance and needs to be read as a whole, to fully understand the required design standards (including the Cycling Level of Service Tool and Junction Assessment Tool). In order to justify expenditure on this scheme the whole scheme has to be to a good standard and there should be no Critical Fails using the Cycling Level of Service Tool, with junctions to a good standard for all movements.

Figure 4.1 of LTN 1/20 (below) shows the appropriate protection from motor traffic on highways, with the aim being that traffic flow, speed and type of separation should fit within the green area.

The space needed for cycling needs to allow for pedestrians and needs to be separated from motorised traffic by the desired or absolute minimum separation as outlined above, with absolute minimum a last resort.

Provision suitable for most people

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

Provision suitable for few people and will exclude most potential users and/or have safety concerns

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

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

Figure 4.11 – LTN 1/20 provision specification

LTN 1/20 generally recommends that cyclists are segregated from pedestrians but suggests that:

"Shared use may be appropriate in some situations, if well-designed and implemented."

The guidance on widths for rural routes is given in Table 6-3, which states that for routes carrying less than 300 pedestrians per hour and less than 300 cyclists per hour the recommended minimum width is 3m. This is the width that has been used throughout for this study. In the villages cyclists need to be segregated from pedestrians and a width of 3m has also been used for a bi-directional cycleway reduced to 2.5m at pinchpoints.

There is limited published data on traffic flows in this area, but there are DfT publish counts on the A10 Ely Bypass, both in the vicinity of Ely and Littleport, on Ely Road just east of Queen Adelaide and on Prickwillow Road in the northeast of Ely. Count information is shown below:

A10 – between Cambridge Road and Witchford Road (Estimated based upon 2018 count)

Motor Vehicles	HGV %	Pedal Cycles
20,160	10%	6

A10 – between Witchford Road and West Fen Road (Estimated based upon 2018 count)

Motor Vehicles	HGV %	Pedal Cycles
18,817	7%	0

A10 – between Wisbech Road and Camel Road (Estimated based upon 2018 count)

Motor Vehicles	HGV %	Pedal Cycles
7,805	11%	0

Ely Road (2009 count)

Motor Vehicles	HGV %	Pedal Cycles
2,907	4%	21

Prickwillow Road (2019 count)

Motor Vehicles	HGV %	Pedal Cycles
3,804	2%	46

Counts are shown from 2019 and earlier, as the pandemic impacts on traffic levels on 2020 are likely to show a 'false' decline due to the unique circumstances and impact that the various lockdowns had on these counts.

On this scheme there are roads with 60mph and 30mph limits and this is very significant in terms of the spacing needed between cycleways and the carriageway as is shown in Table 6-1:

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

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

Figure 4.12 – LTN 1/20, separation from vehicles depending on speed

For rural roads the speed limit is generally 60mph or 50mph, which means that any path must be at least 1.5m from the edge of the carriageway. Paths also must be kept well clear of hedges, which could be another 2m, so with a 3m wide path that means that at least 6.5m of highway verge space could be needed to construct a new path.

There are also significant issues with establishing safe crossings of rural roads. Table 10-2 states that for a 60mph road the only suitable crossing suitable for most people is a grade separated crossing, so any crossings of such roads have not been considered.

For a 40mph or 50mph road an arrangement whereby one lane is crossed at a time, with a central refuge, is not completely ruled out, but it is considered to not be suitable for all people and "will exclude some potential users and/or have safety concerns."

Uncontrolled crossings of 30 mph roads are considered an option within LTN 1/20 Table 10-2 and so speed limits are a significant factor for the roads.

Healthy Streets

Healthy Streets is a measure of how healthy our environment is. It is a recognition that "Every decision we make about our built environment, however small, is an opportunity to deliver better places for people to live in and thereby improve their health." (https://www.healthystreets.com/what-is-healthy-streets)

There are 10 evidence based Healthy Streets indicators as shown below and streets can be assessed and given a score, which can be audited.

The expectation is that Local Authorities and designers should aim to improve the Healthy Streets score on their streets and for any new infrastructure an assessment should be made before design work starts and after a scheme has been delivered. To properly assess a street, traffic flow data is needed, and the professionals involved should have been trained in the process.

For this study it is premature to conduct Healthy Streets Audits, but as options are developed Healthy Streets audits of the village streets should be completed, with a clear aim to improve the six.healthy streets score on the streets concerned.

Figure 4.13 – Healthy Streets factors

5. Issues with the existing Routes.

There is currently no existing connection on the National Cycle Network between Littleport and Ely – there is an on-road, unsegregated cycle section north, along Lynn Road from the centre of Ely but this finishes at the roundabout with Cam Drive. Sustrans produced an LCWIP proposal for Cambridgeshire County Council for a link from the Railway Station at Angel Drove north along Back Hill, past the Cathedral and then along Lynn Road, to join with a future shared-use cycling and walking route provided from Section 278 funding, but these are currently the only reasonably developed proposals in the area. Littleport currently has no NCN infrastructure, nor any other cycling-specific features.

The three existing methods of travel between Littleport and Ely are the A10 Ely Bypass, Lynn Road (the former A10 before the bypass was opened) and Queen Adelaide Way / Branch Bank, to the east of the river Great Ouse from both settlements, as well as the railway. There are existing public footpaths and bridleways throughout the area but only one of which connects directly, following the Queen Adelaide Way / Branch Bank route on the top of the existing flood bank.

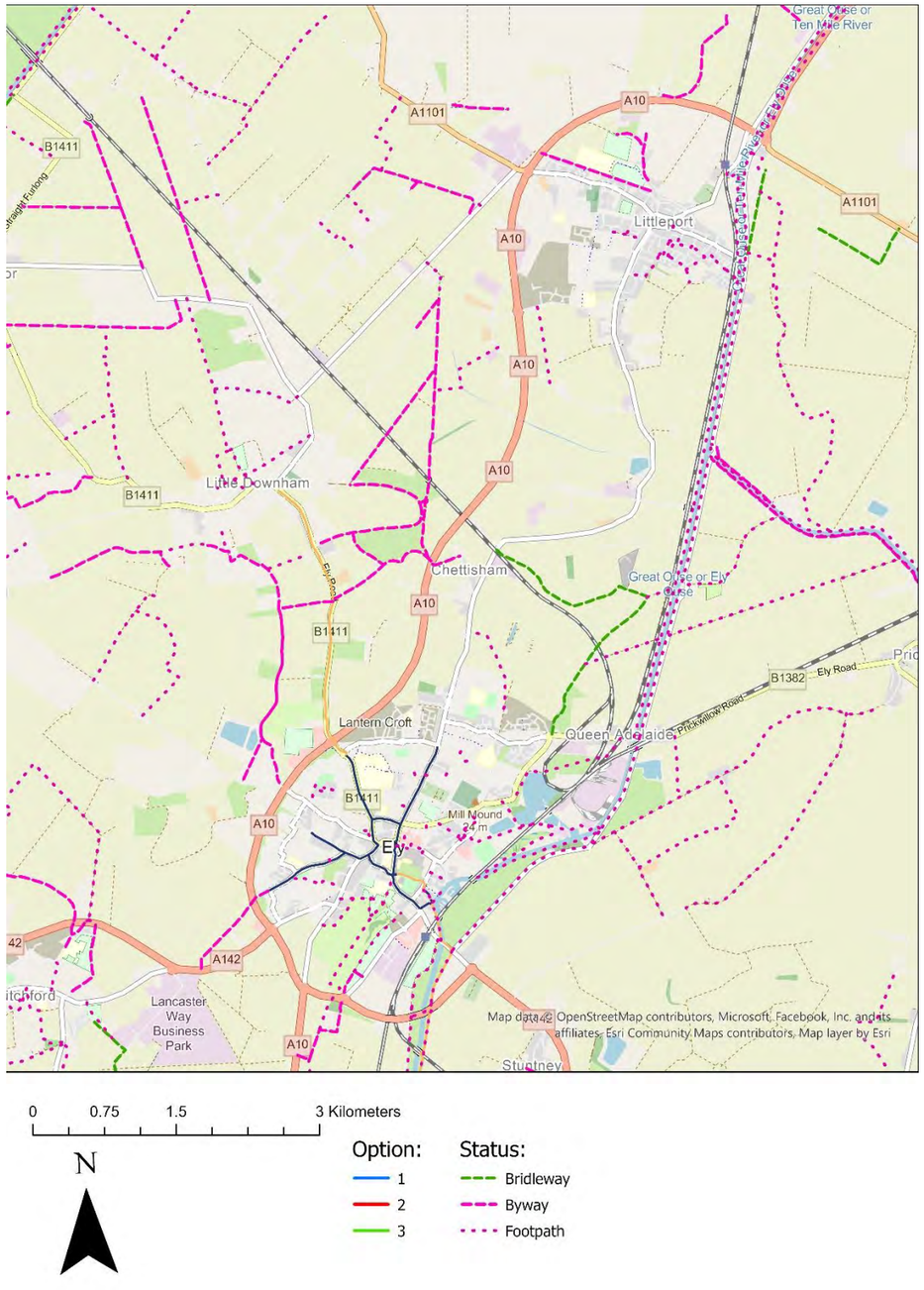


Figure 5.1 Existing public rights of way and National Cycle Network.

Other factors to consider with the existing routes include:

- Topography. This can be significant for cycling and whilst Ely is on higher ground topography is not a major factor in this part of Cambridgeshire, apart from Back Hill and Fore Hill in Ely.

- Traffic safety. The A10 is not a suitable location for walking or cycling and there are high vehicle numbers, as well as high numbers of HGVs, on the major routes including Lynn Road.

- Points of interest. These are clearly focused on Ely – a significant destination for local trips for work, education, utility, and leisure trips. This is increased by the additional flexibility of travel from Ely station, versus the more limited destinations and times from Littleport.

- Travel time. Within the study area car travel is currently quicker than by cycling, due to the lack of cycling infrastructure and indirectness of the safest routes.

These factors are illustrated on the following pages.

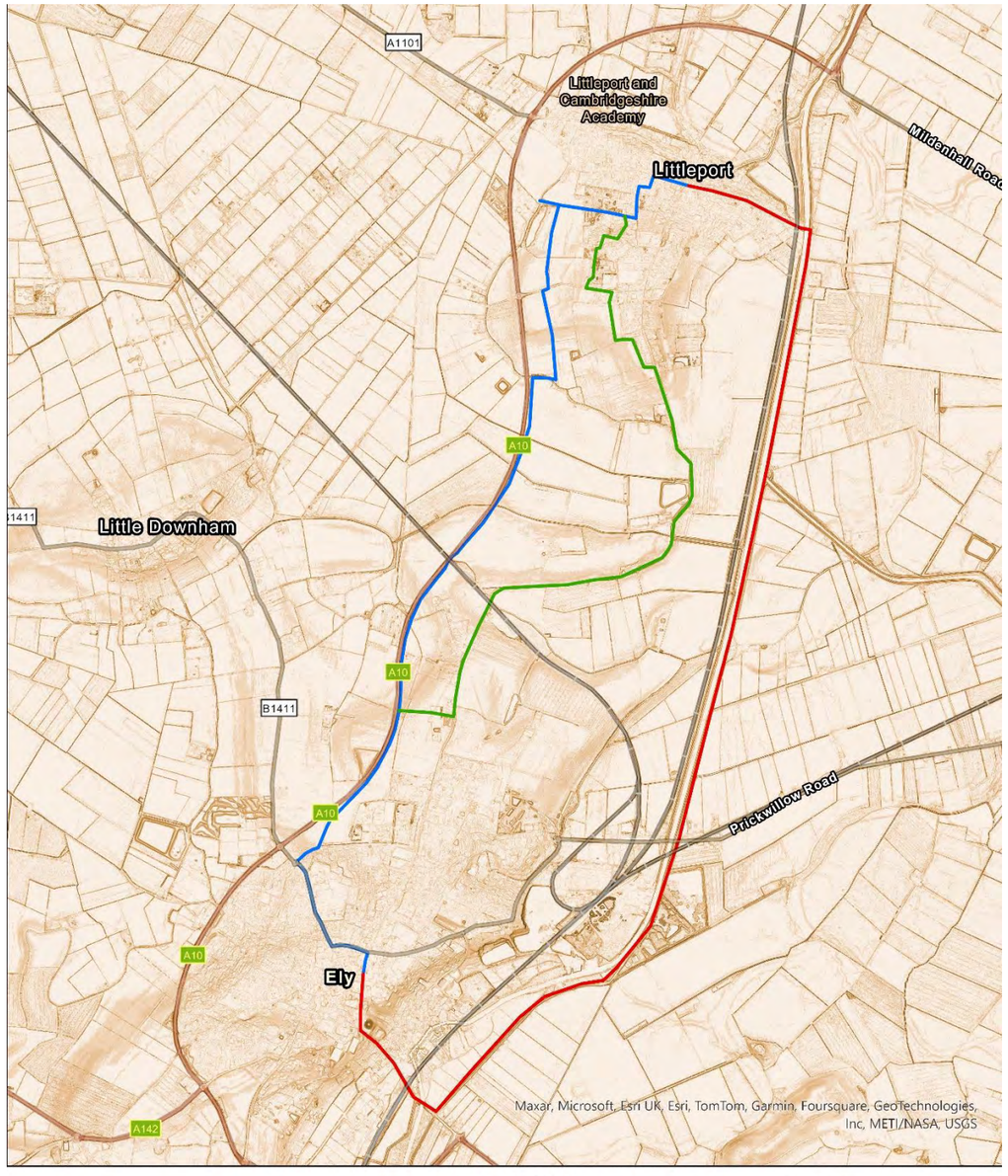
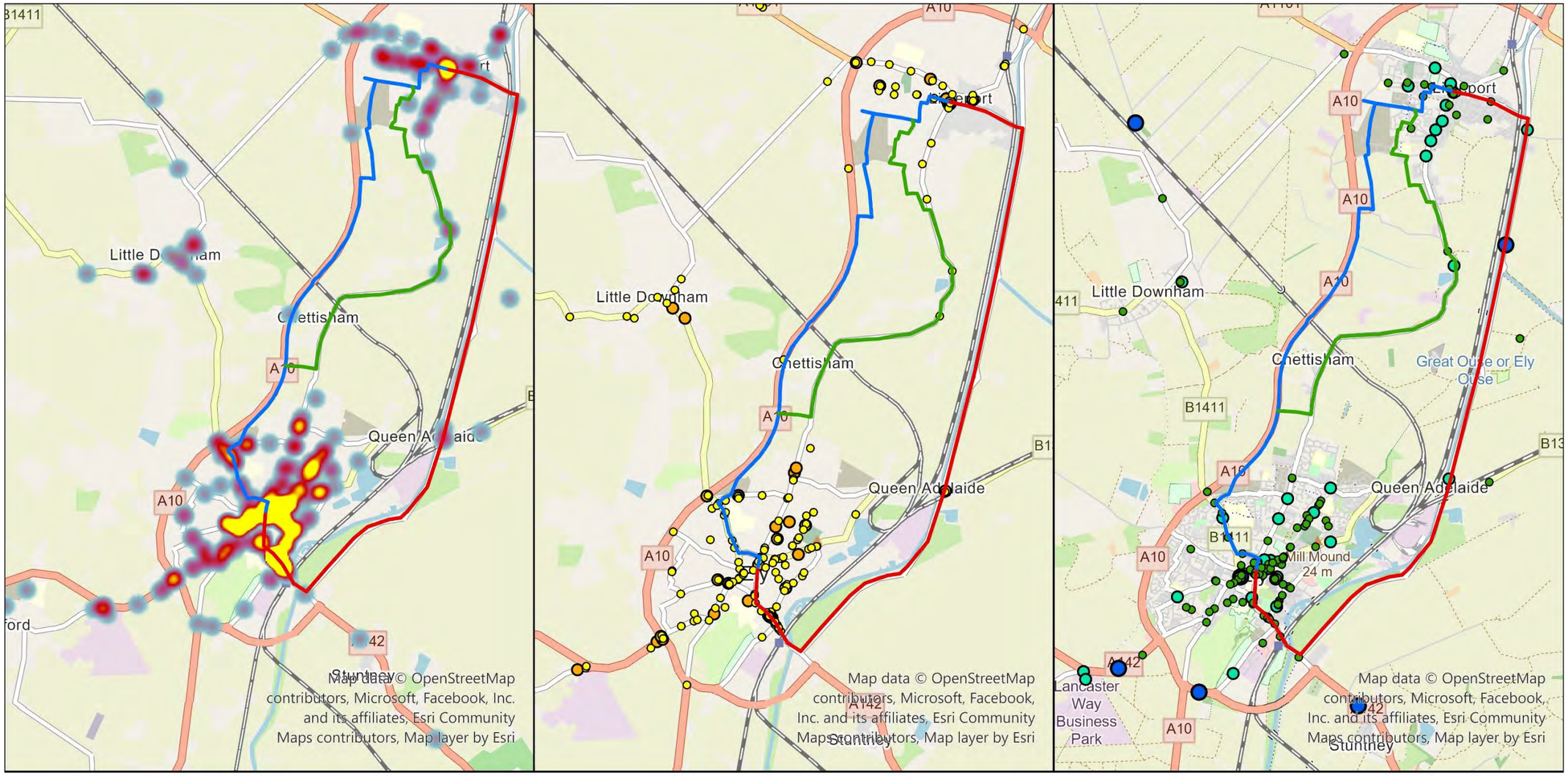


Figure 5.2 Topography



All incidents

Sparse

Dense

Cyclist associated

fatal

serious

slight

Pedestrian associated

fatal

serious

slight

0 0.75 1.5 3 Kilometers

N

Option:

1

2

3

Figure 5.3 Traffic incidents by location.

Figure 5.4 Point of interest density and locations

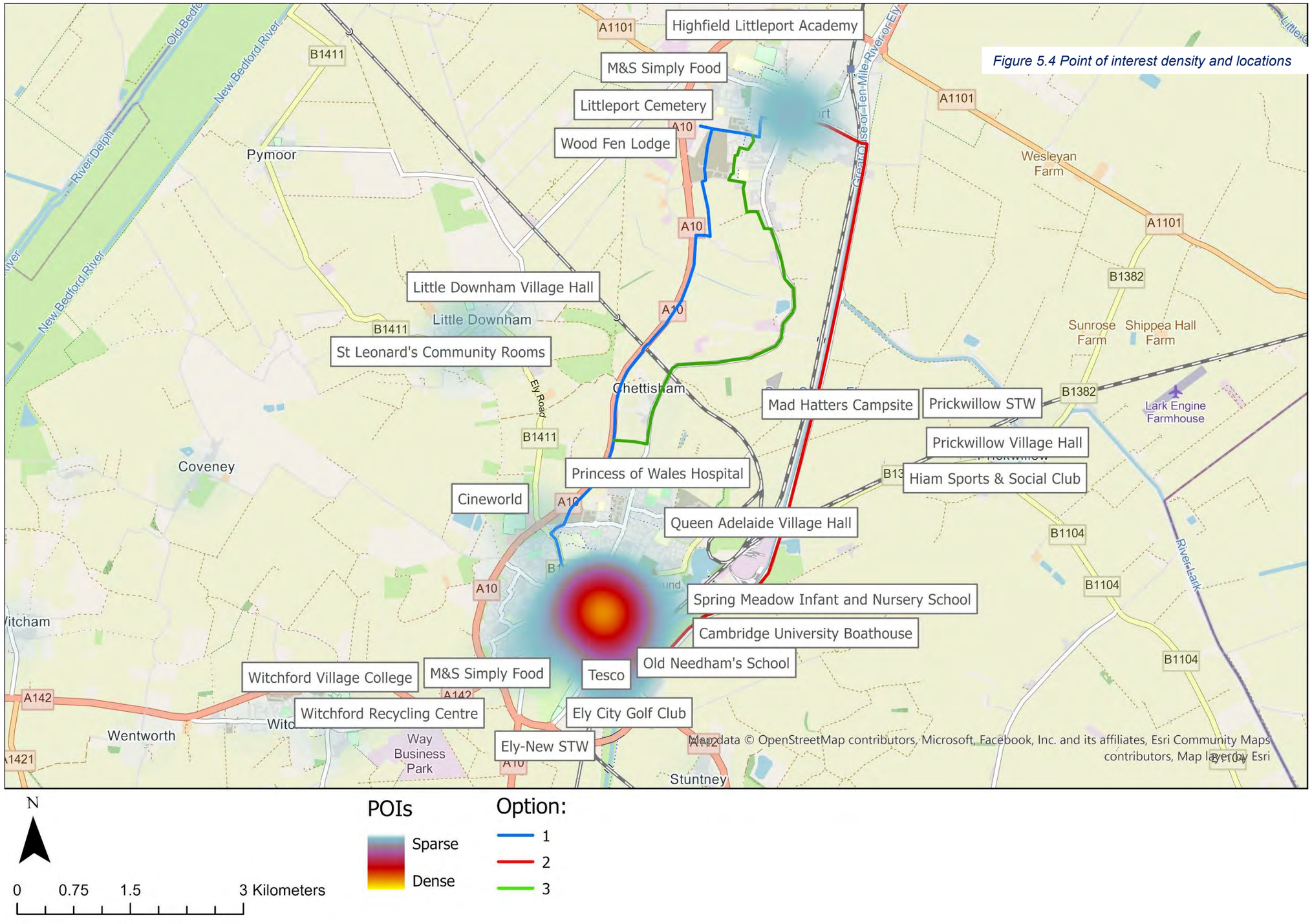


Figure 5.4 – Points of interest.

6. Design constraints

6.1 Environment Agency

The settlements are broadly away from significant flood risk, but the Queen Adelaide Way / Branch Bank route is in an area of medium flood risk.

soft ground of the Fens is notorious for contracting and expanding depending on the moisture content, making path construction challenging. This will have to be a consideration in the route selection and design.

Ecology is a major constraint with important habitats, and this is considered in detail in Chapter 9.

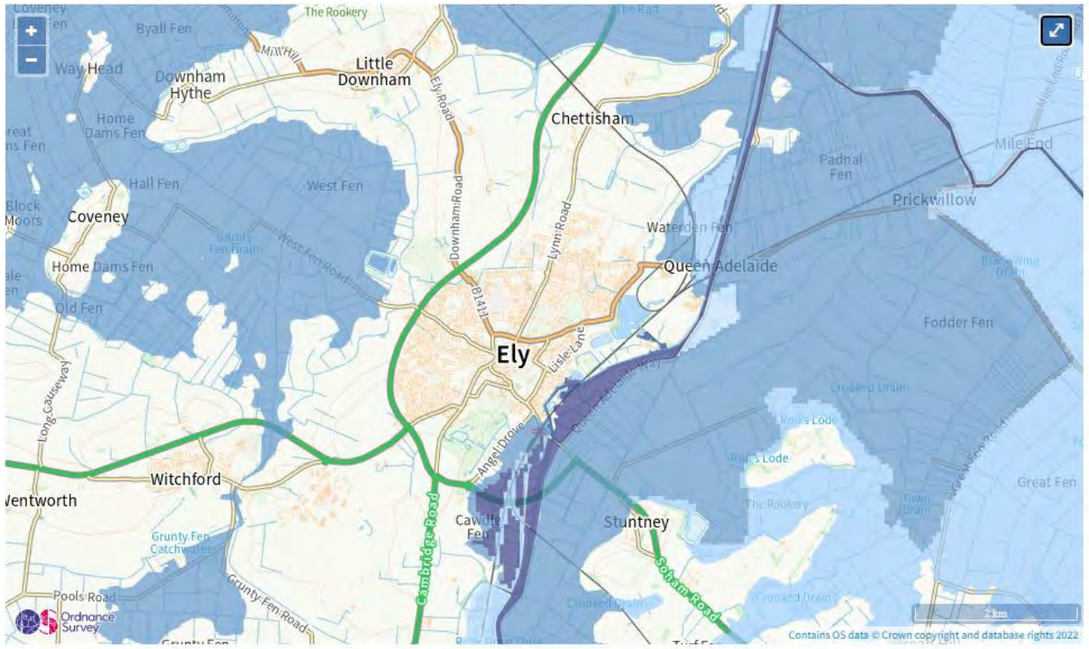


Figure 6.1.1 - Risk of flooding from rivers and the sea - Ely

6.2 Ground and Ecology

The land is generally low lying with the settlements generally sited on higher ground. The whole area is situated on various types of Ampthill Clay makeup. In clay areas drainage will be a challenge and the soft ground of the Fens is notorious for contracting and expanding depending on the moisture content, making path construction challenging. This will have to be a consideration in the route selection and design.

6.3. Common Land

Work on Common Land requires additional consent and consultation. There is no recorded Common Land within this area. (Source https://magic.defra.gov.uk/MagicMap.aspx)

6.4 Utilities

Utilities searches will need to be carried out as part of any detailed design, but some preliminary searches have been carried out to check whether there is anything major that would influence route design and choice. Whilst it can be expected that most roads in the centre of the settlements will have utilities within them, there are also overhead power lines crossing the A10 northwest of Chettisham, in a north-east / south-west direction. These would potentially have an impact on anything constructed in their vicinity, in terms of the minimum required height above any structure or path and the amount of working room available during construction.

There are also overhead power cables associated with the King's Lynn – London King's Cross rail line though these are unlikely to impact on any improvement schemes. Further detailed investigation will need to be undertaken prior to any schemes being taken forward and any utilities that are uncovered may have cost implications on the schemes.

Figure 6.1.2 - Risk of flooding from rivers and the sea - Littleport

6.5 Heritage and Historic Environment

Important heritage and ecological sites are a significant constraint on route choices, with the need to avoid any negative impact on these. The information from the adjacent plans is from the Historic England records at https://historicengland.org.uk/listing/the-list/

Any works impacting on scheduled monuments will need consent from Historic England and early discussion will be needed with them.

As can be seen from the plans it is very unlikely that any schemes are going to affect the scheduled monuments or listed buildings in either the Ely or Littleport areas as no realistic proposal would be going through or altering them in any way.

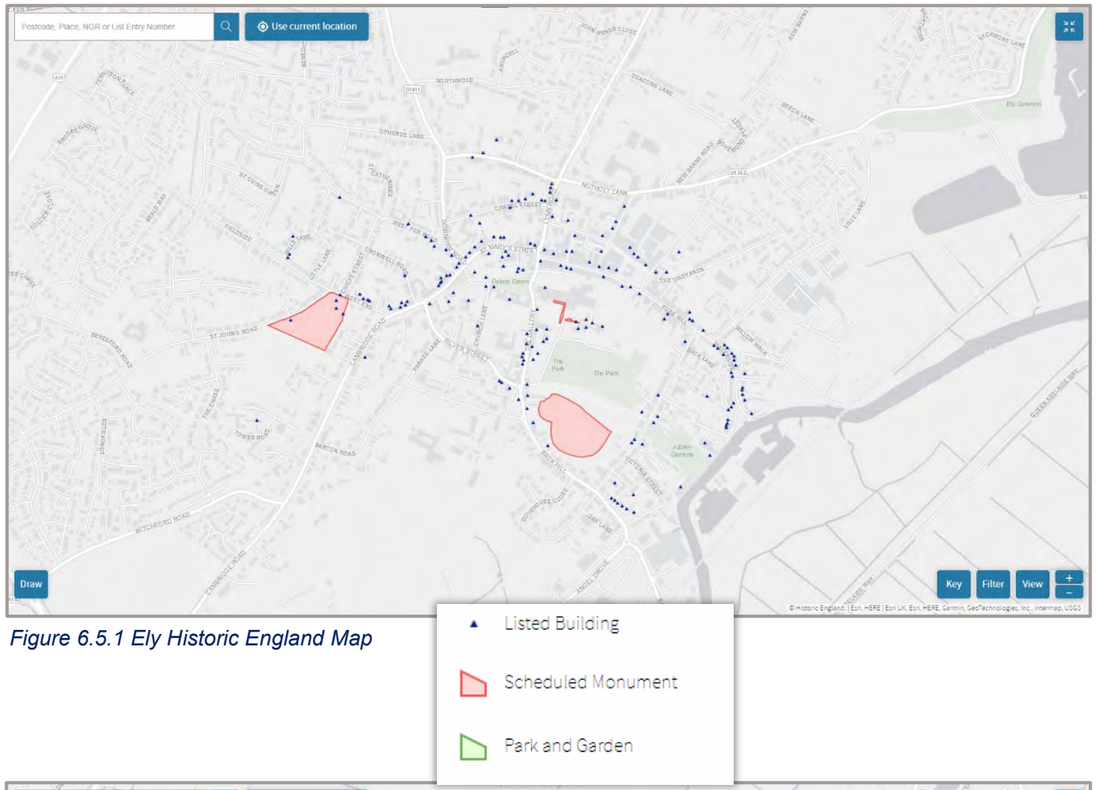


Figure 6.5.1 Ely Historic England Map

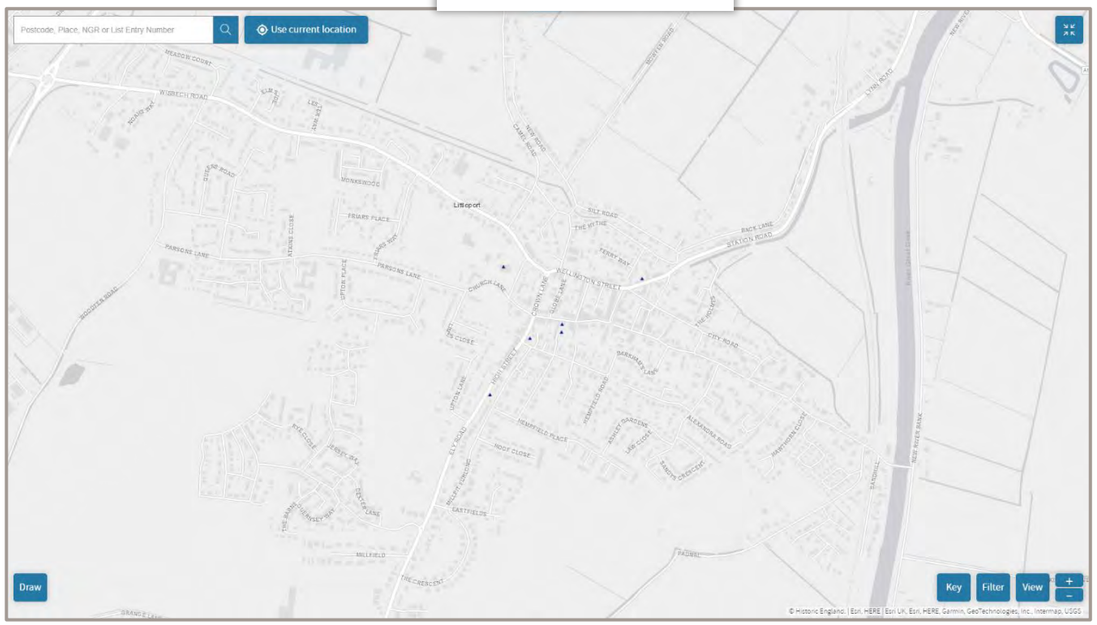


Figure 6.5.2 Littleport Historic England Map.

7. Route Option Appraisal

Any route between Ely and Littleport needs to consider all of the residents of both settlements and this is a big factor in prioritising the works needed, in choosing the best route alignment and in identifying what links could be made. Routes need to conform as much as possible to the principles set out in Chapters 3 and 4, with LTN 1/20 taken as the main standard to achieve.

For routes to work well there also needs to be a good cycling and walking network within the settlements and routes need to work well for as many people as possible.

The report considers three alignments, broadly speaking the A10 corridor, the river Great Ouse flood banks and the Lynn Road/ Ely Road corridor.

All of the options involve the use of private land and detailed discussions will be needed with numerous landowners before any alignment can be finalised. All options also need to link with developments in both Ely and Littleport, because facilities provided as part of developments are needed for the alignments.

For fair comparison routes are considered between the same locations taken to be in the centre of Ely and Littleport, namely the Lamb Hotel junction in Ely and the High Street/ Main Street junction in Littleport.

Google maps suggested route between the two, by car and also by bike is along Lynn Road/ Ely Road which is a distance of 5 miles with the alternative route via the A10 which is slightly quicker but 5.3 miles and not a realistic cycling option. These are significant distances for regular cycling, but could be covered in 25 minutes or so. Distance will be an important factor in mode choice and if that was the only factor it would clearly favour Option 1.

However the study considers other factors and all of the options have pros and cons in terms of attractiveness, directness, cost, technical challenges, ecology and deliverability.

Option 1: The obvious route for this option would be to head north along Lynn Road, but lack of available space makes this difficult and an alternative is being considered. The route seeks to follow the A10 as closely as possible including crossing over the railway before turning away from the A10 to enter Littleport.

Option 2: The second option to be considered runs south from the Cathedral to the junction between Queen Adelaide Way and Stuntney Causeway / Station Road. From that point, the route is that of the existing public footpath which runs along the top of the Great Ouse flood bank, on its eastern edge. The proposed route continues to follow Queen Adelaide Way/ Branch Bank and the River Great Ouse on a very straight alignment before entering Littleport along Victoria Street.

Option 3: The third option to be considered has been added since the original study, because it avoids some of the more difficult engineering and land acquisition aspects of Option 1, but it has many similarities with Option 1. The route was previously considered but was dismissed due to the difficulties of dealing with existing traffic on Lynn Road/ Ely Road. If, however, traffic volumes were cut significantly the situation would be different. The suggestion to change the nature of traffic presents political and community challenges, but nevertheless it is felt that it is an option worthy of consideration.

The options are considered in the following pages:

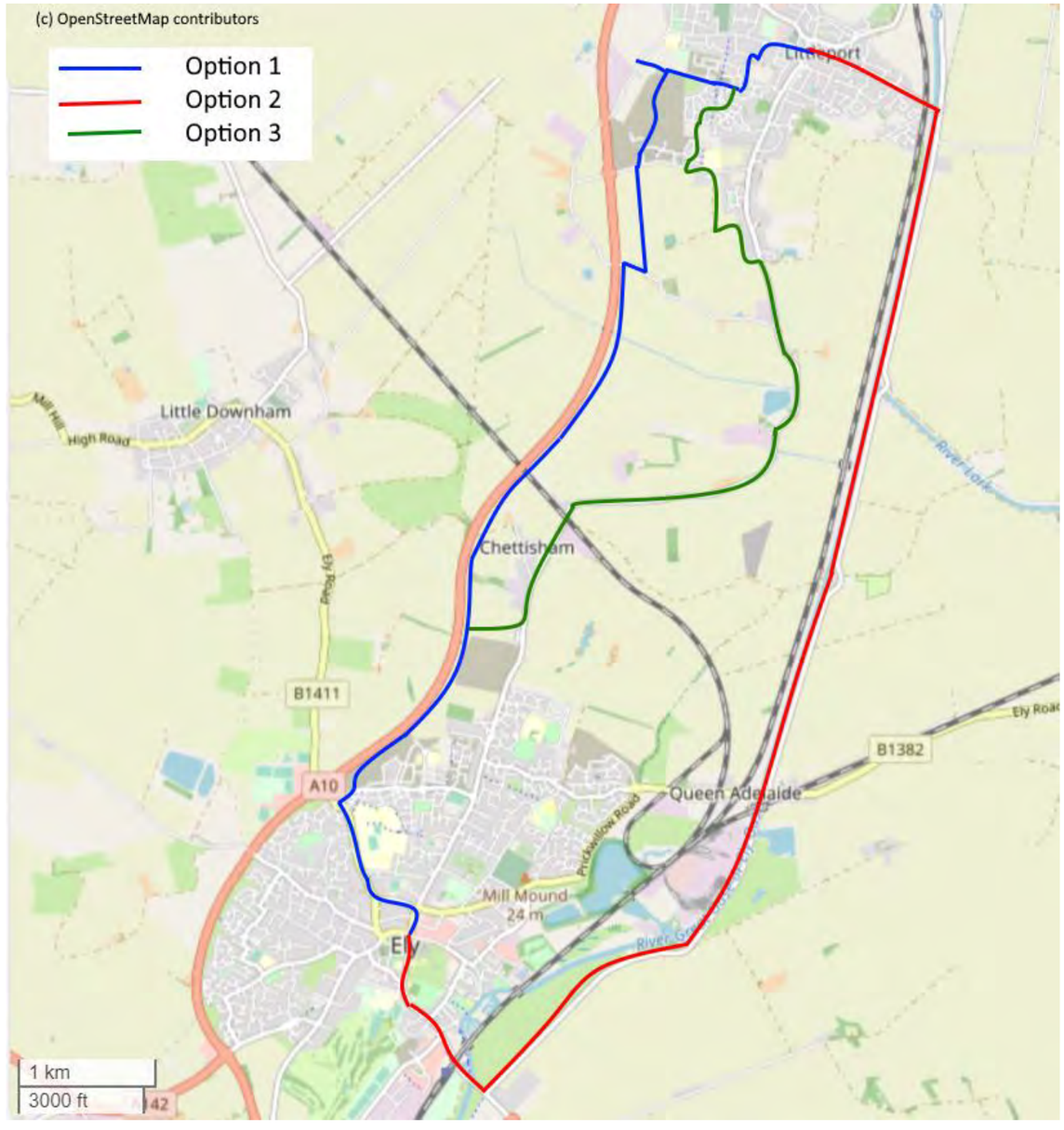


Figure 7.0. The Route Options

7.1 Option 1

The obvious route for this option would be to head north along Lynn Road, but lack of available space makes this difficult and an alternative is being considered. The route seeks to follow the A10 as closely as possible including crossing over the railway before turning away from the A10 to enter Littleport.

It is very important that the route links with developments in both Ely and Littleport.

The route is considered in sections as in Figure 7.1.

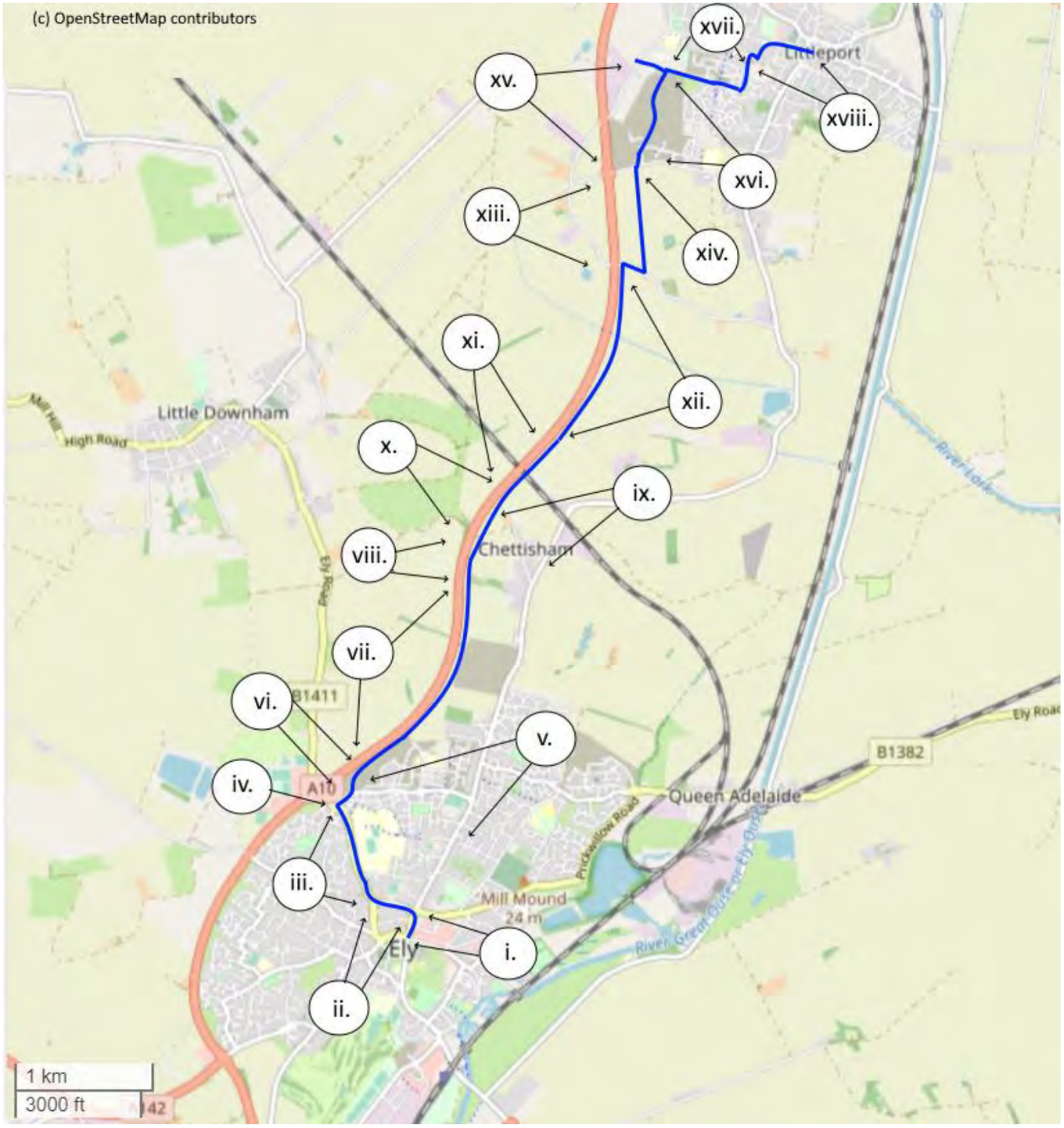


Figure 7.1 Option 1

i. There is very little space to accommodate pedestrians, cyclists and motorised traffic along Lynn Road and significant changes are needed to establish the space needed for walking and wheeling. It is hard to see alternatives to reducing through traffic or establishing a one-way system, perhaps as suggested adjacent, which is also relevant for ii, iii, iv and v.:

Figure 7.1.1 Lynn Road near Chapel Street showing limited space in City Centre.

ii. Egremont Street should be suitable for cyclists to mix with traffic if a point closure is implemented as in Figure 7.1.2. Special provision would be needed for the Fire Brigade.

iii. It is suggested that Downham Road should be made one-way in conjunction with Lynn Road to allow space for a segregated bi-directional cycleway. It would be possible to maintain two-way access to the College from the Cam Drive end, but with some compromise in the provision. Special provision may be needed for the Fire Brigade and to facilitate this it is suggested that side road access is closed in some cases. All this needs community engagement and needs to be considered as a whole.

iv. A Dutch style roundabout has been suggested in this area as part of the Ely-Little Downham report. This idea has been revised slightly to include a route along Cam Drive. This roundabout is a key location for access to a number of routes.

v. Although Downham Road is considered potentially the main City centre link for this option Lynn Road is also an important route and has to work in conjunction with Downham Road and the wider area. Ideas are shown on the following page (Figure 7.1.5). These rely on the introduction of one-way systems and the re-allocation of roadspace. These are preliminary ideas which need community engagement and detailed design, but the key to a successful design will be to reallocate road space on Cam Drive, address the difficult junctions and crossings and come up with a solution that works for both Lynn Road and Downham Road.

vi. A link is needed between Cam Drive and any new path following the A10. This can use quiet residential roads but needs to be continuous and to LTN 1/20 standards. (See Figure 7.1.5).

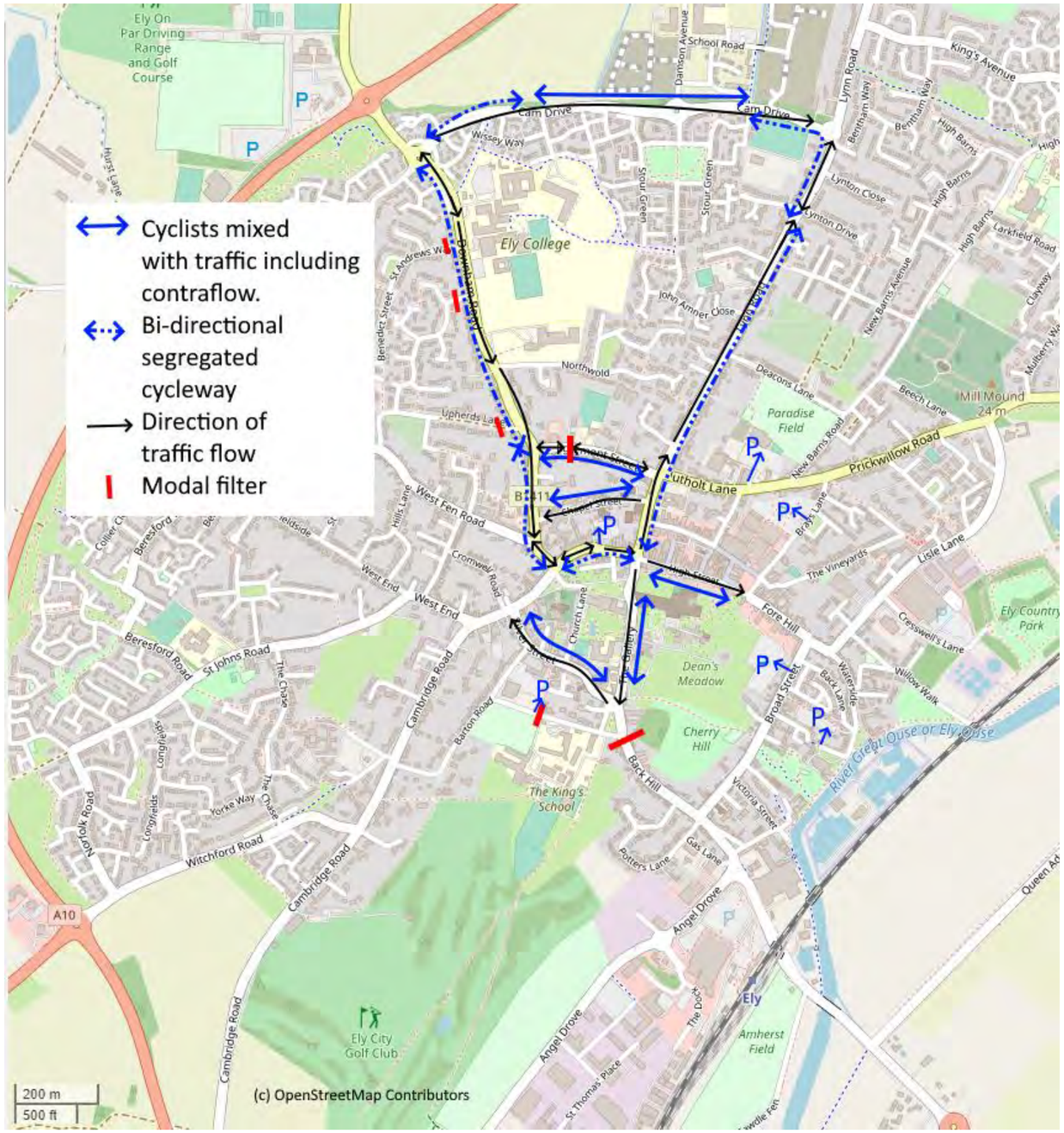


Figure 7.1.2 Possible traffic arrangement in Ely to create space for walking and wheeling on Lynn Road and Downham Road and maintain vehicular access to all locations.

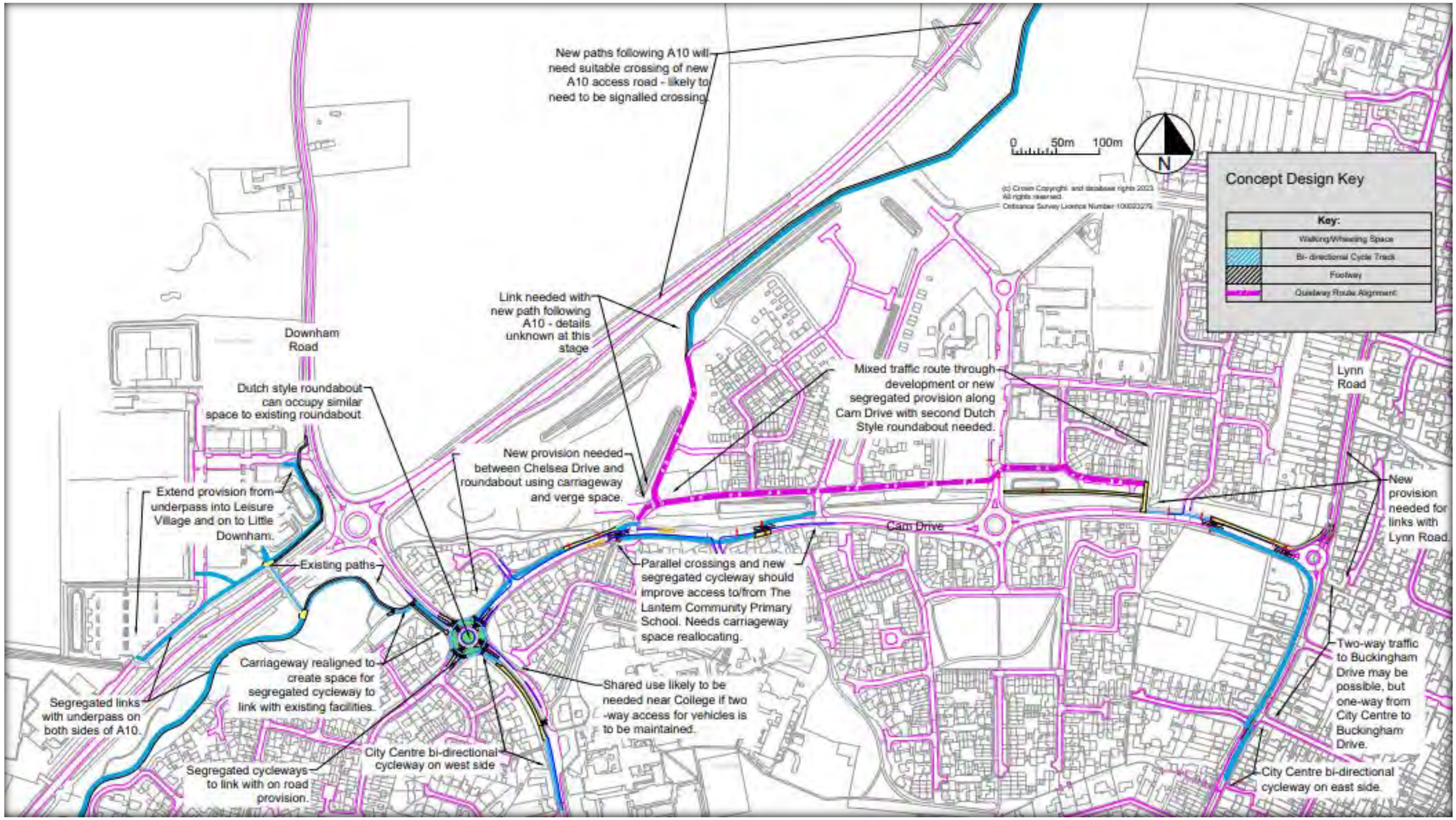


Figure 7.1.5 Preliminary drawing showing re-allocation of road space to form new cycleways, footways and shared use paths. Note that Community Engagement and detailed design are needed.

vii.

A proposed footway/ cycleway forms part of the Masterplan for the development of land north of Cam Drive (planning application ref 13/00785). This development is well advanced, but the route is not built yet. It is essential that the route is delivered to a high quality with adequate widths. Ideally it should be segregated, although shared use (min 3m) may be appropriate in places. The surface needs to be sealed and a convenient, safe crossing is needed of the A10 access road. A suggested route is shown in Figure 7.1.7.2. Good links with Lynn Road are also essential.

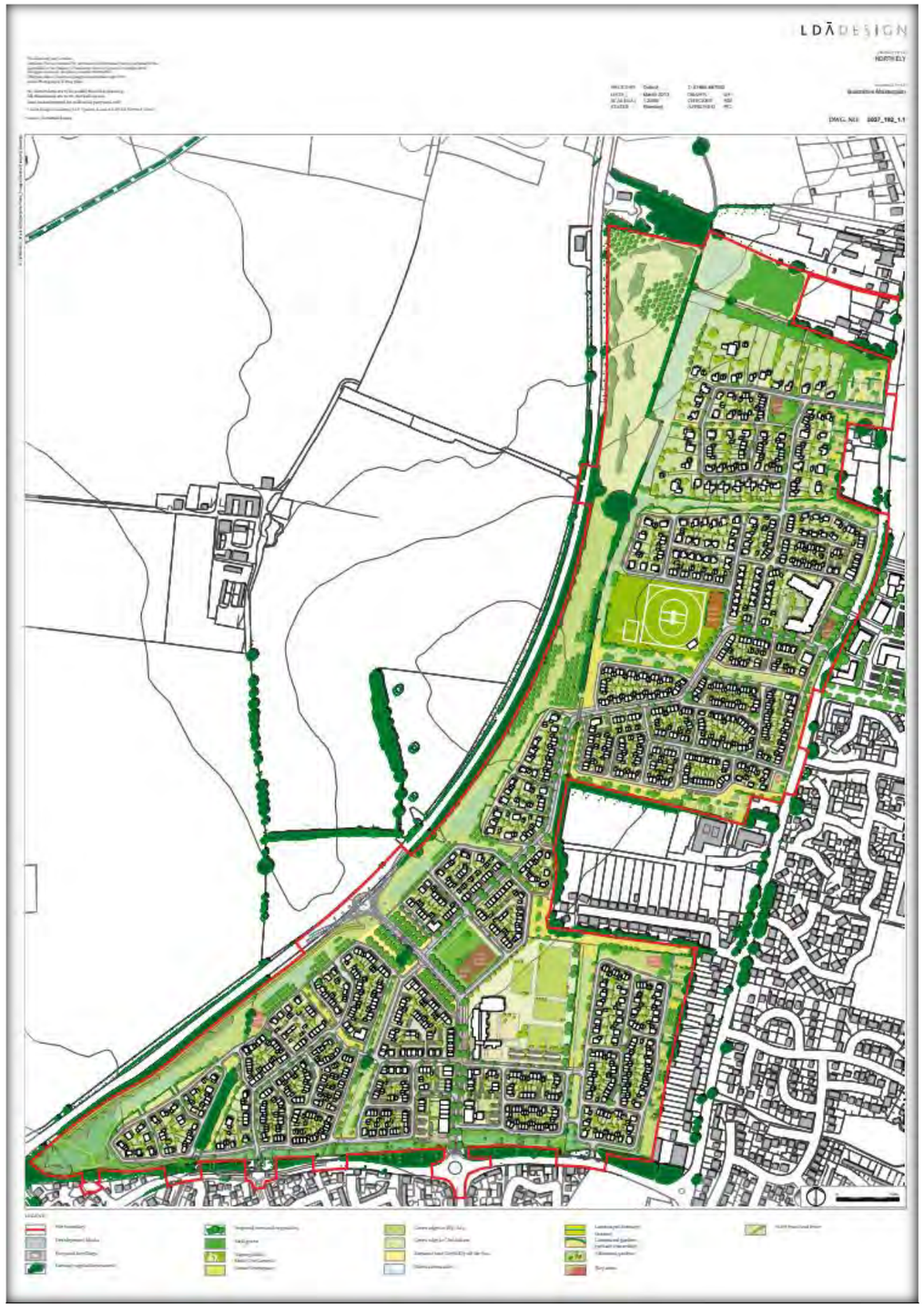


Figure 7.1.7.1 (left) Original Master Plan for the development of land north of Cam Drive showing green corridor along A10 boundary.

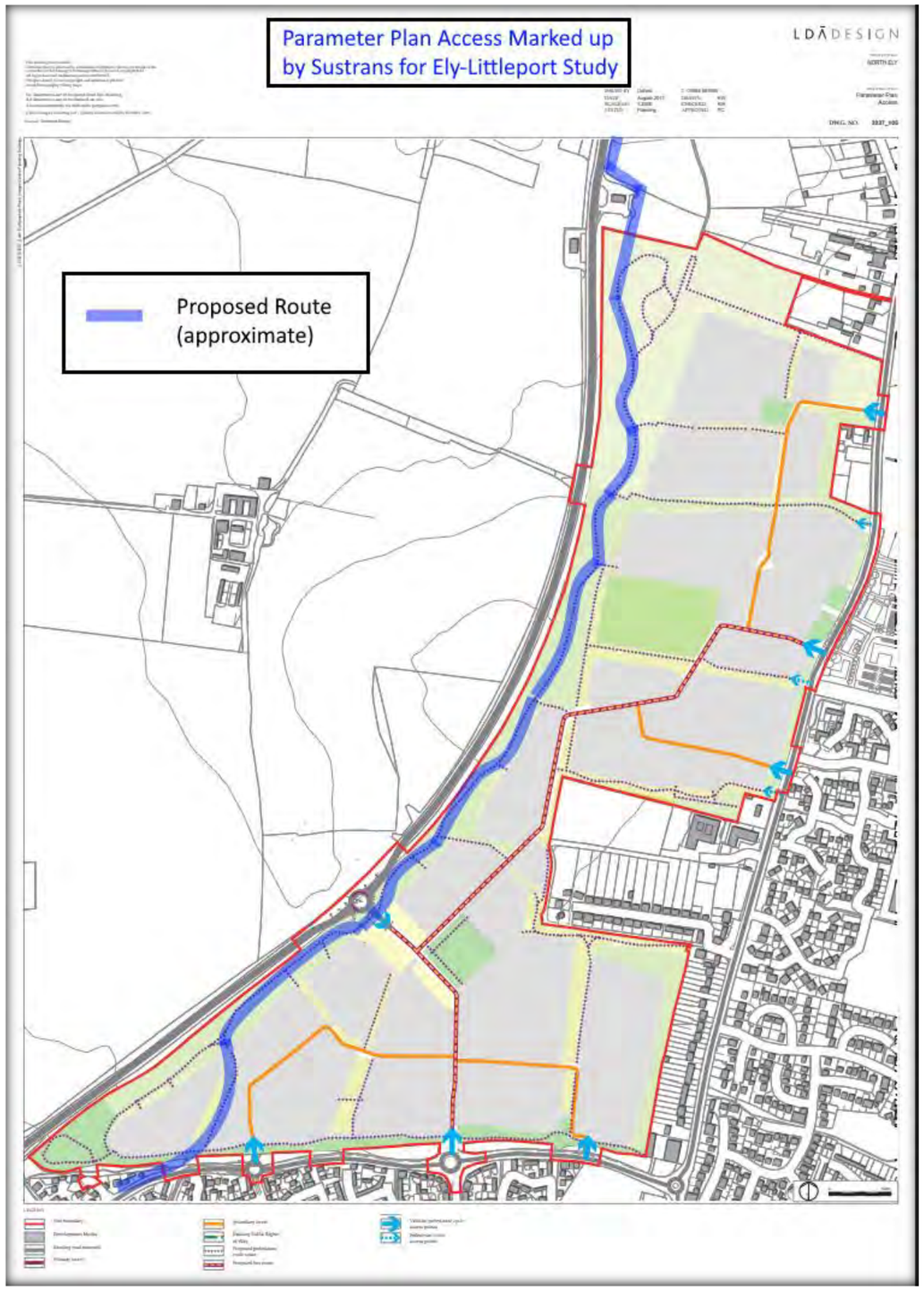


Figure 7.1.7.2 (right) Original Parameter Plan Access for the development of land north of Cam Drive marked up showing proposed route for Option 1.

viii. The route continues north from this point, past the Applegreen Service Station on the A10. A structure will be required to cross the ditch at the field edge here. An example structure for use here and across small watercourses can be found in the appendices. The exact position of any route will need to be agreed with landowners, who may require fencing, in addition to compensation for loss of land. The route needs to be as direct as possible and should have a link to the service station for staff and visitors to the shop.

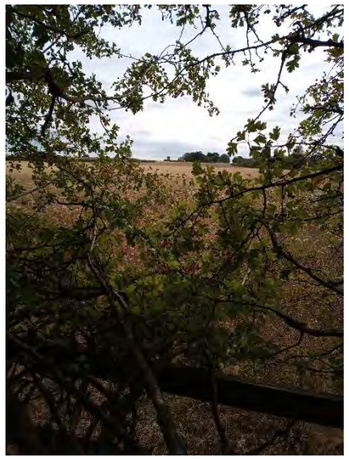


Figure 7.1.8.1 View from Service Station towards Ely of land that is currently agricultural, but is part of the Masterplan (see vii.)

Figure 7.1.8.2 View of rear of Service Station

Figure 7.1.8.3 View from Chettisham byway towards Service Station. Any route would be most likely to be on field edges on the right.

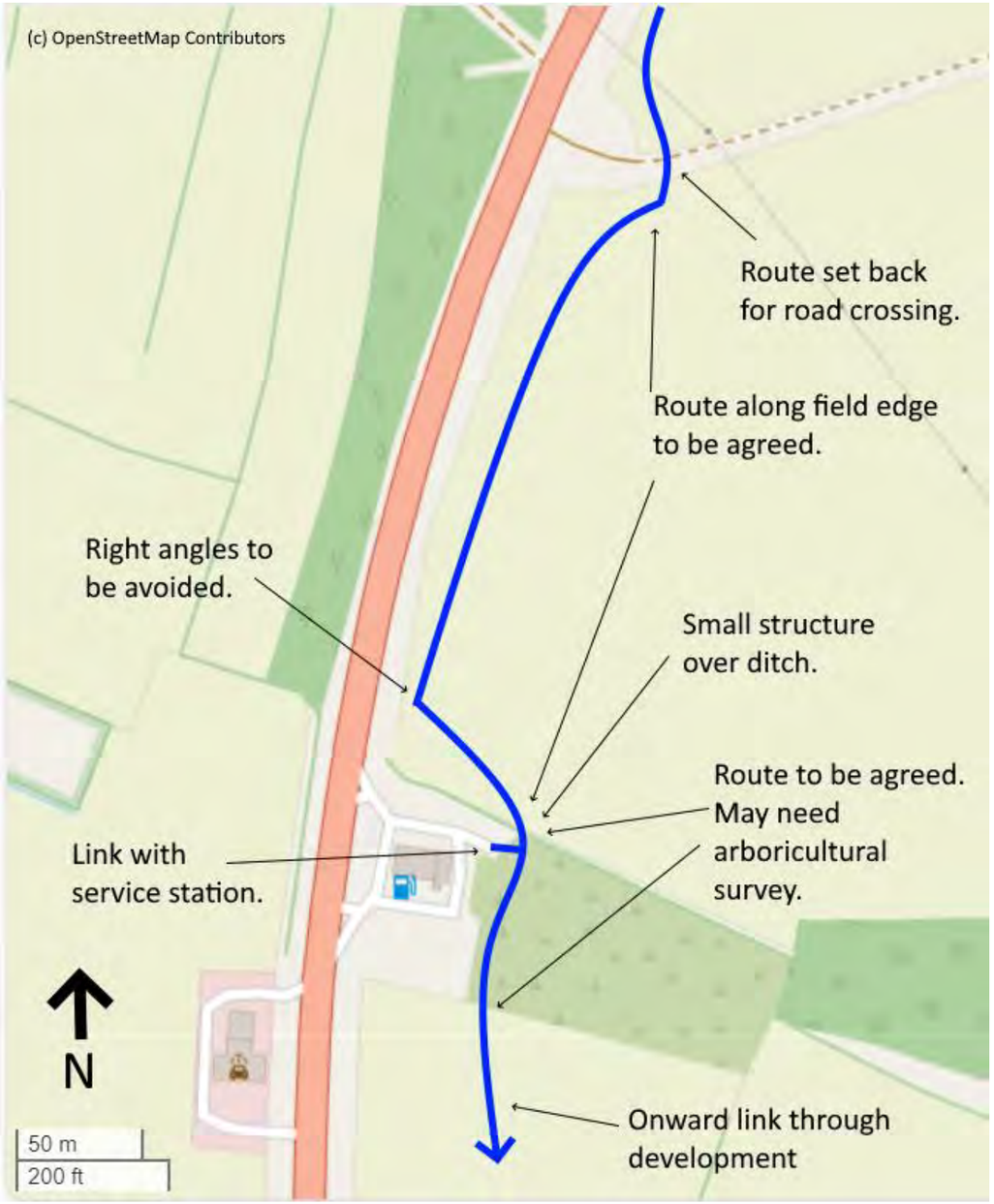


Figure 7.1.8.4 – Sketch of area around service station.

ix. A surfaced road (The Hamlet) leads from Lynn Road to St Michaels and All Angels Church in Chettisham. The road is quiet and has a good surface. It is recommended that it should be designated as a 20 mph road. An unsurfaced byway leads from the Church to the A10. It needs surfacing to make it a suitable link with Chettisham village, but it is recommended that this is only done in combination with a measure to restrict motorised traffic using it as a way to access the A10. It could be argued that if high quality links are completed between the development land near the A10 and Lynn Road this link is less important. It is therefore important that links with Lynn Road are built as in the Masterplan and these are to high standard (LTN 1/20).

Figure 7.1.9.1 View of The Hamlet from Lynn Road.

Figure 7.1.9.2 The start of the Byway by Chettisham Church.

Figure 7.1.9.3 Unsurfaced Byway at approach to A10.

x. The biggest challenge with this option is the need to cross the Ely to Peterborough railway line. Sustrans initial view was that crossing adjacent to the A10 on the existing A10 railway bridge would be too difficult and it would be sensible to allow for a new bridge near the existing one, but it now looks like this can be avoided. Over this section the proposed route is therefore dependent on the railway crossing (section xi.). For a new foot/ cycle bridge parallel with the existing road bridge a path and ramp would need to be entirely within the field edge on private land. If the existing road bridge is to be used (this is now the preferred option) a path would need to be on the field edge before ramping up to join the existing road embankment and verge. This is a challenging detail and will need a topographical survey and checks on utilities and trees. The works may also involve moving existing crash barriers. This is desirable, although it would clearly need to be agreed with the County Council and Network Rail.

Figure 7.1.10.1 View of A10 approach to bridge showing the difficult working environment.

Figure 7.1.10.2 View of field edge looking towards the railway line with the A10 on the left.

Figure 7.1.10.3 View of the existing A10 verge where a path would need to be built that is adequately separated from the busy road.

xi. The two options for crossing the railway are:

a. Construct a new foot/cycle bridge over the railway parallel to the existing bridge. This would need to be minimum 4m width with ramps at gradients that comply with LTN1/20. The works would need to be agreed with Network Rail and any works that might impact on rail operations (such as lifting a new bridge into place) would have to be carried out at a time to be agreed with Network Rail. Network Rail costs are likely to be high and this is likely to be a lengthy process. Any new bridge would be expected to have to allow for future electrification of the railway.

b. Reallocate roadspace over the existing bridge to allow formation of a 3m wide shared use path besides the carriageway and over the railway on the existing bridge with the intention that there would be no impact on the railway. It is likely that an agreement with Network Rail would be needed, which could be made more complicated if there are plans to change the bridge as part of any future electrification of the railway, but the major involvement is likely to be with Cambridgeshire County Council in terms of agreeing any changes to their structure (the bridge) and any traffic management that will need to be organised on the A10. For a 60 mph road such as the A10 the recommended separation from the carriageway edge is 2m minimum or 2.5m desirable according to Table 6-1 of LTN 1/20. These could be reduced by 0.5m by reducing the speed limit to 50 mph and a reduction of speed limit is recommended, with the appropriate signage. Any path should also be separated from vertical structures such as parapets by 0.5m, or shorter structures by 0.3m. Any design would have to work within available widths, but it should be possible to move the carriageway and change the layout. An initial meeting with Gareth Guest of Cambridgeshire County Council on 6th November 2023 raised no major issues in terms of moving the carriageway, which had been a concern that Sustrans had previously anticipated. Indeed the structure of the bridge appears to allow some flexibility, although any works would need to be agreed with the County Council's Structural Engineers. Given the constraints of the existing bridge it may not be possible to obtain required path widths and separations. Preliminary sketches suggest that this is borderline and further design will be needed, but given the lack of space it may be necessary to compromise. Given the volume of traffic it is desirable to have some form of barrier between the path and carriageway and this should be an aim of the scheme, even if this cannot be structurally tied to the bridge deck. The County Council has supplied bridge drawings, but at this stage no calculations or detailed designs have been completed. If this is to progress appropriately qualified Engineers will need to be appointed. A preliminary cross-section has been prepared showing how highway space could be reallocated, see following page. It appears as though an effective width of only 2.8m may be possible. This should be acceptable over a short length and will need to be checked as detailed designs progress. A safety audit and detailed design of the whole stretch of road (with central hatching) will be needed and there is a risk that Safety Audit will raise issues that make the scheme undeliverable.

In some ways a new bridge is the simpler option – certainly it would have less impact on the A10, but it would have significant impact on the railway and would be expensive so it is worth pursuing the option of using the existing bridge.

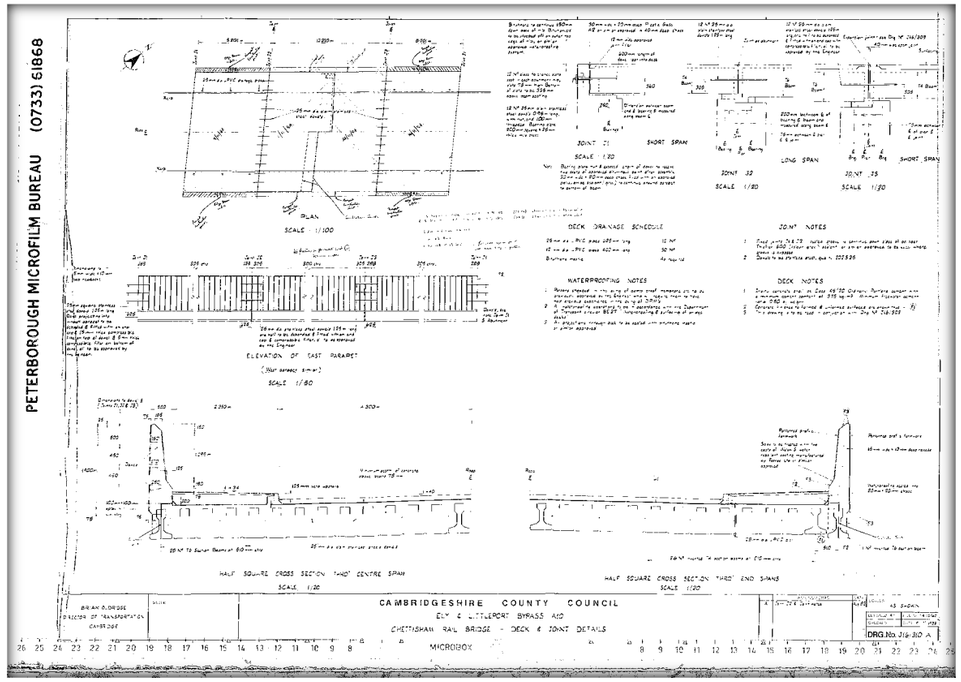


Figure 7.1.11.1 Example of existing bridge drawing. Cambridgeshire County Council has a set of original bridge drawings, which were copied to Sustrans.

Figure 7.1.11.2 View of bridge. The footways are not used at present.

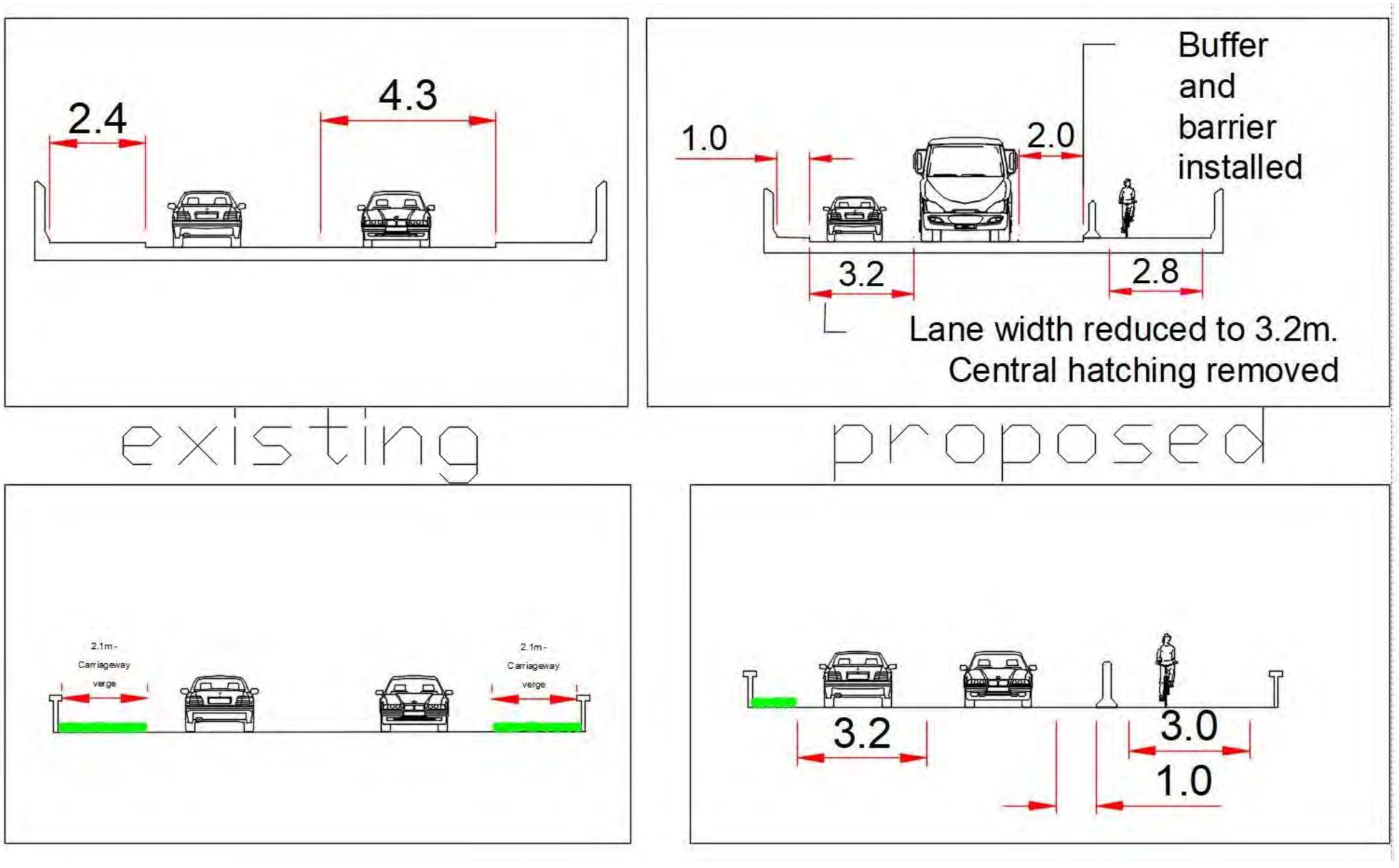


Figure 7.1.11.3 Cross section of bridge (top) and carriageway leading up (bottom), as existing and proposed.

xii.

As with section x. the route is dependent on the railway crossing (section xi.), but whichever crossing is chosen needs agreement for a path on field edges following the road. For a new foot/ cycle bridge parallel with the existing road bridge a path and ramp would need to be entirely within the field edge on private land. If the existing road bridge is to be used (this is now the preferred option) a path would need to be on the existing road embankment and verge, before ramping down to join the field edge. This is a challenging detail and will need a topographical survey and checks on utilities. The work should if possible, involve moving existing crash barriers, but it may be necessary to work around the existing barriers. As the route continues towards Littleport it will need to cross some small drains and bridges will be needed. At Blue Board Drove the route will need to cross a farm access and this will need a strengthened path and special detailing. The route can link with Bricklayer's Way near the point where it is closed to through traffic, making it a suitable route and link.

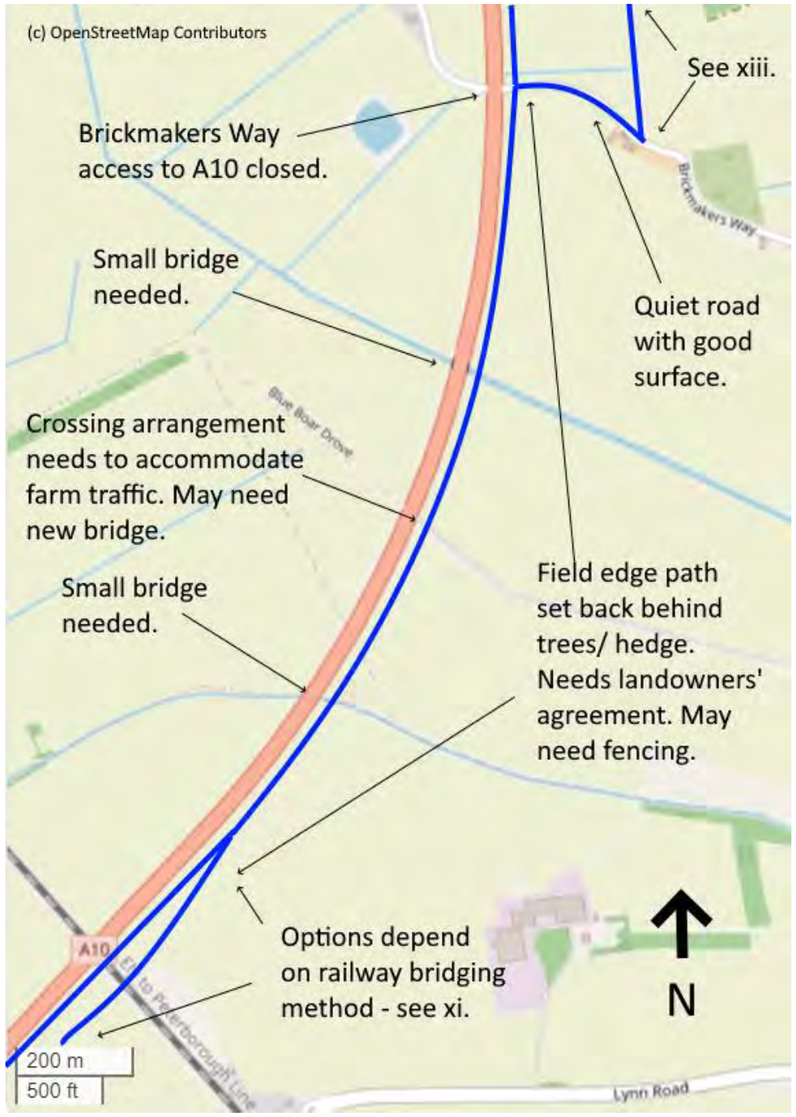


Figure 7.1.12.1 Map showing route.

xiii.

The preferred route would use Bricklayers Way before turning north along a public footpath towards Grange Lane. The public footpath mostly runs between an avenue of trees but is more open at each end. An alternative to Bricklayers Way would be to follow a field edge eastwards from the A10 before joining up with the public footpath. This is more direct than Bricklayers Way, but would need landowner's agreement and would be more expensive. It would also be possible for the route to continue following the A10 and then follow Grange Lane to end up in the same location. There is little to choose between the options and further consultation is recommended. An arboricultural survey will be needed to identify any tree-related issues.

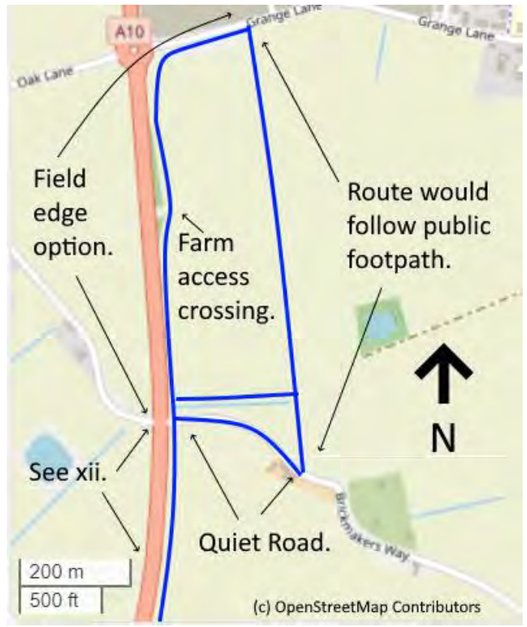


Figure 7.1.13.1 Map showing route.

Figure 7.1.13.2 View south along public footpath (between trees) from Grange Lane.

Figure 7.1.13.3 View from Public footpath looking along Grange Lane towards the A10. The field edge option would be to the left of the hedge.

xiv.

Grange Lane forms a roundabout junction with the A10, and is currently a 40 mph speed limit road for its first 450m, until it changes to a 30mph limit just west of the junction with Yeomans Way. There is also a relatively significant level difference with steep slopes down to Grange Lane at its western end from the fields. The nature of Grange Lane is changing as Littleport expands and new housing is built and it would be beneficial to extend the 30mph limit. A new crossing point could form a suitable gateway for the speed limit change or it could be at the A10 roundabout.

The route needs to cross Grange Lane at a suitable location which will depend on exactly what is agreed for section xiii and how it links with new housing. The crossing point should be approximately in line with the point where the public footpath meets Grange Lane. Detailed design work is needed for a crossing and visibility is likely to be the key issue. It may be necessary to remove some hedge row for this purpose, to enable a parallel Zebra crossing to be installed.

Figure 7.1.14.1 View towards crossing point along Grange Lane with the A10 behind.

xv.

Since the initial report by Sustrans there has been significant growth and this has opened up new opportunities and removed others. It is proposed that as at the Ely end the best route should be delivered as part of developments. The original suggestion was to enter Littleport via Woodfen Road and whilst this remains an important link particularly to Littleport Community Primary School there are other options, as can be seen in Figure 7.15.1. Much of the route should be delivered using new residential roads which should be low speed and with low traffic volumes. A 20 mph limit is recommended throughout Littleport and is essential for the route. Traffic volumes should be below 2,000 pcu per 24 hours to comply with LTN 1/20 Figure 4.1 and this needs to be confirmed. At present there is no through traffic and traffic volumes are low. Any new through traffic could be a problem and needs to be carefully considered. A suggested link with Woodfen Road has been marked on a development plan in blue. (See Figure 7.15.1). The alignment looks suitable but quality checks are needed.

Figure 7.1.15.1 Phasing Plan for developments north of Grange Lane, with blue route alignment marked on by Sustrans. Note that the route is for a link with Woodfen Road not the route to the centre of Littleport, which is shown in Figure 7.1.16.1.

xvi.

There are a number of ways for the route to reach the centre of Littleport from Grange Lane, with all passing though land that is currently or has recently developed to the north of Grange Lane. The initial route suggested is the same as for the link with Woodfen Road in section xv.to which the same comments apply about the need for low speeds and low traffic flows so that the roads can be suitable for mixed traffic and comply with Figure 4.1 of LTN 1/20.

Figure 7.1.16.1 Phasing Plan for developments north of Grange Lane, with blue route alignment marked on by Sustrans.

xvii.

The link between new developments north of Grange Lane and Upton Place and Parson's Lane can largely follow existing paths.

The paths are shared use, which is no longer recommended and if they can be improved to form segregated paths that opportunity should be taken. However the major issue with them is the need to remove barriers and improve crossings.

Figure 7.1.17.1 (left) and Figure 7.1.17.2 (above) Barriers such as these greatly diminish the quality of what has been built. It Is not clear if they are temporary or are intended as permanent features, but they are not suitable for all and all such barriers need changing. An audit of all barriers is recommended to ensure compliance with LTN 1/20 and that the requirements of the Equalities Act are met. The best solution is likely to be to change priority on the roads.

xviii.

The route joins the older road network in Littleport at Upton Place close to the centre. From here there is little alternative apart from an on road route mixed with traffic on Upton Place, Parson's Lane and Church Lane until the route arrives at the High Street. A 20mph limit is recommended and it is suggested that this is reinforced with the tightening of junctions and some raised crossings including zebra crossings.

Figure 7.1.18.1 Upton Place, near where it links with the path from the new developments off Grange Lane..

If the speed limit was reduced to 20mph (which would be advantageous to children and parents walking, cycling and scooting to the Community Primary School as well) it would more than likely be very suited to being considered a quiet mixed traffic street.

Figure 7.1.18.2 Parson's Lane would benefit from tighter junctions and minor calming measures.

In accordance with LTN 1/20 this would require vehicle speeds not higher than 20mph and a maximum of 2,500 vehicles per day, so will require a survey to establish the existing situation. If flows are higher than this, a closure of Parson's Lane, just east of its junction with Friar's Way, could be considered – this would have the effect of severing the link from High Street and Main Street, forcing any outbound traffic to the west to use Wisbech Road which is of a higher standard. Also, as mentioned above, making Parson's Lane a safe place to walk, cycle and wheel would encourage more children and their parents to make the journey to the schools, lowering the number of vehicles even further.

7.2 Option 2

The second option to be considered runs south from the Cathedral to the junction between Queen Adelaide Way and Stuntney Causeway / Station Road. From that point, the route is that of the existing public footpath which runs along the top of the Great Ouse flood bank, on its eastern edge. The proposed route continues to follow Queen Adelaide Way/ Branch Bank and the River Great Ouse on a very straight alignment before entering Littleport along Victoria Street.

The route is considered in sections as in Figure 7.2.

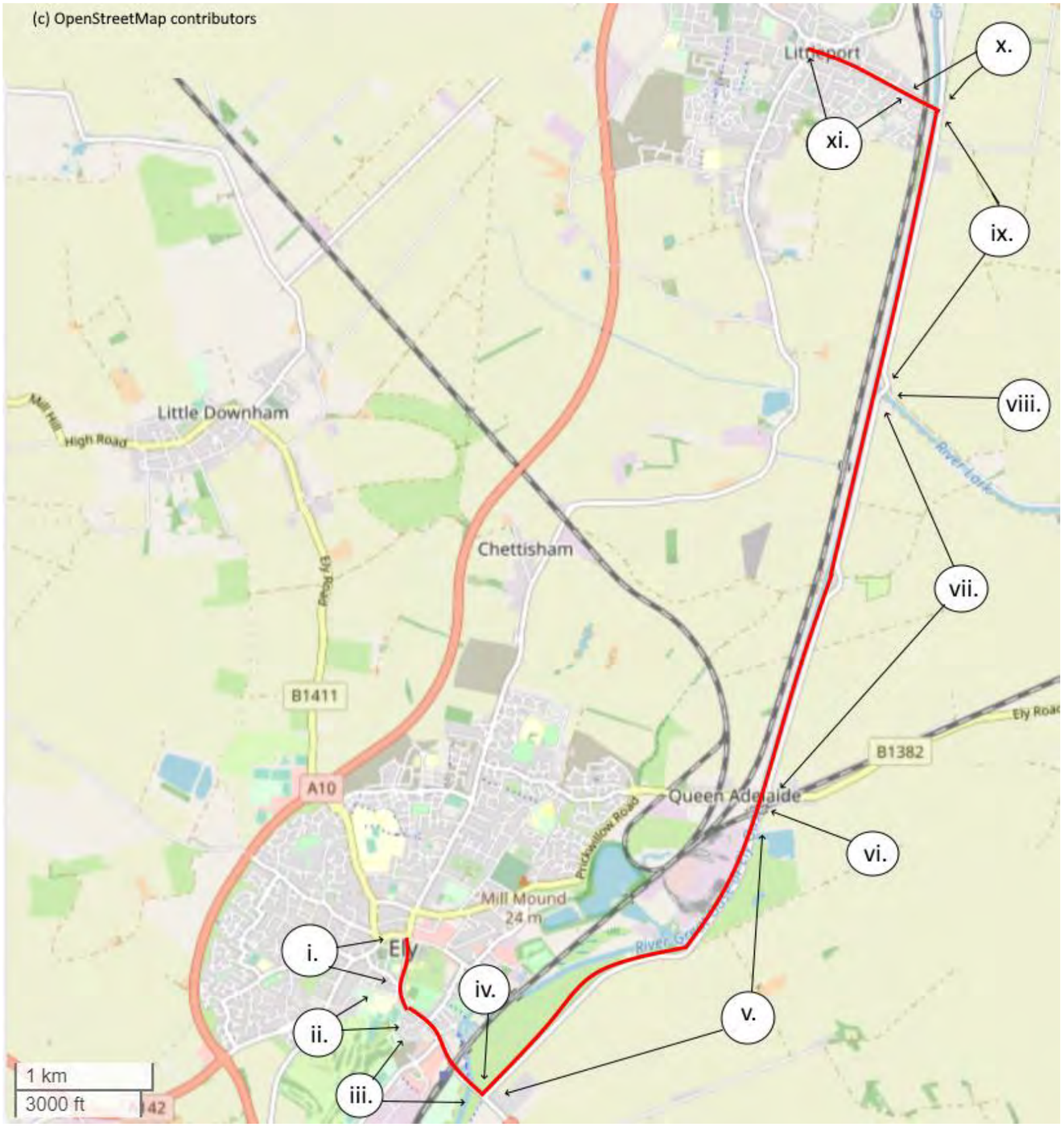


Figure 7.2. Option 2

i..

For comparison with other options the route starts at the Lamb Hotel junction, but for anyone living along Lynn Road they would have to cycle along Lynn Road in the opposite direction to Littleport to get to the start of the route and this will be counter intuitive.

From the Lamb Hotel crossroads the obvious and direct way to head towards Ely Station is via Minster Place in front of the stunning Cathedral. This route is currently one-way, but would benefit greatly from being made two-way for cycling. Speeds are already low and traffic volumes are not high. A review of all City centre one-way streets is recommended with the default position being that contraflow cycling should be permitted unless there is an exceptional reason.

Paragraph 4.2.8 of LTN 1/20 says:

"To make cycling an attractive alternative to driving short distances, cycle routes should be at least as direct – and preferably more direct – than those available for private motor vehicles. Permitting cyclists to make movements prohibited to motor traffic, allowing contraflow cycling, and creating links between cul-de-sacs to enable cyclists to take the shortest route, should be the default approach in traffic management schemes ….."

Figure 7.2.1 View towards Ely Cathedral. The addition of Except cyclists symbols under the No Entry sign would make a huge difference.

ii.

The route between central Ely, Ely Station and beyond has been considered as part of the Ely-Soham study and it is equally relevant for this study so has been reproduced here.

From the Porta towards Ely Station the main route is via Back Hill. It is a significant hill and a residential street, but traffic volumes are higher than desirable for mixed use on such a road. The existing carriageway is of a width that means that the lanes could be described as critical width and unacceptable for use as a cycle facility within LTN 1/20.

("*Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane* ").

LTN 1/20

Whilst Back Hill is not heavily trafficked the concern is that at busy times traffic volumes could prevent vehicles moving easily into the opposite lane creating a potentially dangerous situation for people on bikes such as children cycling to school or people commuting to or from Ely Station. The way to address this would be by changing the lane width and narrowing the carriageway or reducing traffic volumes so that it would always be easy for drivers to move into another lane. The carriageway width on much of Back Hill is about 7m so it could be reduced, but there is little or no scope to reduce footway widths. (Indeed, it would be desirable to increase widths to at least 2.5m.) Segregated cycleways on Back Hill would be a good option and shared use of footways would not be appropriate given the gradients. For such a hill with potential for high speeds going down and big variations in speed between people going uphill, cycleways should be of good width and two uni–directional cycleways at least 2.5m wide with a 0.5m buffer. This would mean that almost all of Back Hill would be given over to footways and cycleways with no space for vehicular access, which would clearly be a major issue for residents.

The recommended solution would therefore be to close Back Hill to through traffic, retaining vehicular access to all properties and with a series of bollards at the bottom of the hill (between Dovehouse Close and Potters Lane) or at the top of the hill with a re-modelled Barton Square. Arrangements would need to accommodate turning for large vehicles including refuse carts. With traffic volumes reduced on Back Hill no changes to the road would be needed, except for the closure and turning arrangements. As it is, LTN 1/20 guidance is that Back Hill is not currently a suitable cycle route.

Fig 7.2.2 View towards the Porta at the top of Back Hill.

iii.

The East Cambridgeshire Local Plan refers to this area within Ely Strategic Objectives

" 4. Regenerate the area around the railway station to deliver a vibrant, mixed-use area, and enhance the riverside area of the city.

5. Enable easy access to key destinations with improved walking and cycling routes and public transport services, including a new transport interchange at the railway station and major improvements to the A142 between Angel Drove and Stuntney Causeway to reduce congestion."

It is hard to see how this can be achieved with the existing traffic volumes. Whilst the station may remain a significant motorised traffic destination, traffic travelling along the A142 does have an alternative with the Ely bypass and there appears to be significant potential to reduce motorised traffic and greatly enhance the area. Closure of the road under the railway to motorised traffic could help to transform the area as would measures to reallocate road space and change the existing Angel Square roundabout. Suggestions as to how this might be are shown in Fig 7A.1.4. This shows that there is scope to provide high quality routes and maintain vehicular access to the station. Any scheme will need community engagement and a lot more design work.

All of this may seem beyond the scope of an Ely-Soham or Ely-Littleport cycle route but without improvements in Ely the benefits of the route will be limited to those who are currently confident to cycle within existing conditions in Ely. This is of course a small proportion of those who could cycle

Fig 7.2.3.1 View towards the Station showing the Angel Square Roundabout.

Fig 7.2.3.2 View towards the Angel Square Roundabout from near Ely Station entrance.

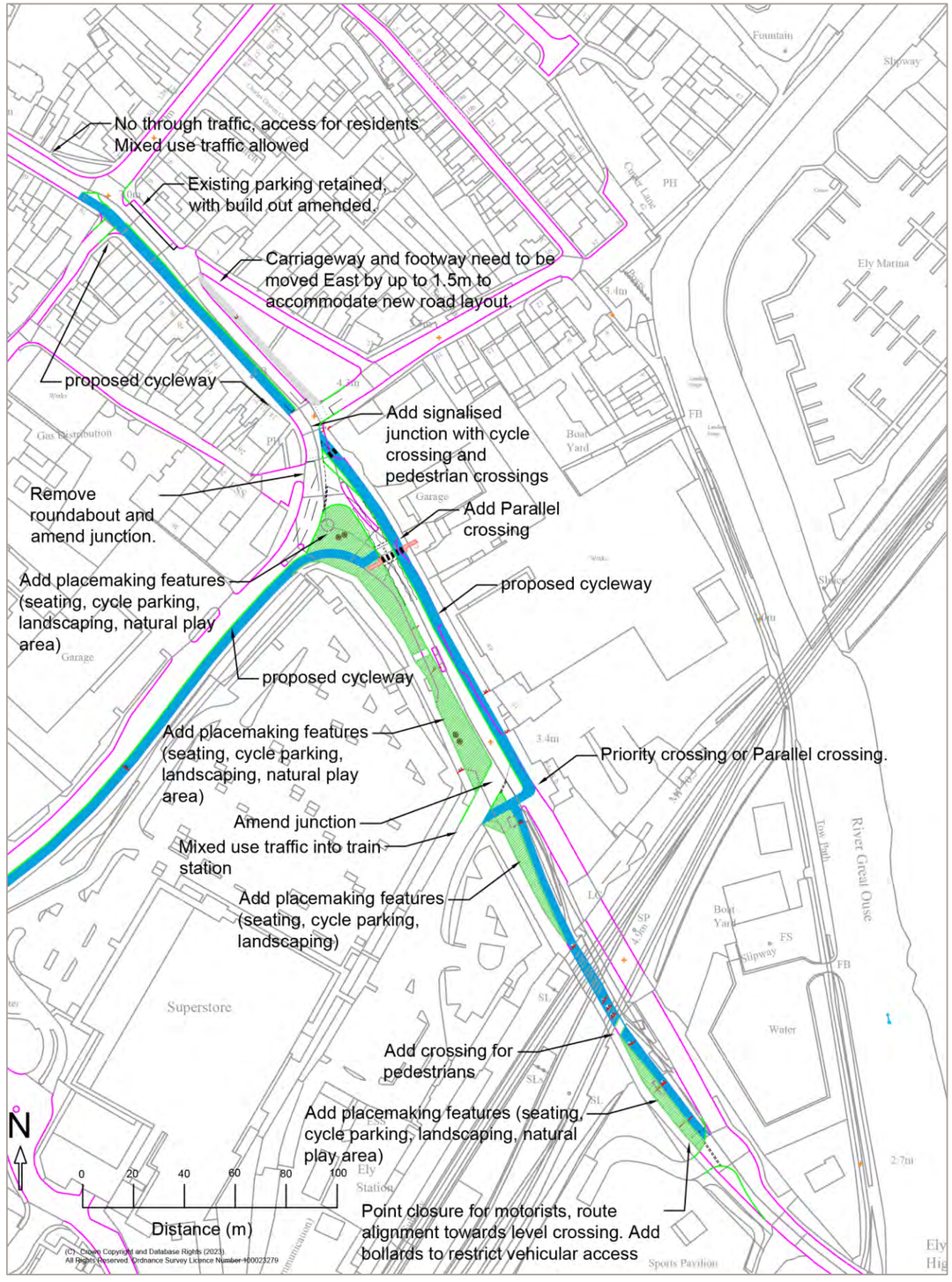


Fig 7.2.3.3 Concept Drawing showing the possible transformation of the area.

The crossing of the railway line from Ely Station towards Stuntney is much improved since road space was reallocated along the road under the railway with a wide footway and motorised traffic signal controlled. However, the arrangement does not comply with LTN 1/20 particularly the path width which should be at least 3m wide with segregation from the traffic and separation from the wall of the railway bridge abutments. The path width is approximately 2.4m compared with the 4m that should be a minimum within LTN 1/20 assuming that shared use is considered suitable in this location. Shared provision will certainly become an issue if the area develops and there is increased pedestrian usage to the river and beyond. The best position for cyclists should be on the road with virtually no motorised traffic on the road.

Fig 7.2.3.4 View towards the railway from near Ely Station entrance.

Station Road continues from the railway crossing over the River Great Ouse with vehicular access to the King's School Playing Fields, a residential property and a track that follows the river. All of this access could be maintained from the bypass direction. At present traffic volumes and speeds are unsuitable for cyclists to be mixed with motorised traffic and cyclists are directed to the footway on the north-eastern side. Pedestrian levels are low, but this is not a suitable option and does not comply with LTN 1/20 in terms of width or segregation from traffic or as regards the parapet heights which do not meet the minimum recommended for use by cyclists. The easier and better option is for cyclists to use the road mixed with local traffic at low speed, accessing the local sites only and not through traffic.

The recommended arrangement of cyclists mixing with local traffic at low speed can continue to the Queen Adelaide Way junction. (See Fig 7.2.3.3).

Fig 7.2.3.5 View towards Soham of Station Road showing the existing shared use provision and low parapets.

Fig 7.2.3.6 View of the river from Station Road bridge. If it was a more welcoming environment, the bridge could be a popular and attractive destination.

iv.

To continue along Stuntney Way towards Soham changes are needed to the Queen Adelaide Way junction, with a new signalised arrangement linking with a new segregated cycleway, but the junction also includes the existing National Cycle Network route to/from Barway, so would benefit from the introduction of signals to address all potential movements. A new signalled junction with cyclist and pedestrian crossings is recommended.

Fig 7.2.4.1 View of Station Road looking towards the Queen Adelaide Way junction.

v.

From the junction the route is that of the existing public footpath which runs along the top of the Great Ouse flood bank, on its eastern edge. The route is approximately 3.0m in width as a minimum for most of its length.

Although the banktop is an attractive option getting agreement from Environment Agency may be challenging and there are also safety concerns about a path that drops down to a busy road, so fencing may be necessary. Constructing a 3m path on a 3m banktop is technically challenging.

An existing crossing point has been provided across the access for the Cambridge Boat House, and it is unlikely that this needs to be improved given the limited number of vehicles using this access.

Approximately 400m east of the Boat House is a bend where Queen Adelaide Way crosses a watercourse, and there is limited scope to widen the existing bridge. A small footbridge has been erected next to the main one and this could be replaced by a bridge suitable for pedestrians and cyclists.

Along the next stretch the Butterfly Bridge provides a link to the Roswell Pits nature reserve, and beyond that the eastern edge of the city.

The access to the quarry and industrial estate over the river has a very wide bell mouth to facilitate access by HGVs, but it is likely that this could be curtailed – swept path analysis could establish this. Once the junction is tightened up somewhat, priority for pedestrians and cyclists could be continued over it, treating it as a conventional side road. There are however huge challenges in this area due to limited space and a crash barrier that blocks roadside access. The whole area would need major changes to the road and riverbank in order to provide a 3m path that is adequately separated from fast traffic and from the river. and getting agreement for this would be very difficult.

Figure 7.2.5.1 Existing public footpath along the flood bank

Figure 7.2.5.2 Pedestrian bridge over water course

Figure 7.2.5.3 Quarry side road showing barriers.

vi.

The bridge under the railway line at Queen Adelaide is another major restraint. It would require a shuttle-working set of signals to allow the northbound running lane to be reallocated to pedestrians and cyclists, in a similar way to the current arrangements near Ely Station. Even this would not allow adequate space and separation from traffic so various designs will need to be considered. All would require speed limit changes and this is another major challenge for this route.

Figure 7.2.6.1 Existing railway crossing with limited space.

vii.

Ely Road/ Prickwillow Road is the obvious way for people from parts of Ely to access the route, but the road does not comply with LTN 1/20 and would need a major review.

The staggered junction between Queen Adelaide Way, Prickwillow Road and Branch Bank has a number of limiting factors – narrow carriageways, no footways on the northern side of Prickwillow Road and poor vertical visibility coming from the west, due to the bridge shape. Due to these constraints the best solution would be a signal crossing, from the western side of Queen Adelaide Way to the northern side of Prickwillow Road adjacent to the existing flag-type direction signs. This would require three stop lines – one on each side of Prickwillow Road as in a conventional crossing but also one on Queen Adelaide Way to stop vehicles further back than the existing give way line. Alternatively the entire junction could be signalised as a formal staggered junction, and the above crossing point as well as across Queen Adelaide Way the pedestrian/cycle phase. These signals could also potentially be linked to the shuttle-working ones to the south, to reduce delays through the junction and under the railway.

From the staggered junction the public footpath continues north along the top of the flood bank. This has the same issues as Section v. in terms of banktop width, technical challenges and getting agreement of Environment Agency.

viii.

Where Branch Bank crosses the river Lark a new structure would be required to carry pedestrians and cyclists, as the existing structure does not have sufficient width for this purpose.

Given the proximity of the property in the left of the picture to the existing bridge, the new one may need to cross directly north, across the mouth of the river, to be able to land successfully on both sides.

Figure 7.2.8.1 Existing River Lark bridge

ix.

The route would continue along the banktop with the same issues as Section v. At the approach to the junction with Victoria Street there is limited width with safety barriers and to create the necessary width for pedestrians and cyclists the flood bank will need to be widened, as well as some space being reallocated from the existing carriageway. Even then, this will still be a pinch point and it would be sensible to extend the 30mph speed limit from Victoria Street at least 215m in either direction along Branch Bank – this is the minimum recommended stopping sight distance at 60mph speeds in DMRB CD109 – Highway Link Design.

Obtaining agreement from Environment Agency for changes to the flood bank would be extremely difficult.

Figure 7.2.9.1 Branch Bank from Victoria Street

x.

Victoria Street is very restricted in width and there is no scope for widening as the route crosses the river and the railway. The best way to achieve LTN 1/20 requirements would almost certainly be to restrict through traffic perhaps at the river bridge. This would need to be considered as part of a wider review of Littleport.

xi.

A 20 mph limit is recommended across Littleport where most cycling should be on the road mixed with traffic. Victoria Street is relatively quiet and with some restraint at the river bridge and on Main Street this may be enough to make the road suitable for cyclists to use the road mixed with traffic. Without restraint it is likely at present that existing traffic flows exceed 2,500 vehicles per day, as the A10 roundabout to the north links to this location rather than the junction to Littleport railway station, which is the higher standard of road. A review of traffic flows and further monitoring is recommended.

In terms of encouraging cycling the most important action could be to allow contraflow cycling on Main Street. See Section i. and reference to paragraph 4.2.8 of LTN 1/20.

Without contraflow cycling on Main Street cyclists would have to make a longer journey to reach the High Street and additional works will be needed across Littleport.

7.3 Option 3

The third option to be considered has been added since the original study, because it avoids some of the more difficult engineering and land acquisition aspects of Option 1, but it has many similarities with Option 1. The route was previously considered but was dismissed due to the difficulties of dealing with existing traffic on Lynn Road/ Ely Road. If, however, traffic volumes were cut significantly the situation would be different. The suggestion to change the nature of traffic presents political and community challenges, but nevertheless it is felt that it is an option worthy of consideration.

The route links with developments in both Ely and Littleport and links with the centre of Ely in the same way as Option 1. The route differs from option 1 in how it crosses the railway and suggests changing usage of the existing level crossing with most motorised traffic having to use the existing A10 bridge. This would be a cheaper and technically less challenging option than bridging over the railway, but the community engagement challenges may be greater. The proposal will clearly need local support and it may be that trial can be arranged.

The route is considered in sections as in Figure 7.3.

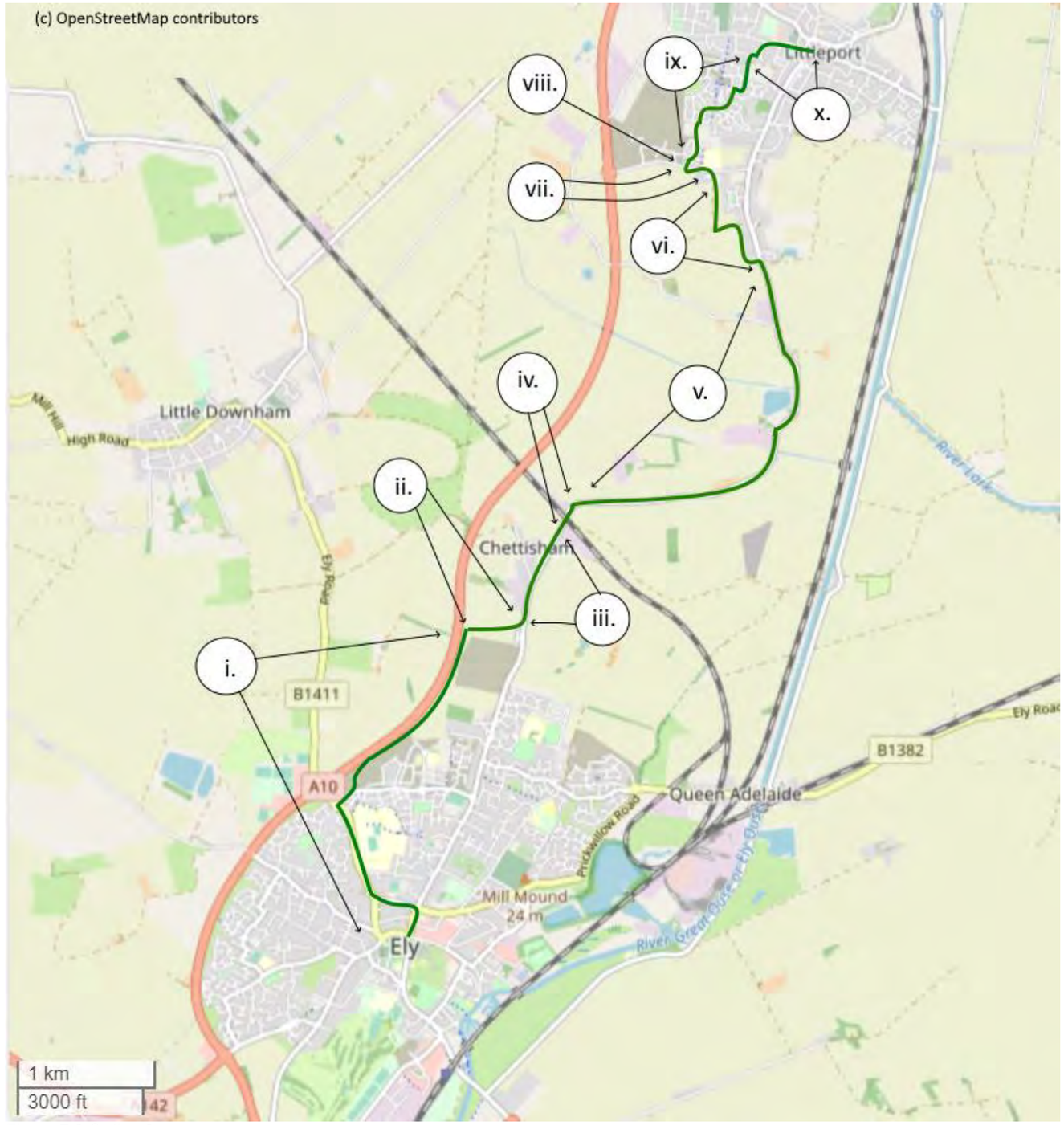


Figure 7.3 Option 3

i.

The first part of the route is the same as Option 1 and relies on new provision along Downham Road and Cam Drive and new provision as part of developments. See 7.1.i – vii.

The suggested route through the development land north of Cam Drive is shown in Figure 7.3.1 with the blue part being the same as Option 1.

ii.

A link is required between the path that follows the A10 and Lynn Road for this option and the most obvious option is the one shown in green on Figure 7.3.1. but other routes can be considered, with the aim being to access Lynn Road as far north as possible whilst also having as direct a route as possible. The suggested route would use residential roads which should be suitable for wheeling with low traffic volumes and speeds. A review of the junction with Lynn Road is recommended to assess the Junction and any changes needed particularly for those turning right off Lynn Road from the Littleport direction.

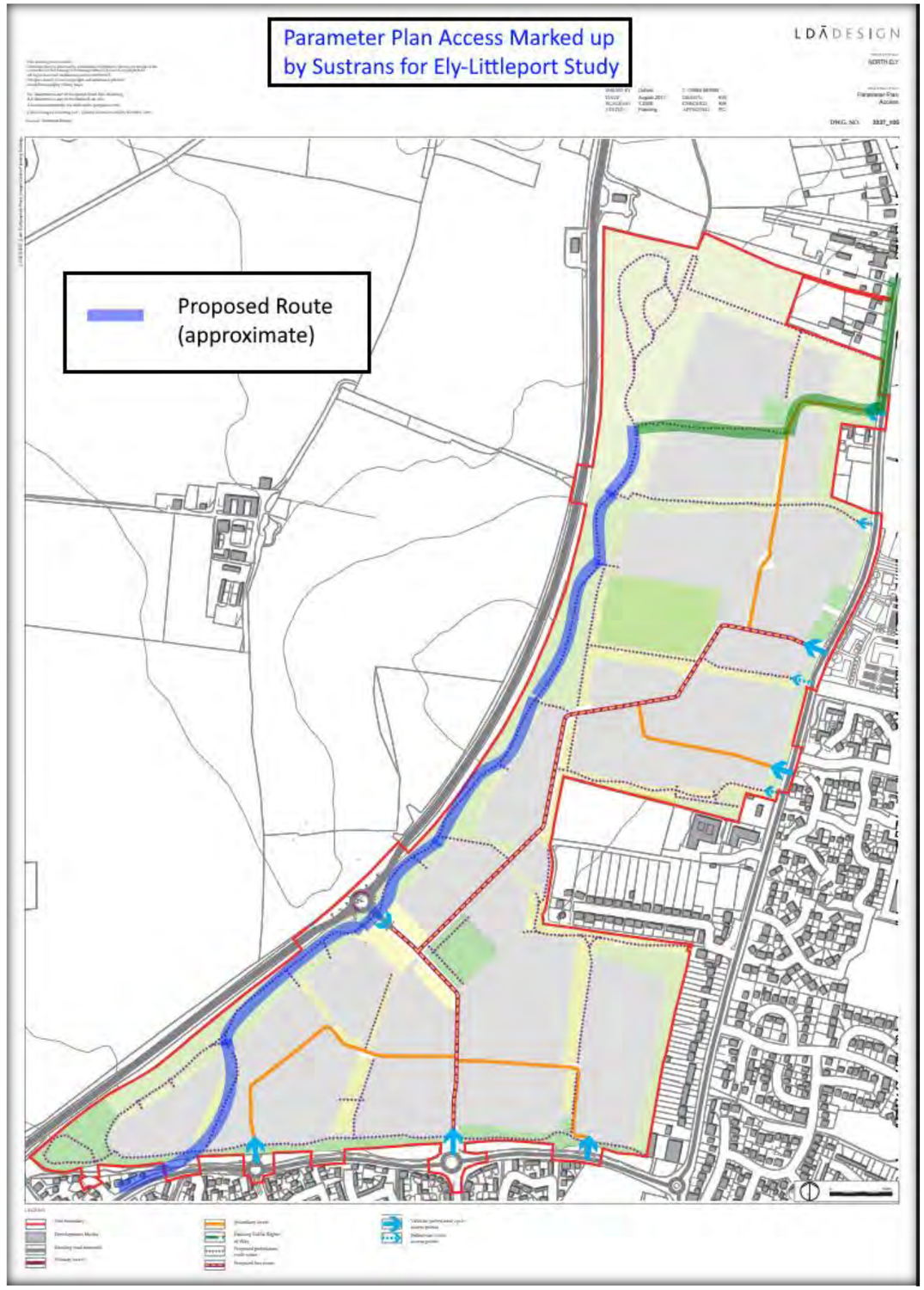


Figure 7.3.1 Marked up Parameter Access Plan.

iii.

The route would need to join Lynn Road through Chettisham and a 20 mph limit is recommended with some traffic calming. With traffic restraints at the level crossing traffic volumes should be low but there will still be some local traffic and consideration could be given to the addition of on-road cycle lanes, certainly beyond Chettisham limits.

Figure 7.3.3. View along Lynn Road towards Chettisham and Ely. Marked cycle lanes in compliance with LTN 1/20 should be considered.

iv.

The route via Ely Road and Lynn Road through Chettisham, was discussed at early stages of the study but was previously discounted for two main reasons. The first is that it has a high percentage of HGVs using it, due to farm and field accesses and Chettisham Business Park, and it is still being used as a route through from outlying districts to the east, rather than utilising the A10 and the bypass. To resolve this issue and reduce the amount of HGV traffic on the route would require a significantly wider-ranging scheme to address how the local highway network in this area is used, potentially with the introduction of weight limits or more likely a modal filter on Lynn Road, preventing through traffic between Littleport and Ely.

The second issue is the level crossing on Lynn Road for the Ely – Peterborough railway line. Network Rail are not in favour of increasing utilisation of level crossings due to the inherent danger that they represent, and the level crossing would need to be widened to accommodate pedestrians and cyclists if they are to be separated from the traffic safely – currently there is a 1m wide strip either side of the running lanes for this purpose. This would be complicated by the proximity of the business park boundary to the southeast and the residential property to the northwest; this in effect makes the area the level crossing is situated within a 'pinch point' that could only really be resolved by rotating Lynn Road clockwise so that it is closer to perpendicular across the railway, giving more space for the necessary improvements and widening. Certainly, there is very little scope to provide a bridge over the railway line, which would be Network Rail's preferred solution to this.

The idea of a modal filter has been revisited because it is hard to argue that Ely Road/ Lynn Road has a strategic function as a route between Ely and Littleport. The A10 was built with that in mind and includes a grade separated crossing of the railway which should give more reliable journey times than the level crossing. For some journeys the A10 may be a further route than driving via the A10 but with new access being formed on the A10 at Ely and Littleport this is a good opportunity to use the existing road to benefit walking, wheeling and public transport.

It is suggested that the level crossing be changed so that it can only be used by those on walking, wheeling or using public transport. Exceptions for emergency vehicles could also be made and exact details would need to be agreed as part of community engagement, including issues relating to farm access and other businesses mentioned earlier. The aim of the proposals would be to keep traffic volumes and speeds low along Lynn Road for as far as possible so that the road can be used for cycling mixed with traffic. The number of HGVs also has to be kept low.

The mechanism for changing the crossing will need careful consideration. There should be no change to the crossing itself but the road itself could be made No entry except buses and cycles over a certain distance. At present Cambridgeshire County Council does not have the power to introduce bus gates outside Cambridge, but these powers could be sought and this will need careful planning.

Traffic levels at the crossing are not known at present but are likely to be well above the 2500 pcu/ day limit in LTN 1/20.

Figure 7.3.4. Approach to the level crossing from Littleport. No changes are proposed for the railway infrastructure.

The route would need to use Lynn Road/ Ely Road from Chettisham to the edge of Littleport and a 20 mph limit is recommended with some traffic calming. With traffic restraints at the level crossing traffic volumes should be low but there will still be some local traffic and consideration could be given to the addition of on-road cycle lanes. There is a gentle gradient on the road over this section and it follows a somewhat indirect alignment when compared to the A10.

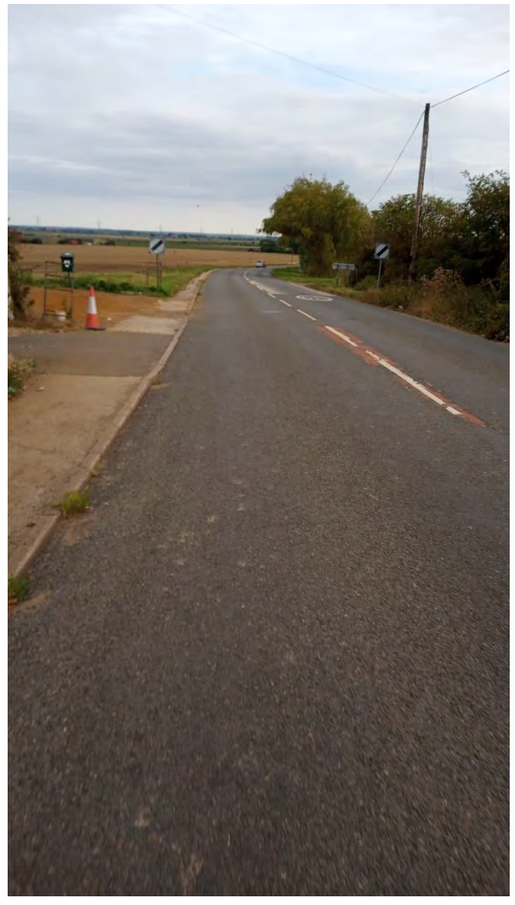


Figure 7.3.5. View towards Chettisham and Ely. Marked cycle lanes in compliance with LTN 1/20 should be considered, along with the removal of centre lines and changes to the speed limit.

v.

vi.

As the route approaches the centre of Littleport traffic levels can be expected to rise, even with the level crossing changes, because Grange Lane is an access route to the A10 and is likely to be busy, so an alternative to Grange Lane is needed. It is suggested that a new field edge route could be formed from the edge of Littleport to link with the developments on Grange Lane. The exact route is unclear – it has not been surveyed but can be seen from Google Earth and from the surrounding public highways. No ecological survey has been conducted but given that the land is mostly farmland major issues are not expected.

The only alternative would be to use Ely Road to the Grange Lane junction and then reallocate road and verge space along Grange Lane to form a segregated cycleway. This does not look easy and will need detailed design. A field edge option would appear to be the more attractive option.

The way that the route links with Grange Lane needs to be agreed. A link near the Water Tower is possible if it can be agreed. Other options are considered in section vii.

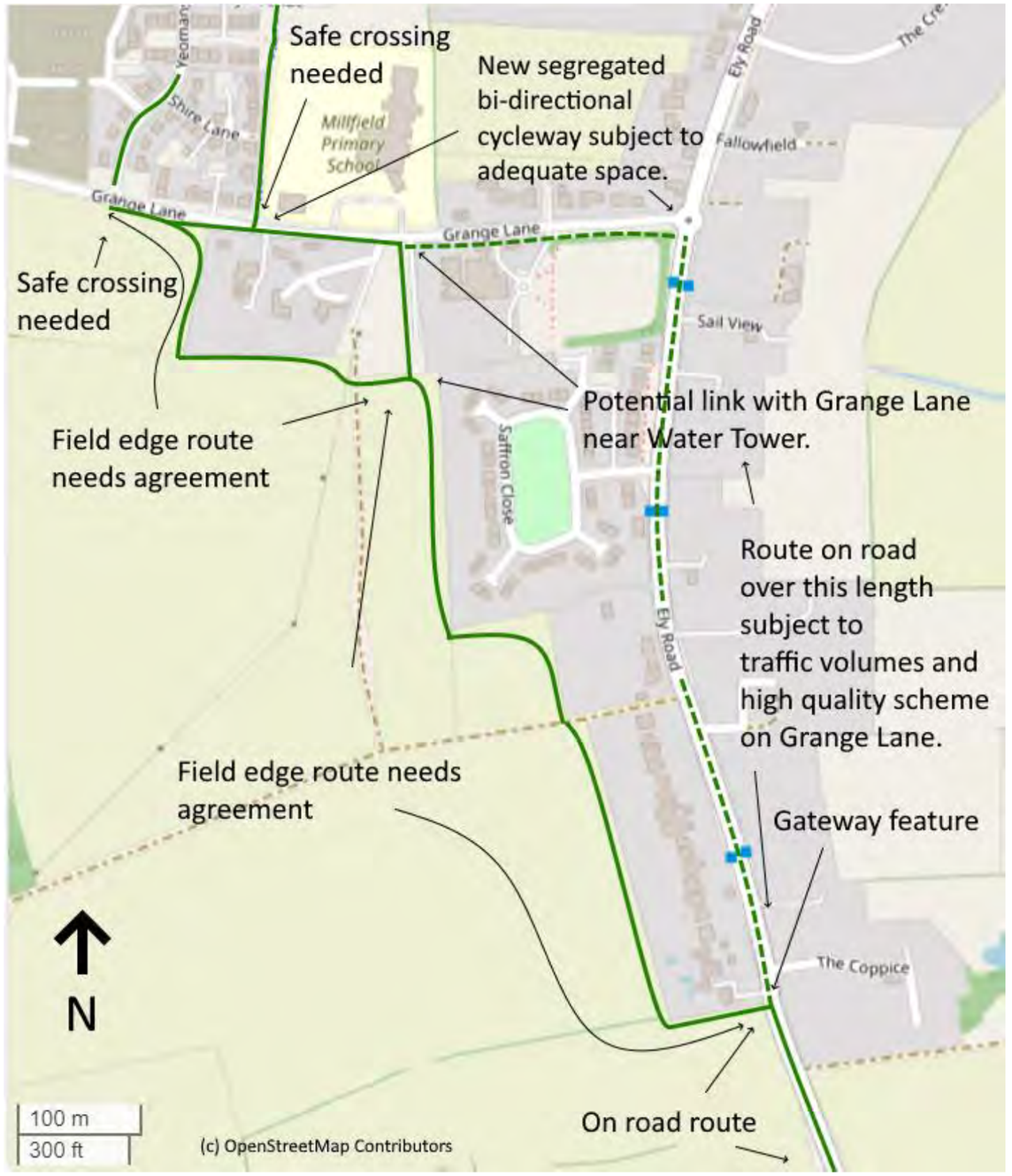


Figure 7.3.6. Approach to Grange Lane.

vii.

Subject to where the route in section vi connects with Grange Lane there are different options:

a. Continue on field edge to almost opposite the Yeomans Way junction.

b. Reallocate carriageway, verge and other roadside space to form a segregated cycleway along Grange Lane potentially continuing all the way to the Yeomans Way junction outlined in a or crossing nearer the school to link with the path that runs along the side of Millfield Primary School.

viii.

A parallel zebra crossing would be needed to link either between a new path and Yeoman's Way or nearer the school. Visibility will need to be checked and some hedge removal will be needed. Detailed design is needed.

Figure 7.3.8. View towards Yeomans Way junction along Grange Lane.

ix. A good route should be possible linking Grange Lane and Parson's Lane using a mixture of on road cycle provision mixed with traffic at low volumes and speeds and then using existing paths. The suggestions are similar as for Option 1, but take a slightly different route.

As with Option 1 much of the route should be delivered using new residential roads which should be low speed and with low traffic volumes. A 20 mph limit is recommended throughout Littleport and is essential for the route. Traffic volumes should be below 2,000 pcu per 24 hours to comply with LTN 1/20 Figure 4.1 and this needs to be confirmed. At present there is no through traffic and traffic volumes are low. Any new through traffic could be a problem and needs to be carefully considered.

Figure 7.3.9.1 Existing path. Paths need to be barrier free and with good road crossings to be useful, so changes are needed to existing arrangements.

Figure 7.3.9.2 Phasing Plan for developments north of Grange Lane, with green route alignment marked on by Sustrans.

Also as with Option 1 barriers are a serious concern. See 7.1.xvii. The paths are shared use, which is no longer recommended and if they can be improved to form segregated paths that opportunity should be taken. However, the major issue with them is the need to remove barriers and improve crossings.

x.

The route joins the older road network in Littleport at Upton Place close to the centre. From here there is little alternative apart from an on-road route mixed with traffic on Upton Place, Parson's Lane and Church Lane until the route arrives at the High Street. A 20mph limit is recommended and it is suggested that this is reinforced with the tightening of junctions and some raised crossings including zebra crossings.

See 7.1.xviii.

7.4 Route comparisons

The below table is a short summary of some of the features and issues with the above options.

As can be seen, no option is without obstacles to be negotiated, particularly in the shape of the railway crossings and land ownership. Option 2 has so many difficulties that it is not recommended to progress it. Options 1 and 3 both however have the potential to be progressed further, with there being a balance between cost, directness, and access for existing drivers.

It should be reiterated again that works would need to go hand-in-hand with improvements to the cycling and walking infrastructure across both Ely and Littleport, as without that the routes in and of themselves won't necessarily provide the necessary uplift in cycling and walking that they could do. Changes in Ely seem particularly important given the quality of provision, the narrow streets and the growing population.

All routes are longer than the most direct route of Lynn Road and this is a deterrent to usage, but they would make for safer and more attractive routes than all the way along Lynn Road.

	Option 1	Option 2	Option 3	Notes
Comparative Length (= 8 km by road)	9.34 km	10.80km	10.24km	For Option 2 anyone accessing the route from Lynn Road direction will have less benefit than those from other parts of Ely.
Likely estimated cost in Ely and Littleport	High major changes to Lynn Road, Downham Road and Cam Drive, in Ely.	High major changes to Lynn Road, Downham Road and Cam Drive, in Ely.	High major changes to Back Hill and around Ely station as well as potentially Lynn Road, Downham Road and Cam Drive.	Options 1 and 2 have the same requirements in Ely and Littleport. Option 3 would benefit from these works but also needs additional provision past Ely Station.
Likely estimated cost between Ely and Littleport	1.5km path on development land. 3.4km path on private land. 200m roadspace reallocation over railway. 1 x parallel crossing	8.2km banktop path 3 x signalled junctions 1 x River Lark bridge.	1.5km path on development land. 1km path on private land at Littleport Traffic calming and signing near level crossing	Option 3 is very likely the cheapest option and Option 2 the most expensive by some way.
Engineering difficulties	Work on the A10 bridge railway bridge would be challenging, Field edge paths may need to accommodate farm crossings. Would need to accommodate farm traffic.	Very big challenges working on flood banks with limited space. Very difficult crossing under railway and very difficult sections of route where space is restricted. Maintenance and reaching agreement with Environment Agency could become a significant issue. Engineering difficulties may rule this option out.	Fewer challenges than the other options, although finding a legal solution for the traffic changes on Lynn Road may be challenging.	Initial discussions with Cambridgeshire County Council have been positive regarding changes to the A10 rail bridge, but this needs more work. A new bridge over the railway would be a major scheme. Further work is needed to assess fully the engineering difficulties.
Ecological issues	Opening up new access may cause disturbance, but most provision is either near the A10 or part of existing developments.	If there were no changes to the floodbanks bird disturbance would be an issue, but changes to the banks could be significant and may rule this option out.	Opening up new access may cause disturbance, but this option includes significant lengths of on-road provision, so it is likely to have the least impact of all 3 options.	Option 3 has not been studied for ecology. Option 1 and 3 ecology issues within development land have been assumed to be addressed as parts of developments.
Land ownership issues	Large parts of the route can be delivered using development land, but private land is needed in the vicinity of the A10 rail crossing and there is little scope for flexibility. Could be a major issue.	Mostly believed to be Environment Agency land, which should be an advantage, but agreeing works and maintenance could be very difficult. Obtaining Environment Agency agreement may rule this option out.	Large parts of the route can be delivered using development land, but private land is needed for the suggested route into Littleport, although that could be avoided if a suitable route along Grange Lane can be achieved. This appears to be the least risky option in terms of land, but that is not known until discussions have been held with landowners.	It is assumed that landowners would be compensated for their loss of land and all works would be designed to ensure that they fitted with the operational needs of the landowners. The Local Authority does have powers to acquire land if needed or to create rights of way, but it is hoped that this will not need to be used.

Table 7.4.1

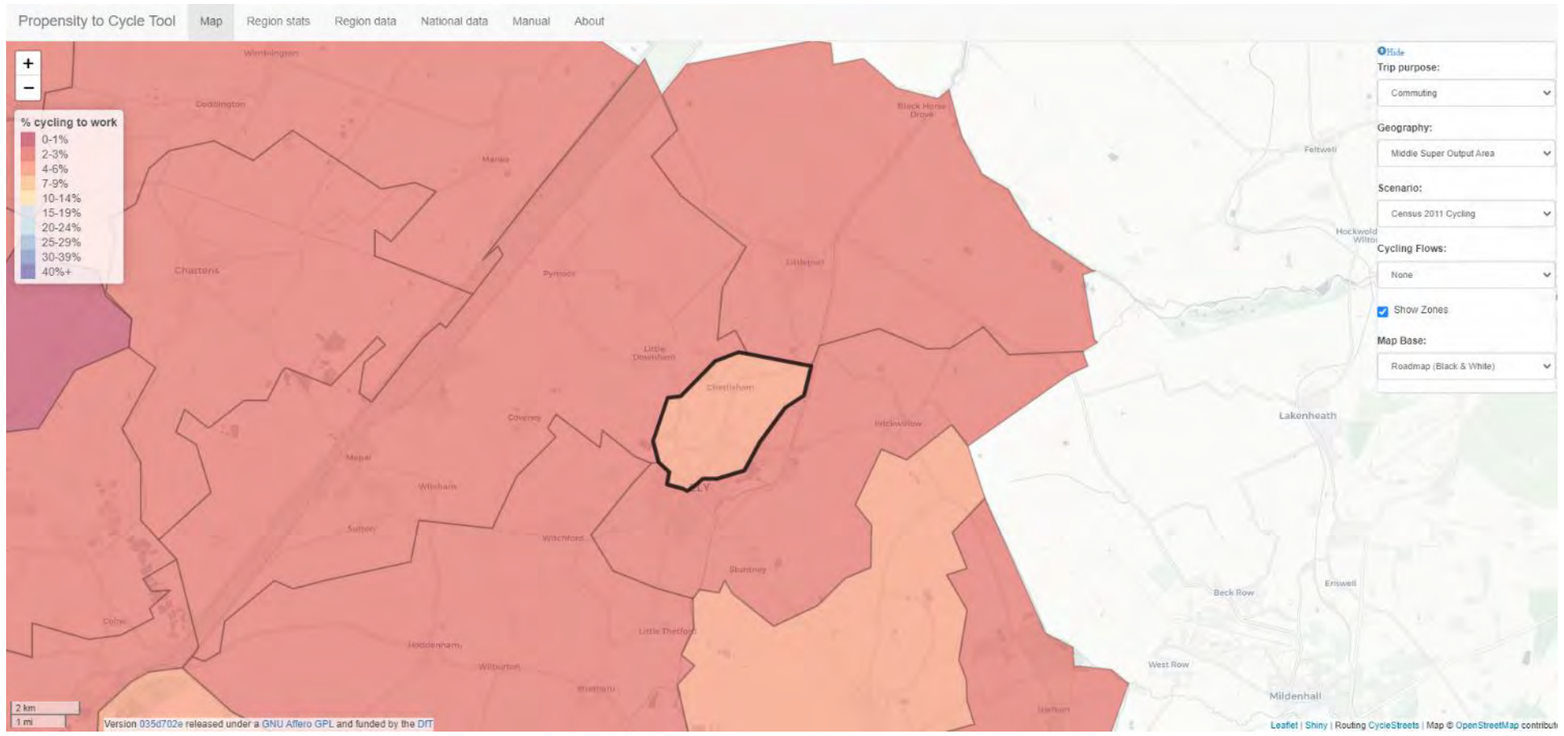
8. Potential Usage

Whilst the number of responses to ECDC's Cycling Questionnaire gave a clear indication that a route between Littleport and Ely is desirable (120 responses) there is little data on actual cycle usage between these communities, but some indication can be got from various modelling tools. The Propensity to Cycle Tool has been used to get an idea of potential usage. The tool was designed to assist transport planners and policy makers to prioritise investments and interventions to promote cycling. It answers the question: "where is cycling currently common and where does cycling have the greatest potential to grow?".

The tool uses census data to get information on local populations and local modal shares of journeys to work and school by bike and uses mapping data to get information about trip distances and geography. The tool is focused on journeys to work and school, because this is the data that is collected, so it does not allow for leisure and other activities.

The numbers shown in these maps are numbers of people rather than trips.

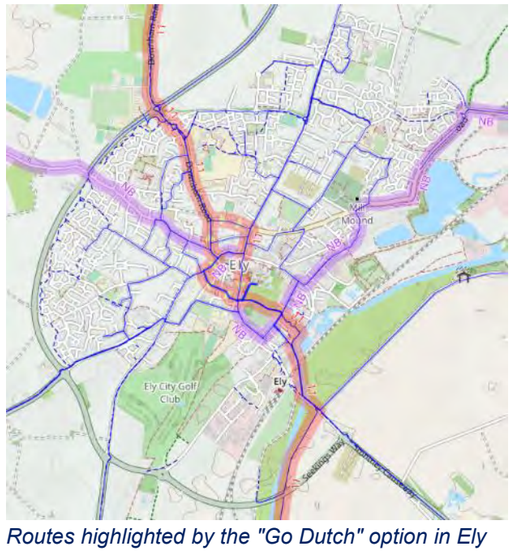
The tool uses various scenarios such as "Go Dutch" whereby it assumes that the infrastructure and modal share are similar to a Dutch case, adding in factors for hilliness, which will deter usage. For East Cambridgeshire's case there is no reason to see why Dutch levels of cycling could not be achieved. The tool also uses an "Ebike" scenario, which assumes that the use of Ebikes and Dutch style infrastructure will significantly increase the range and number of cycle trips, so for instance cycling between Littleport and Ely would be much more likely than at present.



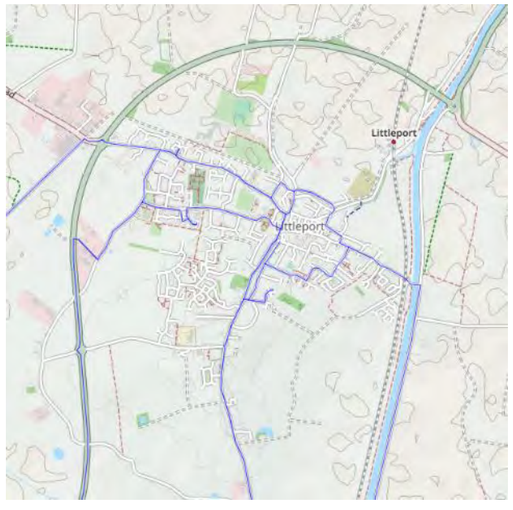
Propensity to Cycle - to work – 2011 Census

Under the "Go Dutch" scenario as indicated right the tool highlights a number of interesting issues:

1. The tool assumes that some cyclists (but all of school trips) will use the A10 to cycle between Littleport and Ely, since this is the most direct route, and the tool assumes people will choose the most direct route. The tool assumes that the route will be brought up to "Dutch" standards throughout, but this study has shown that this would be extremely difficult to do.
2. The tool shows the importance of the main roads within Ely and Littleport are, as can be seen by the blue highlighted routes on the included maps. This shows the importance of improving the links within the two settlements, as well as providing an upgraded route between the two.



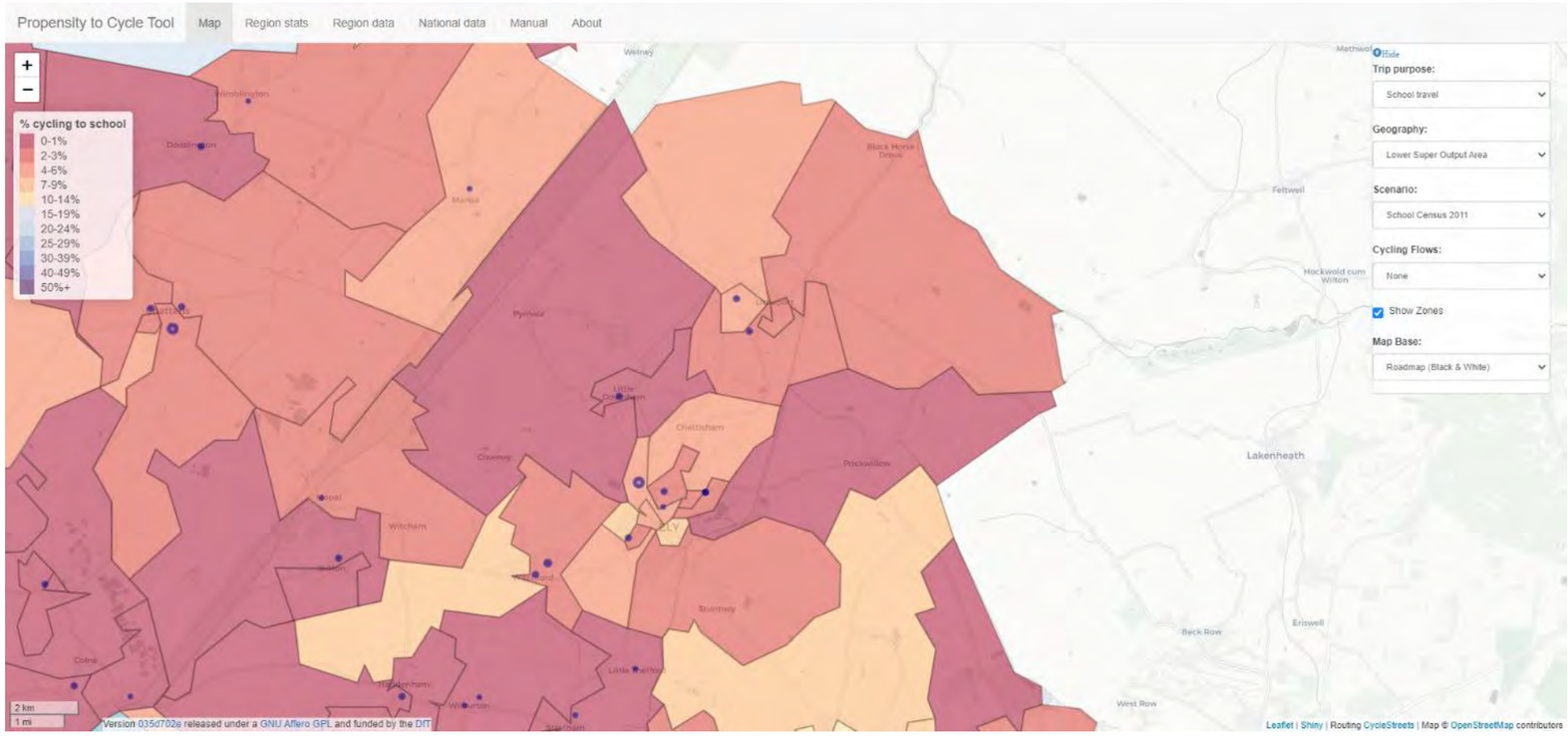
Routes highlighted by the "Go Dutch" option in Ely



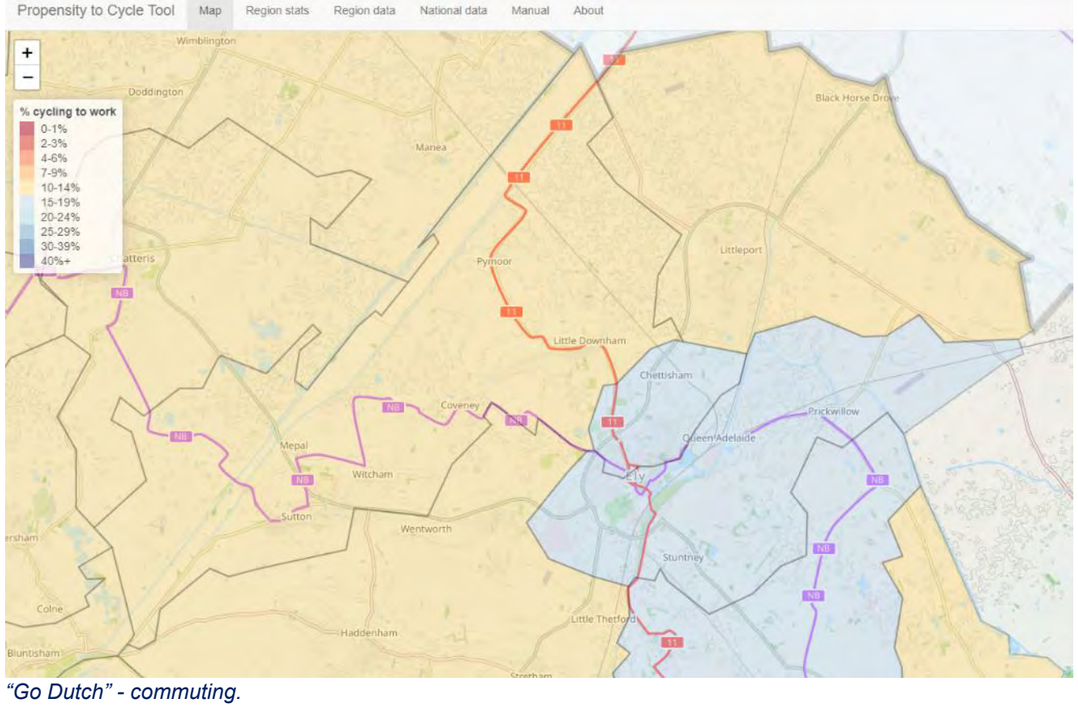
...and in Littleport

It should be noted that commuting trips are a low proportion of all trips and commuting patterns have changed since the start of the Covid-19 pandemic. Nevertheless the tool shows the potential for increased usage including a big potential increase in school trips, presumably based upon access to the greater number of schools in Ely. It also shows significant potential increases in commuting trips, particularly with the Ebike scenario.

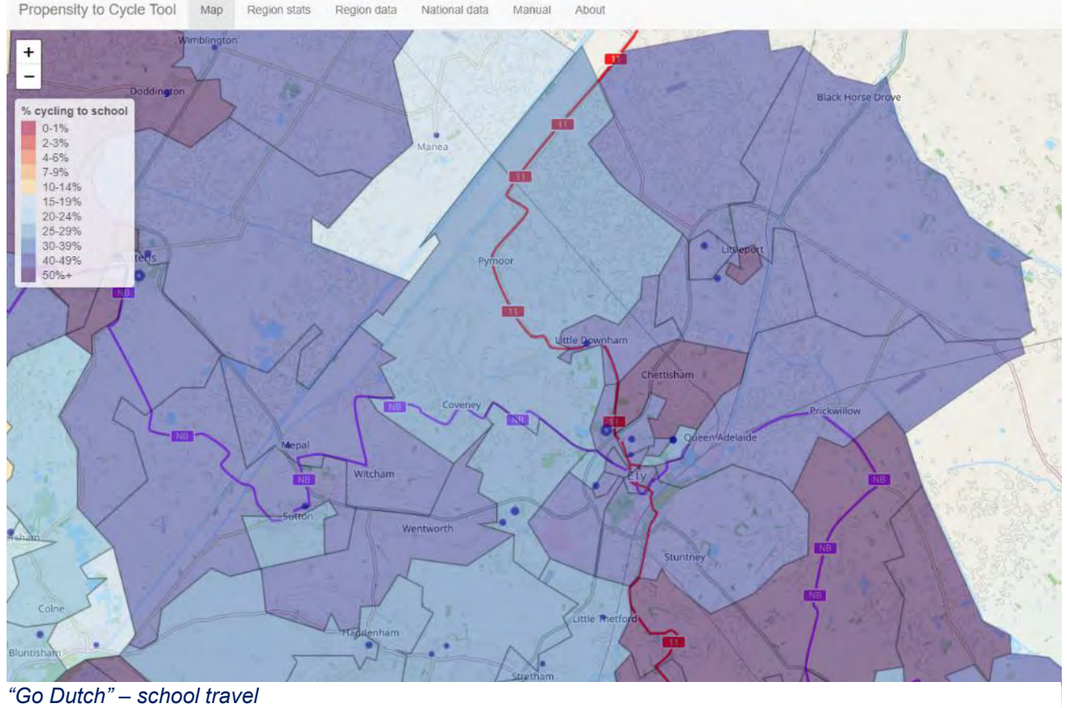
Whilst the tool does not allow for attractiveness it is likely that if a very attractive and direct "Dutch" style route is developed it will attract significant leisure users and walkers in addition to the figures above.



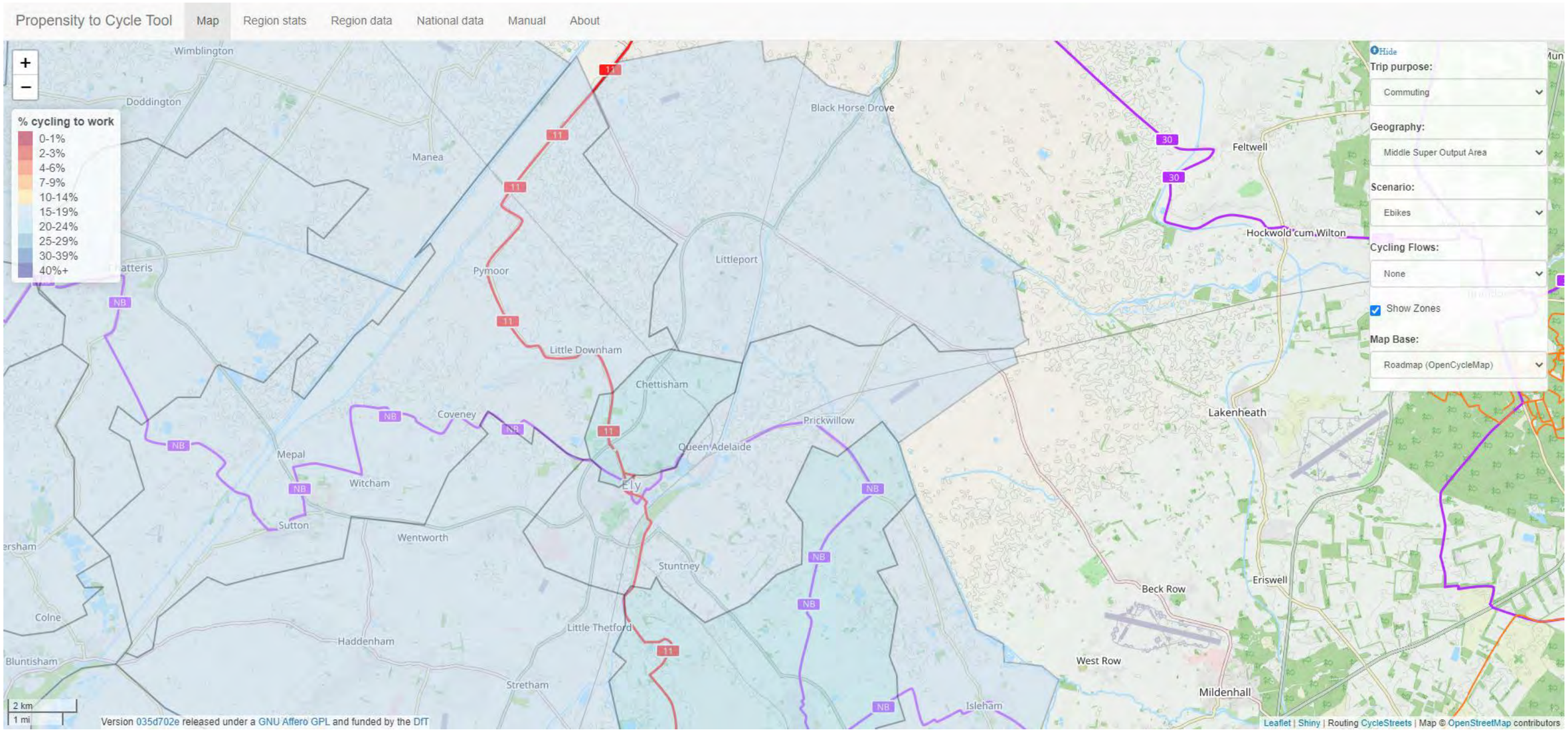
Propensity to Cycle – school travel – 2011 Census



"Go Dutch" - commuting.



"Go Dutch" – school travel



"E-Bike" commuting scenario

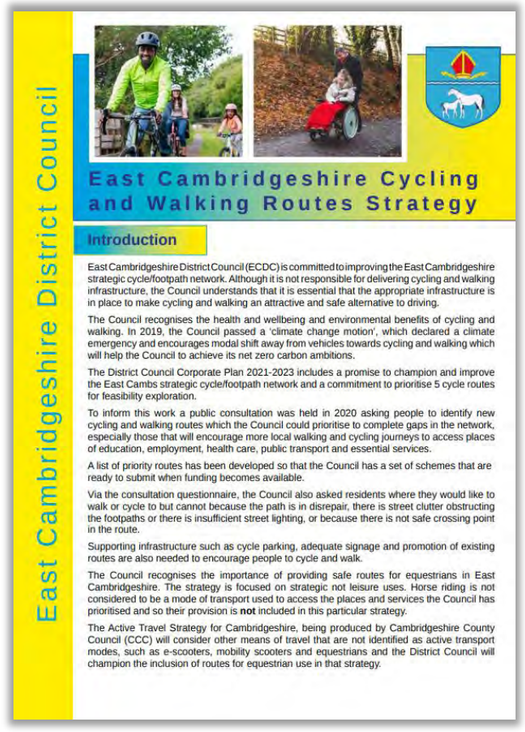
Other ways of assessing potential demand include on-line tools such as Widen My Path.

An extract from Widen My Path is shown below with comments added in for ease of viewing. As can be seen, there are many calls for cycleways, traffic filters and pavement improvements.

Another on-line tool that has recently been developed may in future contain more data on the area, but it is limited at present. See https://www.cyipt.bike/rapid/cambridgeshire-and-peterborough/m.html

As mentioned earlier East Cambridgeshire has conducted surveys as part of the Cycling and Walking Routes Strategy. The full report is at https://www.eastcambs.gov.uk/sites/default/files/agendas/Cycling%20and%20Walking%20Routes%20Strategy%20webAC.pdf

In total 309 cycle routes were proposed, with the most numerous responses for a route between Littleport and Ely. Many responses showed a strong demand for leisure routes. These are not picked up by the Propensity to Cycle analysis of journeys to work or school.


East Cambridgeshire District Council

East Cambridgeshire Cycling and Walking Routes Strategy

Introduction

East Cambridgeshire District Council (ECDC) is committed to improving the East Cambridgeshire strategic cycle/footpath network. Although it is not responsible for delivering cycling and walking infrastructure, the Council understands that it is essential that the appropriate infrastructure is in place to make cycling and walking an attractive and safe alternative to driving.

The Council recognises the health and wellbeing and environmental benefits of cycling and walking. In 2019, the Council passed a 'climate change motion', which declared a climate emergency and encourages modal shift away from vehicles towards cycling and walking which will help the Council to achieve its net zero carbon ambitions.

The District Council Corporate Plan 2021-2023 includes a promise to champion and improve the East Cambs strategic cycle/footpath network and a commitment to prioritise 5 cycle routes for feasibility exploration.

To inform this work a public consultation was held in 2020 asking people to identify new cycling and walking routes which the Council could prioritise to complete gaps in the network, especially those that will encourage more local walking and cycling journeys to access places of education, employment, health care, public transport and essential services.

A list of priority routes has been developed so that the Council has a set of schemes that are ready to submit when funding becomes available.

Via the consultation questionnaire, the Council also asked residents where they would like to walk or cycle to but cannot because the path is in disrepair, there is street clutter obstructing the footpaths or there is insufficient street lighting, or because there is not safe crossing point in the route.

Supporting infrastructure such as cycle parking, adequate signage and promotion of existing routes are also needed to encourage people to cycle and walk.

The Council recognises the importance of providing safe routes for equestrians in East Cambridgeshire. The strategy is focused on strategic not leisure uses. Horse riding is not considered to be a mode of transport used to access the places and services the Council has prioritised and so their provision is **not** included in this particular strategy.

The Active Travel Strategy for Cambridgeshire, being produced by Cambridgeshire County Council (CCC) will consider other means of travel that are not identified as active transport modes, such as e-scooters, mobility scooters and equestrians and the District Council will champion the inclusion of routes for equestrian use in that strategy.

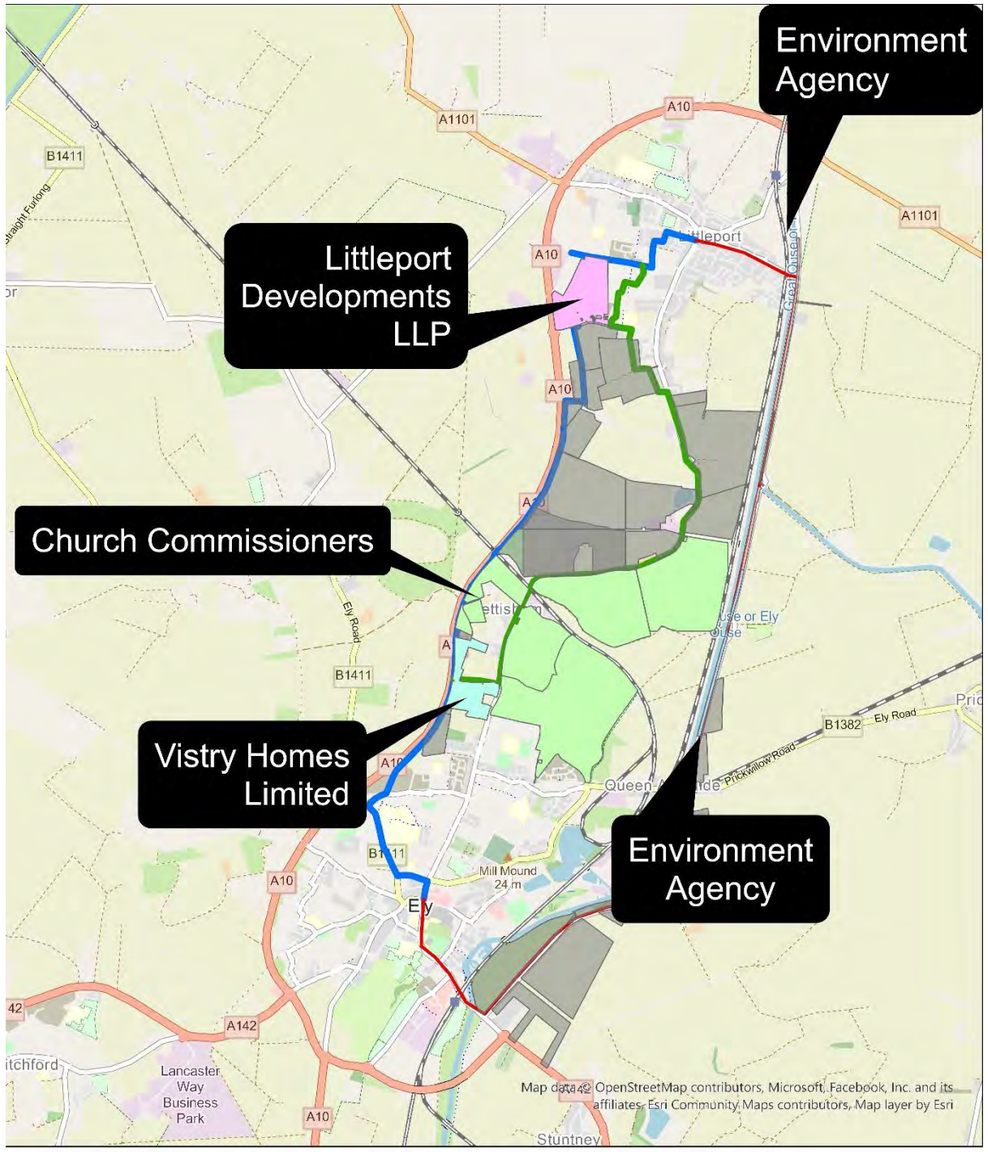
9.Land Registry Information

The most complicated part of the development of any new route is likely to be the need to get landowners' agreement. Time and funding need to be allocated for this and if necessary the Local Authority needs to be willing and able to use Statutory Powers to deliver the proposed routes.

This should however be a last resort and the aim should be to build good relationships with all landowners.

As expected, much of the land within and between Ely and Littleport is under individual ownership which can't be shared in this report due to privacy concerns. There are, however, several public-facing organisations who own large plots of land as well. These are labelled in Figure 9.1 alongside the title numbers for which Sustrans has gathered data.

In summary, the Church of England owns several land parcels of significance for Options 1 and 3, although more so the former due to its greater reliance on off-road routes. Developers own plots of land that will serve to stretch Ely further northward and Littleport further southward. Finally, the Environment Agency owns a considerable amount of land required for Option 2, which would further entrench them in the consultation were this option pursued.



10. Ecological assessment

Scope and limitations of ecological assessment

The likely ecological constraints for Options 1 and 2[1] have been assessed by Samsara Ecology in January 2022[2] and are summarized below. A Preliminary Ecological Appraisal in line with CIEEM (2017) guidelines[3] was undertaken including walkover assessments of both routes from public footpaths and highways. Some features situated on adjacent land, such as agricultural drains, could not be closely inspected. For a feasibility stage assessment this is sufficient survey effort to compare the ecological impacts of the different routes and identify any major constraints for the proposal.

Hannah Lewis MCIEEM (Sustrans Ecologist) has undertaken a basic desk based assessment of the likely ecological impacts and constraints Option 3. This uses freely available online datasets[4] in January 2024. No site visit has been conducted and a full report has not been prepared for this route.

Scheme viability and route comparison

No barriers to route creation have been identified for any route options, although if planning permission is required, the biodiversity net gain costs of Option 2 may be prohibitively large in comparison to the overall cost of the project. Due to the presence of priority habitats, the ecological impacts of Option 2 are anticipated to be the most significant of the three routes. Option 3 is likely to have the lowest ecological impact as it is primarily on road and in arable land, although this must be confirmed by a site visit. The biodiversity unit loss is likely to be least for Option 3 and so associated costs lower, although the need for statutory biodiversity net gain depends on the need for planning permission.

Protected species may be present along all route options and will have associated costs for survey and mitigation, but these are not likely to be prohibitively high. This landscape is within the Goose and Swan Functional Land Impact Risk Zone associated with the Ouse Washes Special Protection Area (SPA)[5]. As such a screening assessment will be required to determine if a Habitat Regulations Assessment is required. This may include the need for winter bird surveys.

Designated Sites

No sites of international importance were situated within 5km of the proposal, however, this landscape is within the Ouse Washes Goose and Swan Functional Land Impact Risk Zone associated with the Ouse Washes Special Protection Area (SPA). As such any route through this zone must be assessed to determine if it will impact the bird populations associated with the SPA. This impact was not considered in the Samsara PEA and will depend on the usage of adjacent fields by wildfowl and levels of screening. This constraint may require additional survey effort and mitigation to prevent an impact on the SPA. A screening assessment will be required to determine if a Habitat Regulations Assessment is required.

Two sites with statutory protection were situated within 1km of the proposal, both Sites of Special Scientific Interest (see Figure 9.1). Ely Pits and Meadows SSSI is situated on the opposite side of Queen Adelaide Way from Option 2. This site is over 850m from Options 1 and 3. Chettisham Meadows SSSI is 100m from Option 1 and 500m or more from Options 2 and 3.

Two sites with statutory protection were situated within 1km of the proposal, both Sites of Special Scientific Interest (see Figure 9.1). Ely Pits and Meadows SSSI is situated on the opposite side of Queen Adelaide Way from Option 2. This site is over 850m from Options 1 and 3. Chettisham Meadows SSSI is 100m from Option 1 and 500m or more from Options 2 and 3.

Two additional non-statutory sites County Wildlife Site (CWS) were identified within 1km of the proposal. Option 2 crossed the River Lark and Associated Habitats CWS via an existing road bridge and was situated within 10m of the River Great Ouse CWS for much of its length. Option 1 was situated 0.2km from both these sites. Data relating to locally designated sites has not been obtained in relation to Option 3.

Samsara have concluded that Option 1 and 2 will not result in the loss or damage to any habitats within designated sites. Measures will be required for Option 2 to ensure no indirect impacts to the rivers in the CWS from run-off during construction.

Habitats

This Landscape is predominantly flat fenland with few hedgerows, tree lines or woodland blocks. Deep agricultural drains bisect large arable fields, and areas alongside the rivers are mainly managed as wetlands that periodically flood. Hedgerows and drains are present along both routes. No irreplaceable habitats have been identified through the field surveys. Figures 9.2 and 9.3 illustrate mapped priority and irreplaceable habitats.

Samsara described Option 1 as being predominantly 'other neutral grassland' in poor condition with small areas of tall ruderal, bramble scrub and common reed. This route does not pass through any mapped irreplaceable or priority habitats, but may impact hedgerows, a priority habitat. This route is situated through semi-natural, but not priority habitats for the majority of its length and therefore has a moderate loss of biodiversity units.

Option 2 is situated through mapped priority habitats - ‘coastal and floodplain grazing marsh’ (CFGM) and ‘good quality semi-improved grassland’. The irreplaceable habitat ‘lowland fens’ is also situated close by the route. Option 2 is situated along the River Great Ouse for the majority of its length. Samsara describe it as predominantly situated through grassland with some cropland, sparsely vegetated land and a small area of scrub. This option is likely to result in a significantly higher loss of biodiversity units than other routes. It will also require a river

[1] Please note that the Route Numbers were reversed in the original Samsara Report.
[2] Farnell, H (2022) Samsara Ecology Report Number: 172 Version: V1: Preliminary Ecological Appraisal Ely to Littleport Feasibility Study.
[3] CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.

[4] Multi-Agency Geographic Information Centre (Website accessed December 2023) Magic Map Application (defra.gov.uk)
Woodland Trust (Website accessed December 2023) Ancient tree inventory https://ati.woodlandtrust.org.uk/tree-search
DEFRA (website Access December 2023) Main rivers map https://environment.maps.arcgis.com/

[5] East Cambridgeshire District Council (2018) East Cambridgeshire Local Plan 2016 – 2036 Local Plan Examination Stage Interim Statement of Common Ground between: East Cambridgeshire District Council Natural England In relation to Matter 1, Q8-10

metric assessment and net gain requirements for a large proportion of its length. The biodiversity net gain costs will be very high for this Option.

Option 3 does not pass through any mapped irreplaceable or priority habitats, but may impact hedgerows, a priority habitat. No field survey of Option 3 has been conducted, but from aerial imagery it primarily appears to be situated in arable land and on road. It also crosses a mapped field drain. This route option is likely to have a significantly lower habitat loss, and loss of biodiversity units that options 2 and 3. This is likely to be the preferred option in terms of habitat loss although this must be confirmed by a site visit.

Protected species

Samsara identified suitable habitat along Options 1 and 2 for great crested newt, nesting birds, commuting and foraging bats (but no habitats suitable for roosting were present) and badger. Samsara also specified that Option 1 also had suitable habitat for reptiles and water vole. Habitat suitable for all these species is likely to occur along Option 3, although the majority of the route, situated in hard standing and arable, would have limited potential for protected species.

Samara identified Options 1 and 2 as having potential for impacts that would contravene current legislation in relation to great crested newt, nesting birds and badger, although the impact varied in significance between routes. The impacts on great crested newts were considered more easily avoidable for Option 2. For Option 1, without appropriate protection measures, impacts that would contravene current legislation could also be anticipated on reptiles and water vole. No lighting is currently proposed and potential impacts of any lighting on foraging and commuting bats can be avoided through good design in accordance with industry guidelines. A detailed assessment of likely impacts on protected species for Option 3 requires a site visit, but impacts are possible on all the protected species identified as potentially present for those sections of route that are off road.

Notable species and assemblages

Samsara identified suitable habitat for hedgehog along Options 1 and 2. This species may be disturbed, injured, or killed during the construction works of the proposed routes.

Arable fields have recently been lost from developments to the north and south, likely pushing arable birds into the fields between the two sites to the location of Option 1. The cumulative impact of these developments, path creation and future recreational use have potential to impact breeding bird populations here in the long-term. Further assessment will be required to determine if Options 1 and 3 may further impact breeding bird populations.

Habitats along Option 3 may also have significance for other notable mammals, invertebrates and plants. This would required a site visit to determine importance and impacts.

Next steps

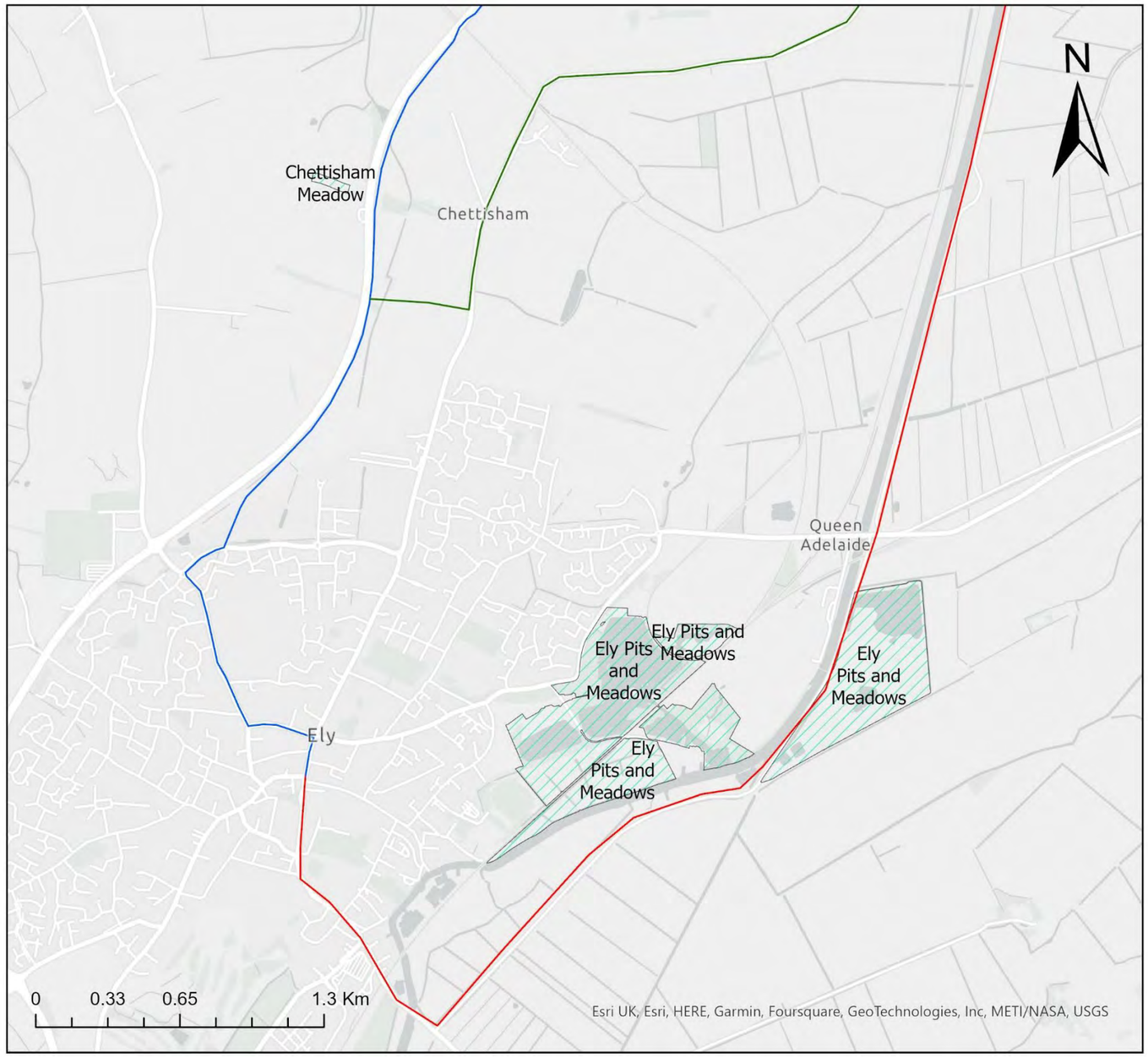
Once the preferred option is identified more detailed surveys will be required. Option 3 will require a full PEA, and the PEA for Options 1 and 2 must be updated due to the time since it was undertaken and to include any temporary works areas and access. All options will require badger surveys. Additional surveys for water voles and reptiles may be necessary for statutory compliance. Great crested newt surveys will not be required if the District Level Licence is used. An arboricultural assessment and tree protection plan are recommended and will be required for a planning application, as will a detailed BNG assessment and additional surveys for notable species. This includes breeding bird surveys for Option 1 and may include plant and invertebrate assessments for Option 3. These additional surveys should be conducted as best practice if planning permission is not required. The PEA, and all species assessments should be compiled into an Ecological Impact Assessment for a planning application.

A biodiversity gain strategy will be required for planning permission to be granted. Early consultation is recommended with the Local Authority regarding measures proposed for the biodiversity net gain strategy. The biodiversity gain strategy should, where possible, strengthen the existing ecological network, enhance retained habitats and diversify the landscape.

To protect the nature conservation interest at the site, the detailed design (including temporary works areas) should;

- Maintain a sufficient buffer to protect adjacent watercourses, hedgerows and trees;
- Minimise habitat loss, particularly in the most ecologically notable habitats.
- Maintain a 5m buffer between works and river banks to protect water vole habitat.
- Avoid fencing and lighting where possible, or design for minimal impacts on wildlife if essential.
- Include biodiversity enhancements such as bat and bird boxes as recommended by Samsara, appropriate planting/seeding of re-instated habitat and any biodiversity net gain requirements.

A Construction Management Plan will be required that includes measures to protect designated sites, retained habitats and protected and notable species. If present and if impacts cannot be avoided, licences may be required for work relating to badgers and water voles. The options are all within green and amber risk zones for great crested newts and therefore the scheme can apply for inclusion within the District Level Licence if planning permission is required.



Legend
- Option 1
- Option 2
- Option 3
- Sites of Special Scientific Interest (England) © Natural England

Figure 10.1 – Sites of Special Scientific Interest

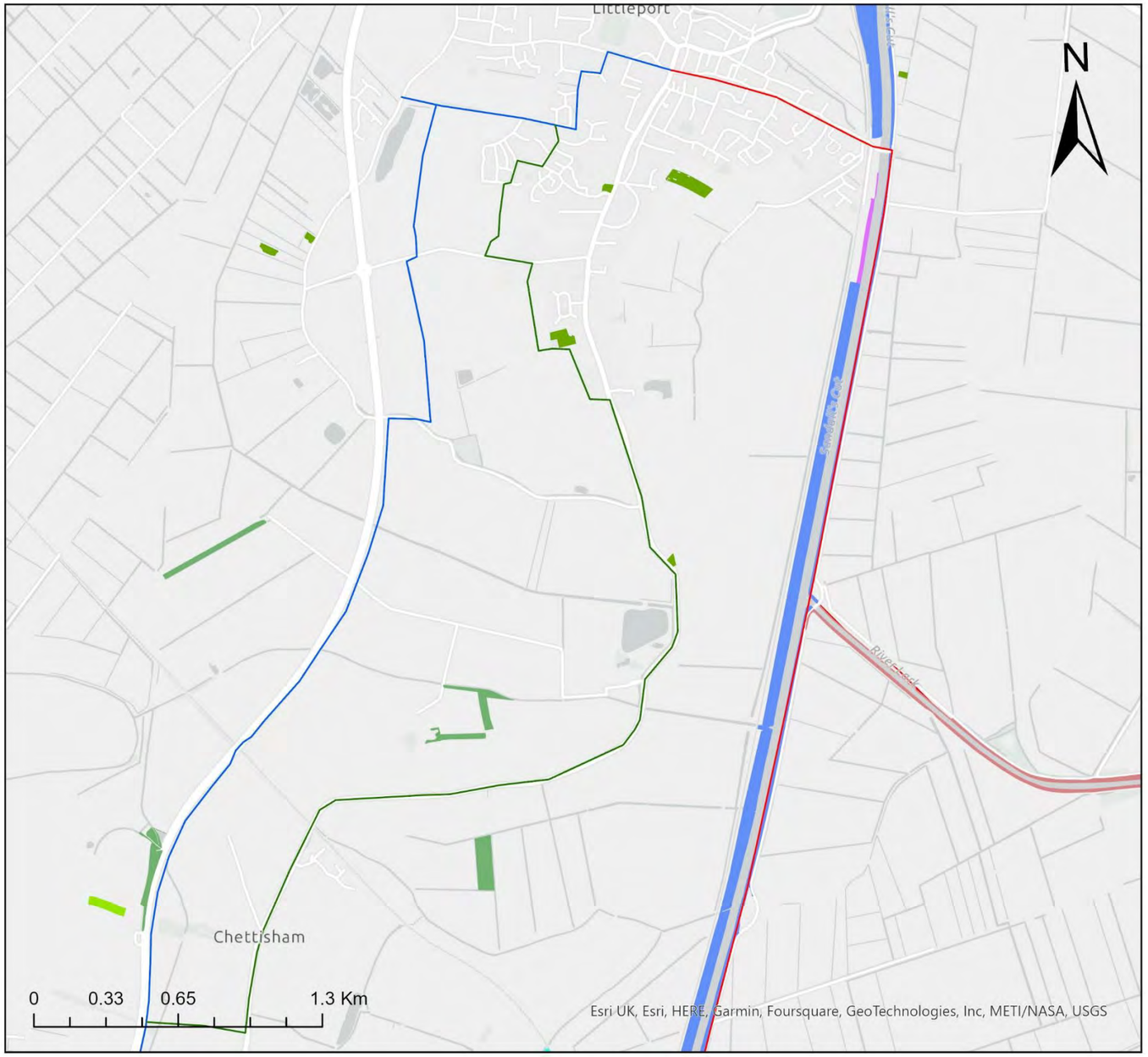


Figure 10.2 – Important habitats (North)

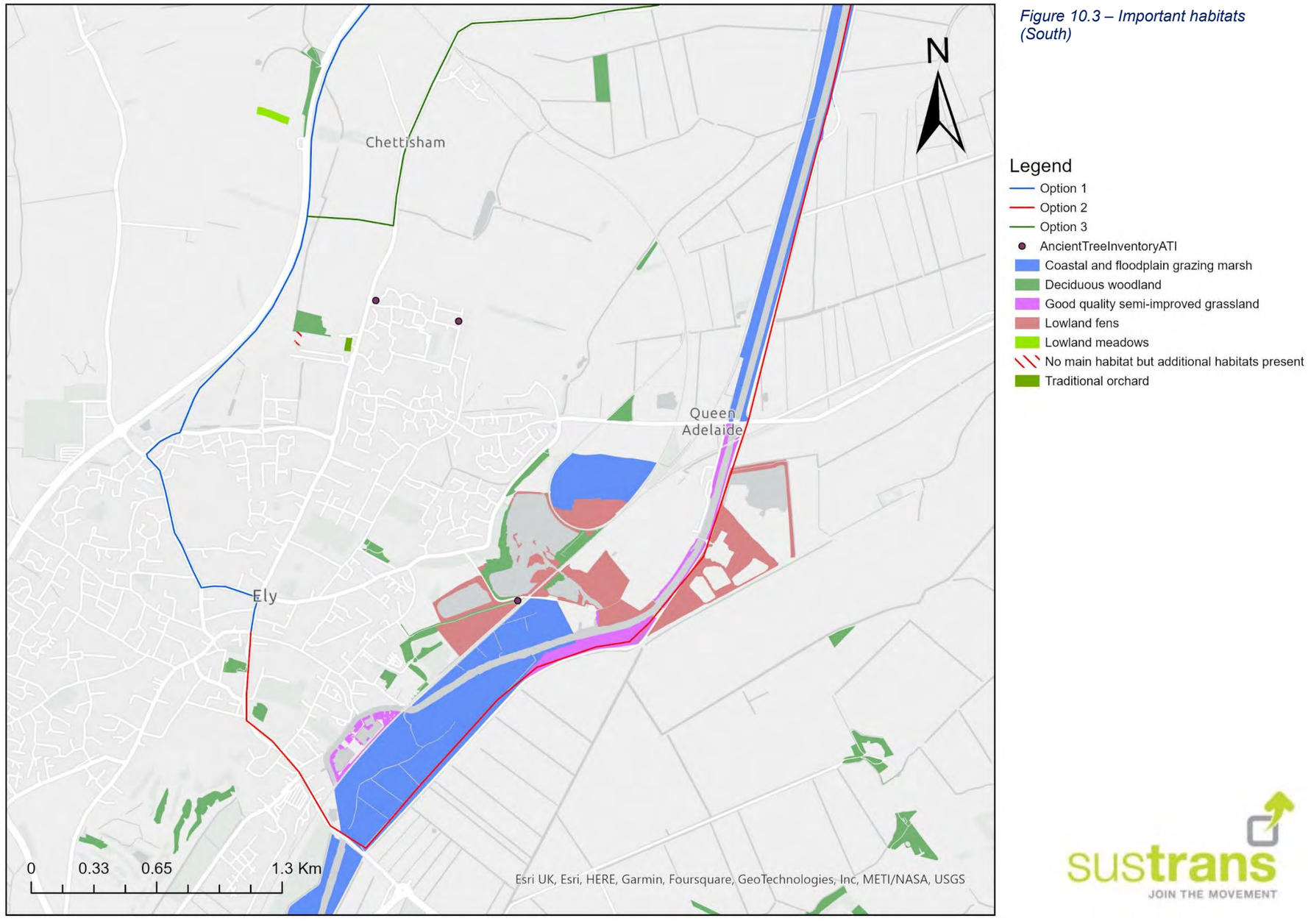


Figure 10.3 – Important habitats (South)

11. Community engagement

Community engagement will be essential for delivery of the project. East Cambridgeshire District Council have already seen that there is a demand for the route as part of their Cycling and Walking Route Strategy, but engagement will need to be taken to another level now that the details of any work are becoming clearer.

Sustrans has not undertaken as part of this study, but this is clearly a high priority to progress the proposals.

11.1 Evidence of Support

As discussed previously regarding the ECDC Cycling and Walking Strategy and Widen My Path, there is clear demand for cycling and walking improvements in Ely and for a route between Ely and Littleport. It is likely that this pressure is represented at a district and parish level in the area also.

11.2 Audit of Engagement Risk

At present we envisage that the major risks are likely to be:

- Landowners who do not want the route because of security or other concerns.
- Members of the community who may not want changes to the street environment.
- Businesses who may have concerns about access to their properties.
- Wildlife Organisations and members who are concerned about habitat loss.
- Footpath, byway and bridleway users who may object to surfacing works and/ or changes in the number and types of users.

11.3 Audit of Engagement Opportunity

The works stand to bring benefits for the whole community and there needs to be extensive engagement across the communities including with schools, clubs and residents groups as well as the Parish Councillors, District and County Councillors.

11.4 Community Engagement Plan

At this stage there has not been Community Engagement, although Sustrans regards this as vital for the success of the proposals.

The early stages of community engagement will need to start with the Parish Councils and the District and County Councils and be directed by the wishes of the elected members, but this will need to be handled delicately, so that relations with landowners are not damaged. Landowners should know at a very early stage what is being proposed and need to understand that nothing is finalised yet and their wishes will of course be taken into account.

A community engagement plan might include:

- In-depth discussion with landowners.
- On-line consultation and poster, leaflet campaign.
- Consultation meetings and public events in Ely, Chettisham and Littleport.
- Walk through of proposals.
- Meetings with businesses and staff and staff surveys.
- Presenting at Council meetings etc.
- The completion of Healthy Streets Audits for Ely and Littleport. This can help engagement in the wider issues.
- Consultation meetings or events outside the immediate area, such as Queen Adelaide and Prickwillow.

12. Key stakeholder engagement

All key stakeholders should be engaged at this stage. This can be informal discussions that can give an indication of likely acceptance of the scheme and likely issues that will need to be examined more carefully at Detailed Design.

Key Stakeholders might include:

- City of Ely Council
- Coveney Parish Council
- Little Downham Parish Council
- Littleport Parish Council
- Local Public Rights of Way Team
- Greater Cambridge Partnership
- Cambridgeshire County Council
- East Cambridgeshire District Council
- Combined Authority
- British Horse Society
- The Ramblers Association
- CamCycle
- Ely Cycling Campaign
- Historic England
- Natural England
- National Trust
- Disability Groups

13. Legal Agreements, Planning Application and other Approvals

Both options will need planning approval for the off-highway construction works and will need highways approval and the appropriate orders for highway works.

Where new routes are not following appropriate rights of way or public highway legal agreements are likely to be needed with the landowner. These will need to grant rights for users and allow for construction and maintenance of new paths. The signatory for the legal agreements will need to be agreed at an early stage in discussions between East Cambridgeshire District Council and Cambridgeshire County Council and budgets will need to be provided. There will also need to be consideration as to when and how statutory powers might be used if there is no progress in negotiations with landowners, but the aim should be to avoid this if possible.

It is not possible to say at this stage exactly how much land will be needed or where exactly paths should be positioned. They will need to be positioned to suit landowners' requirements such as farm operations. For instance, where a path follows a ditch or drain, space may need to be left to allow access for clearing the drain, without damaging the path. It is to be expected that many landowners will require new fences or hedges to demarcate boundaries and maintenance of these will need to be agreed. Where there are hedges or fences there should be a space of at least 1.0m between the edge of the hedge or fence and the path edge, so the minimum width required for any new route is likely to be 5.0m to 6.0m. Where there are new ramps, they will require significantly more space and may also need land, where material can be dug to form earthwork ramps. Ecological requirements may also increase the width required and, if horses are to be allowed for, an even greater width will be needed. In addition, it is important to consider how a path and other features will be constructed and maintained. Space will need to be allowed for a site compound for construction and access routes and rights will need to be agreed for construction and maintenance vehicles and plant. All of these are matters that a skilled negotiator will need to consider, whilst developing a good understanding with landowners of the issues that are priorities for them.

Until discussions with landowners have progressed it is too early to be discussing planning details with the planning authority, but at the appropriate time pre-app discussions should be undertaken with the relevant local Authority to understand the issues that might come with an application and to inform the work likely to be needed at the Detailed Design stage.

Cambridgeshire County Council will need to be closely involved in discussions about highways matters including rights of way, road crossings, re-allocation of road space and changes to traffic flows.

An important part of the planning process is the consideration of options that this study forms part of and it will be important that there is further community engagement to help the planning process.

Problems likely to arise

The planning process can be slow, but the lengthiest process may be in obtaining the necessary heritage and ecology consents that will be a requirement of any planning application, so these processes should start as soon as possible in the design stage and should not be left until the end.

For the planning process there may be objections to new paths, but with good design and community engagement this should not be a barrier to planning approval.

14. Construction and Maintenance

Any works on the highway will need traffic management and will need suitable facilities for construction or maintenance staff and a site compound for equipment and materials storage.

Roads are likely to have to be closed as through routes or made one-way alternate working. Possible locations for site compounds and facilities could be the development site north of Cam Drive, the field adjacent to Grange Lane and Woodfen Road (Option 1 and 3); or at the quarry site on Queen Adelaide Way (Option 2).

For Option 1 the railway crossing is the major issue and there will be the need to manage traffic and address any concerns regarding the railway. Traffic management with signals will be needed as has happened recently with the new roundabout on the A10 near Ely. For construction it will be necessary to have access to fields on each side of the railway and a site compound will be needed there. It is possible that Network Rail will require a BAPA (Basic Assets Protection Agreement) to be signed and they may insist on being paid to supervise work.

Within Ely and Littleport themselves there will be significant challenges in their centres due to the disruption works would cause and the need to maintain access to the likes of Kings Ely and Littleport Community School, as well as keeping the bus network operating.

Outside of the main urban areas, Option 1 is mostly adjacent to the existing highway network so would not cause significant disruption beyond additional traffic on the network. Option 2 will at points necessitate loading and working from the adjacent highway (Queen Adelaide Way, Branch Bank) and this could cause delays. However, this route is relatively lightly trafficked compared to Lynn Road and the A10 bypass, so this is likely to be a less severe issue.

Once either of the routes is constructed ongoing maintenance is likely to be simple for much of the route, as they are away from motor vehicles except for where Route 1 may interact with some farm traffic. The sections within Ely and Littleport are likely to require the most maintenance but will also therefore likely be prioritised as part of any future maintenance programmes. The methods and materials used for construction will not be anything that cannot be maintained by any generalist highway contractor.

Structures over watercourses and the railway line will require specific maintenance and inspection intervals.

15. Cost estimates

At this stage costs are very approximate, based on estimated costs/ m or estimated unit costs. The highway works have the highest range of costs, because little is known about the construction of the existing carriageway or the services within the highway. Traffic management can also be a highly variable cost.

For a field edge path construction, the major issues are the users of the path, with the need for much more substantial construction for farm vehicles than for people on foot or cycles and also the engineering complexities, which are unclear at present.

The cost for building bridge structures is the greatest variable and largest cost for Option 1. The section along Lynn Road and Cam Drive also has significant costs attached but will be valuable not just for this scheme but for future cycling and walking schemes within Ely.

Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1.5km path on development land	**Linear m**	£170	£230	1,500	£255,000	£345,000	**The developer(s) of this site will be constructing the paths through this section.**
3.4km path on private land	**Linear m**	£170	£230	4,300	£731,000	£989,000	
Bridges over watercourses or ditches	**Item**	£150,000	£250,000	3	£450,000	£750,000	**Costs for structures will vary greatly depending upon the outcomes of future surveys.**
Road space reallocation over railway	**linear m**	£1,000	£25,000	200	£200,000	£5,000,000	**Costs will vary depending upon the outcomes of future surveys, and negotiations with Network Rail. High cost reflects cost of new bridge rather than space re-allocation**
Biodiversity Net Gain across route	**Units**	£15,000	£40,000	13.8	£210,000	£560,0000	**Route would result in loss of 12.56 habitat units. BNG requires 10% net gain, so 13.8 units. Emerging market so price/unit is highly variable.**
Grange Lane Parallel Crossing	**Item**	£15,000	£25,000	1	£15,000	£25,000	
Grange Lane speed limit change	**Item**	**£10,000**	**£12,500**	**1**	**£10,000**	**£12,500**	**30mph limit.**
Option 1 Total					**£1,871,000**	**£7,681,500**	

Table 15.1 – Indicative costs for Option 1

The cost for building bridge structures is the greatest variable and largest cost for Option 2. The section along Back Hill and Station Road also has significant costs attached but will be valuable not just for this scheme but for future cycling and walking schemes within Ely.

Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1.2km reallocation to 2-way track along Back Hill and Station Road	Linear m	£500	£750	1,200	£600,000	£900,000	Requires fundamental alteration of how these sections of highway currently work.
Utilise existing NCN 11 route to Station Road	Linear m	-	-	-	-	-	This is the existing route, and an alternative to the above option.
0.2km reallocation to 2-way track along Station Road to Queen Adelaide Way	Linear m	£500	£750	200	£100,000	£150,000	
8.3km byway on Great Ouse flood embankment	Linear m	£170	£230	8,300	£1,411,000	£1,909,000	
Bridge over watercourse	Item	£200,000	£325,000	1	£200,000	£325,000	Costs for structures will vary greatly depending upon the outcomes of future surveys.
Bridge over River Lark	Item	£1,000,000	£5,000,000	1	£1,000,000	£5,000,000	Costs for structures will vary greatly depending upon the outcomes of future surveys.
Shuttle-working under railway bridge	Item	£150,000	£250,000	1	£150,000	£250,000	
Signalised crossing over Prickwillow Road	Item	£150,000	£250,000	1	£150,000	£250,000	
Signalised junction at Prickwillow Road, Queen Adelaide Way, Branch Bank junction	Item	£500,000	£800,000	1	£500,000	£800,000	
Structural bank works at Victoria Street junction	Item	£400,000	£650,000	1	£400,000	£650,000	Costs for structures will vary greatly depending upon the outcomes of future surveys.
Victoria Street speed limit change	Item	£10,000	£12,500	1	£10,000	£12,500	20mph limit.
Victoria Street point closure	Item	£10,000	£20,000	1	£10,000	£20,000	
BNG across route	Unit	£2,500,000	£3,360,000	1	£2,500,000	£3,360,000	Riparian costs unknown so rough estimate used.
Option 2 Total					**£7,031,000**	**£13,626,000**	

Table 15.2 – Indicative costs for Option 2

Option 3 would be the cheapest option since it requires the least use of off-road facilities and relies more on road space re-allocation. As such, consultation may be a bigger hurdle.

Item description	Unit	Low cost per unit	High cost per unit	Quantity	Low total cost	High total cost	Notes
1.5km path on development land	**Linear m**	£170	£230	1,500	£255,000	£345,000	**The developer(s) of this site will be constructing the paths through this section.**
1km path on private land	**Linear m**	£170	£230	1,000	£170,000	£230,000	
Grange Lane Parallel Crossings	**Item**	£15,000	£25,000	2	£30,000	£50,000	
Grange Lane speed limit change	**Item**	£10,000	£12,500	1	£10,000	£12,500	**30mph limit.**
BNG across route	**Item**	£150,000	£200,000	1	£150,000	£200,000	
Option 1 Total					**£615,000**	**£837,500**	

Table 15.3 – Indicative costs for Option 3

16. Business case and policy match

An AMAT (Active Mode Appraisal Toolkit November 2021 version) analysis has been done using various scenarios and data from the Propensity to Cycle Tool as referenced in Chapter 7. This assumes Go Dutch scenario, so high quality infrastructure everywhere. The greatest benefits related to costs (BCR) will come from the work in Ely and Littleport, where the numbers of trips changed can be expected to be the highest.

Whilst these BCR figures are low that is to be expected for a route which crosses a large area between two settlements like this.

Item	Item description	Capital	Usage change	Notes on usage	AMAT BCR
Option 1	Low Cost	**£1,871,000**	40 before 582 after	Based on Propensity to cycle 2011 census figures with assumption of journeys to work approx. 20% of trips. Based on Propensity to Cycle Go Dutch figures with assumption that journeys to work approx. 20% of trips. Cross checking with potential school trips from tool. Total increased by a conservative 20% based on predictions of growth in Ely of 35% by 2036 (ECDC, 2016)	2.84
	High Cost	**£7,681,500**	As above	As above	0.37
Option 2	Low Cost	**£7,031,000**	40 before 582 after	Based on Propensity to cycle 2011 census figures with assumption of journeys to work approx. 20% of trips. Based on Propensity to Cycle Go Dutch figures with assumption that journeys to work approx. 20% of trips. Cross checking with potential school trips from tool. Total increased by a conservative 20% based on predictions of growth in Ely of 35% by 2036 (ECDC, 2016)	0.4
	High Cost	**£13,626,000**	As above	As above	0.21
Option 3	Low Cost	**£615,000**	40 before 582 after	Based on Propensity to cycle 2011 census figures with assumption of journeys to work approx. 20% of trips. Based on Propensity to Cycle Go Dutch figures with assumption that journeys to work approx. 20% of trips. Cross checking with potential school trips from tool. Total increased by a conservative 20% based on predictions of growth in Ely of 35% by 2036 (ECDC, 2016)	5.02
	High Cost	**£837,500**	As above	As above	3.66

17. CDM and Design Risk

At this early stage of the project construction is likely to be some way off but the Client and Designer have responsibilities to minimise risk even at this early stage.

The Construction Design and Management Regulations (2015) assign duties to the Client and to the Designer and at this stage East Cambridgeshire District Council is the Client and Sustrans is the designer.

As the project progresses the Client will need to appoint a team to deliver the project in accordance with the Regulations and that will mean allowing sufficient time for the project and giving top priority to health and safety.

In considering the options Sustrans has sought to minimise risk, at this stage, but this will need to be an ongoing process taken on by the future project team and led by the Client.

	Designer	Sustrans
	Client	East Cambridgeshire D.C.
	Author	LAW (Sustrans)
	Date	16/05/2022
Risk ID number	**Description**	**Response**
1	**All construction works carry risk. Is work necessary?**	Clear need for new facilities, because existing do not comply with standards such as LTN 1/20 and on road route is a significant diversion.
2.	**Works adjacent to and over water.**	Safety systems and barriers would be required, and certified personnel would need to supervise and manage the works. River traffic may be affected which would require coordination with the EA, LLFA, CRT, local fishing and boating groups, etc.
4.	**Works over and under railway lines.**	Agreements with Network Rail would be required, and certified personnel would need to supervise and manage the works. Green Zones may be required, necessitating overnight works.
5	**Works near roads carry risks.**	Road closures and traffic management will be needed in the settlements, but between them the recommendation is to avoid the major roads.
6	**Installing major bridges has risks.**	Major bridges over the railway and River Lark carry significant risk, which will need to be minimised through careful design and where possible innovative construction methods.
7.	**Works in rural areas carry risks, including waterways and farm activities.**	Sufficient land needs to be agreed for safe working and maintenance and contractor to be alerted to all potential risks, by designer as project progresses. Time of year will be important for rural works and this needs to be considered early so that there is a suitable timetable.
8.	**Gas mains and electricity supplies are in the area.**	Detailed utility searches will be required, there are overhead cables crossing part of Option 1. Easements may need to be negotiated and safe working with live utilities will be required.
9	**Inadequate provision made for site compounds and facilities.**	Early consideration has been given to this and it needs to be a key task as part of land negotiations.
10.	**CDM needs to be considered in choosing preferred options.**	Both options require a major bridge; the number of structures required in each option should be given careful consideration, along with the amount of the route that is completely off road.
11.	**Community Engagement Risks**	Risk Assessments will need to be completed and acted upon for events and activities.
12.	**Design and surveying risks**	Risk Assessments will need to be completed and acted upon for site visits, surveys and design work.

18. RAG Report

	Project title	Ely to Littleport Feasibility Study	**Date RAG report initiated**	16/05/2022	**Project Manager**	MP
	Client	East Cambridgeshire D.C.	**Date of current edition**	20/12/2023	**RAG Author**	NB

Risk ID number	Description	Assigned to:	Date assigned:	Current situation (RAG)	Potential mitigation	Mitigation risk (RAG
1	**Route uses private land and agreement cannot be reached with all landowners in time to deliver project.**	ECDC	20/12/2023		Skilful negotiations with landowner or use of statutory powers.	
2	**Reallocation of road space on Lynn Road, Downham Road Back Hill or Station Road not agreed so route not LTN 1/20 compliant**	ECDC / CCC	20/12/2023		High level of community engagement and engagement with all users needed to come up with solutions.	
3	**Traffic calming measures with speed limit changes not agreed on Grange Lane, Parson's Lane, so Options 1 and 3 not LTN 1/20 compliant.**	ECDC / CCC	20/12/2023		High level of community engagement and engagement with all users needed to come up with solutions.	
4.	**Modal filters / closures not agreed on Lynn Road/ Ely Road so Option 3 not achievable.**	ECDC / CCC	20/12/2023		High level of community engagement and engagement with all users needed to come up with solutions.	
5.	**Signal crossing or signal junction not agreed on Prickwillow Road so route not LTN 1/20 compliant. Shuttle-working signals under the railway bridges not agreed so route not LTN 1/20 compliant, so Option 2 not achievable.**	ECDC / CCC	20/12/2023		Remove Option 2	
6.	**Reallocation of roadspace on A10 railway bridge not agreed so new separate bridge over railway needed.**	ECDC / CCC	20/12/2023		Early engagement with County Council and Network Rail will be required.	
7.	**Route may use footpaths and County Council agreement not obtained for works.**	ECDC / CCC	20/12/2023		Alternative to footpath is possible for Option 1 but not for Option 2. High level of community engagement and engagement with all users needed to come up with solutions.	
8.	**Maintenance plan cannot be agreed.**	ECDC/CCC	20/12/2023		Needs to be agreed and required standards set at an early stage. Remove Option 2 to make this more likely.	
9.	**Funding not obtained.**	ECDC	20/12/2023		Ensure scheme is to LTN 1/20 standards, has good BCR and has all necessary consents, to improve chances of funding.	
10.	**Planning consents not obtained including ecology concerns.**	ECDC	20/12/2023		Undertake pre-app discussions and ensure all issues addressed.	
11.	**Failure to get Environment Agency agreement for route along flood bank for Option 2. .**	ECDC	20/12/2023		Early discussion needed with Environment Agency, but it is hard to see a solution that is compatible with an agreed maintenance plan, so remove Option 2.	

19. Appendix

Appendix 1 - Cycling Level of Service (CLOS)Score Downham Road and Cam Drive - Existing

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	0
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	0
	Density of Network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3. Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 – 1000m	Route contributes to a network density mesh width <250m	0
	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible.	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Co								
	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible.	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5. Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	2
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6. Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	1
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	1
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort	8. Gradient		Route includes sections steeper than the gradients	There are no sections of route steeper than the	There are no sections of route which steeper than	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Directness	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.	8. Gradient		Route includes sections steeper than the gradients recommended Chapter 5 of LTN 1/20	There are no sections of route steeper than the gradients recommended in Chapter 5 fo LTN 1/20	There are no sections of route which steeper than 2%	2
	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1
			10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	1
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Figure 4.1. This separation can	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or	Cyclists in cycle lanes at least 1.8m wide on-carriageway; 85th percentile	Cyclists on route away from motor traffic (off road provision) or in offcarriageway	C

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
	collision	high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Figure 4.1. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.	reduce risk of collision alongside or from behind	carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	lanes at least 1.8m wide on-carriageway; 85th percentile motor traffic speed max 30mph.	away from motor traffic (off road provision) or in offcarriageway cycle track. Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	
		A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions.	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	0
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and selfevident to all road users. All users should understand where they and other road users should be and what movements they might make.	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1
	Consider and reduce risk	Routes should be assessed in terms of all multi-functional	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or	Significant conflict with kerbside	Some conflict with kerbside activity –	No/very limited conflict with	0

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Safety	from kerbside activity	uses of a street including car parking, bus stops, parking, including collision with opened door.		less (including any buffer) alongside parking/loading	activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside parking)	eg less frequent activity on nearside of cyclists, min 2m cycle lanes including buffer.	kerbside activity or width of cycle lane including buffer exceeds 3m.	
	Reduce severity of collisions where they do occur	Wherever possible routes should include "evasion room" (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	2
	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/ gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	1
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface – eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	2
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are		More than 25% of the route includes cycle provision with widths which are no more than 25% below	No more than 25% of the route includes cycle provision with widths which are no more than 25%	Recommended widths are maintained throughout whole route	0

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Comfort	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type (where cyclists are separated from motor vehicles).		More than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum values.	No more than 25% of the route includes cycle provision with widths which are no more than 25% below desirable minimum	Recommended widths are maintained throughout whole route	0
	Wayfinding	Non-local cyclists should be able to navigate the routes without the need to refer to maps.	20. Signing		Route signing is poor with signs missing at key decision points.	Gaps identified in route signing which could be improved	Route is well signed with signs located at all decision points and junctions	1
	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21. Lighting		Most or all of route is unlit	Short and infrequent unlit/ poorly lit sections	Route is lit to highway standards throughout	2
			22. Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	1
	Impact on pedestrians, including people with disabilities	ntroduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	1

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
		use path does not meet recommended widths.						
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	1
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	0
Attractiveness					provision in insecure nonoverlooked areas			

Audit Score Total	23
Audit Score Percentage	46%
Contain Critical?	Yes
Cohesion	0%
Directness	80%
Safety	38%
Comfort	50%
Attractiveness	50%

KEY: Quality of Section	
0	Low: Score<50
1	Intermediate: 50<=Score<70
2	High: Score>70
C	Critical: Design fails due to one or more critical scores.

Appendix 2. Cycling Level of Service (CLOS)Score Downham Road and Cam Drive - Proposed Facilities

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Cohesion	Connections	Cyclists should be able to easily and safely join and navigate along different sections of the same route and between different routes in the network.	1. Ability to join/leave route safely and easily: consider left and right turns		Cyclists cannot connect to other routes without dismounting	Cyclists can connect to other routes with minimal disruption to their journey	Cyclists have dedicated connections to other routes provided, with no interruption to their journey	2
	Continuity and Wayfinding	Routes should be complete with no gaps in provision. 'End of route' signs should not be installed – cyclists should be shown how the route continues. Cyclists should not be 'abandoned', particularly at junctions where provision may be required to ensure safe crossing movements.	2. Provision for cyclists throughout the whole length of the route		Cyclists are 'abandoned' at points along the route with no clear indication of how to continue their journey.	The route is made up of discrete sections, but cyclists can clearly understand how to navigate between them, including through junctions.	Cyclists are provided with a continuous route, including through junctions	2
	Density of Network	Cycle networks should provide a mesh (or grid) of routes across the town or city. The density of the network is the distance between the routes which make up the grid pattern. The ultimate aim should be a network with a mesh width of 250m.	3. Density of routes based on mesh width ie distances between primary and secondary routes within the network		Route contributes to a network density mesh width >1000	Route contributes to a network density mesh width 250 – 1000m	Route contributes to a network density mesh width <250m	1
	Distance	Routes should follow the shortest option available and be as near to the 'as-the-crow-flies' distance as possible.	4. Deviation of route Deviation Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		Deviation factor against straight line or shortest road alternative >1.4	Deviation factor against straight line or shortest road alternative 1.2 – 1.4	Deviation factor against straight line or shortest road alternative <1.2	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
		be as near to the 'as-the-crow-flies' distance as possible.	Factor is calculated by dividing the actual distance along the route by the straight line (crow-fly) distance, or shortest road alternative.		line or shortest road alternative >1.4	line or shortest road alternative 1.2 – 1.4	line or shortest road alternative <1.2	
	Time: Frequency of required stops or give ways	The number of times a cyclist has to stop or loses right of way on a route should be minimised. This includes stopping and give ways at junctions or crossings, motorcycle barriers, pedestrian-only zones etc.	5. Stopping and give way frequency		The number of stops or give ways on the route is more than 4 per km	The number of stops or give ways on the route is between 2 and 4 per km	The number of stops or give ways on the route is less than 2 per km	2
	Time: Delay at junctions	The length of delay caused by junctions should be minimised. This includes assessing impact of multiple or single stage crossings, signal timings, toucan crossings etc.	6. Delay at junctions		Delay for cyclists at junctions is greater than for motor vehicles	Delay for cyclists at junctions is similar to delay for motor vehicles	Delay is shorter than for motor vehicles or cyclists are not required to stop at junctions (eg bypass at signals)	2
	Time: Delay on links	The length of delay caused by not being able to bypass slow moving traffic.	7. Ability to maintain own speed on links		Cyclists travel at speed of slowest vehicle (including a cycle) ahead	Cyclists can usually pass slow traffic and other cyclists	Cyclists can always choose an appropriate speed.	2
	Gradients	Routes should avoid steep gradients where possible. Uphill sections increase time, effort and discomfort. Where these are encountered, routes should be planned to minimise	8. Gradient		Route includes sections steeper than the gradients recommended Chapter 5 of LTN 1/20	There are no sections of route steeper than the gradients recommended in Chapter 5 fo LTN	There are no sections of route which steeper than 2%	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Directness		be planned to minimise climbing gradient and allow users to retain momentum gained on the descent.			1/20	Chapter 5 fo LTN 1/20		
	Reduce/ remove speed differences where cyclists are sharing the carriageway	Where cyclists and motor vehicles are sharing the carriageway, the key to reducing severity of collisions is reducing the speeds of motor vehicles so that they more closely match that of cyclists. This is particularly important at points where risk of collision is greater, such as at junctions.	9. Motor traffic speed on approach and through junctions where cyclists are sharing the carriageway through the junction	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1
			10. Motor traffic speed on sections of shared carriageway	85th percentile > 37mph (60kph)	85th percentile >30mph	85th percentile 20mph-30mph	85th percentile <20mph	1
	Avoid high motor traffic volumes where cyclists are sharing the carriageway	Cyclists should not be required to share the carriageway with high volumes of motor vehicles. This is particularly important at points where risk of collision is greater, such as at junctions.	11. Motor traffic volume on sections of shared carriageway, expressed as vehicles per peak hour	>10000 AADT, or >5% HGV	5000-10000 AADT and 2-5%HGV	2500-5000 and <2% HGV	0-2500 AADT	1
	Risk of collision	Where speed differences and high motor vehicle flows cannot be reduced cyclists should be separated from traffic – see Figure 4.1. This separation can be achieved at varying degrees through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation	12. Segregation to reduce risk of collision alongside or from behind	Cyclists sharing carriageway – nearside lane in critical range between 3.2m and 3.9m wide and traffic volumes prevent motor vehicles moving	Cyclists in unrestricted traffic lanes outside critical range (3.2m to 3.9m) or in cycle lanes less than 1.8m wide.	Cyclists in cycle lanes at least 1.8m wide on-carriageway; 85th percentile motor traffic speed max 30mph.	Cyclists on route away from motor traffic (off road provision) or in offcarriageway cycle track. Cyclists in hybrid/light segregated track;	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
		through on-road cycle lanes, hybrid tracks and off-road provision. Such segregation should reduce the risk of collision from beside or behind the cyclist.		traffic volumes prevent motor vehicles moving easily into opposite lane to pass cyclists.	than 1.8m wide.	max 30mph.	Cyclists in hybrid/light segregated track; 85th percentile motor traffic speed max 30mph.	
		A high proportion of collisions involving cyclists occur at junctions. Junctions therefore need particular attention to reduce the risk of collision. Junction treatments include: Minor/side roads – cyclist priority and/or speed reduction across side roads Major roads – separation of cyclists from motor traffic through junctions.	13. Conflicting movements at junctions		Side road junctions frequent and/ or untreated. Major junctions, conflicting cycle/ motor traffic movements not separated	Side road junctions infrequent and with effective entry treatments. Major junctions, principal conflicting cycle/ motor traffic movements separated.	Side roads closed or treated to blend in with footway. Major junctions, all conflicting cycle/motor traffic streams separated.	2
	Avoid complex design	Avoid complex designs which require users to process large amounts of information. Good network design should be self-explanatory and selfevident to all road users. All users should understand where they and other road users should be and what movements they might make.	14. Legible road markings and road layout		Faded, old, unclear, complex road markings/ unclear or unfamiliar road layout	Generally legible road markings and road layout but some elements could be improved	Clear, understandable, simple road markings and road layout	1
	Consider and reduce risk from kerbside activity	Routes should be assessed in terms of all multi-functional uses of a street including car parking, bus stops, parking, including collision with opened door.	15. Conflict with kerbside activity	Narrow cycle lanes <1.5m or less (including any buffer) alongside parking/loading	Significant conflict with kerbside activity (eg nearside cycle lane < 2m (including buffer) wide alongside kerbside	Some conflict with kerbside activity – eg less frequent activity on nearside of cyclists, min 2m cycle lanes	No/very limited conflict with kerbside activity or width of cycle lane including buffer exceeds 3m.	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Safety					parking)	including buffer.		
	Reduce severity of collisions where they do occur	Wherever possible routes should include "evasion room" (such as grass verges) and avoid any unnecessary physical hazards such as guardrail, build outs, etc. to reduce the severity of a collision should it occur.	16. Evasion room and unnecessary hazards		Cyclists at risk of being trapped by physical hazards along more than half of the route.	The number of physical hazards could be further reduced	The route includes evasion room and avoids any physical hazards.	2
	Surface quality	Density of defects including non cycle friendly ironworks, raised/sunken covers/ gullies, potholes, poor quality carriageway paint (eg from previous cycle lane)	17. Major and minor defects		Numerous minor defects or any number of major defects	Minor and occasional defects	Smooth high grip surface	2
		Pavement or carriageway construction providing smooth and level surface	18. Surface type		Any bumpy, unbound, slippery, and potentially hazardous surface.	Hand-laid materials, concrete paviours with frequent joints.	Machine laid smooth and non-slip surface – eg Thin Surfacing, or firm and closelyjointed blocks undisturbed by turning heavy vehicles.	2
	Effective width without conflict	Cyclists should be able to comfortably cycle without risk of conflict with other users both on and off road.	19. Desirable minimum widths according to volume of cyclists and route type		More than 25% of the route includes cycle provision with widths which are no more than	No more than 25% of the route includes cycle provision with widths which are	Recommended widths are maintained throughout whole route	2
			(where cyclists are separated from motor vehicles).		25% below desirable minimum values.	no more than 25% below desirable minimum		
	Wayfinding	Non-local cyclists should be	20. Signing		Route signing is	Gaps identified in	Route is well	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
Comfort		able to navigate the routes without the need to refer to maps.			poor with signs missing at key decision points.	route signing which could be improved	signed with signs located at all decision points and junctions	
	Social safety and perceived vulnerability of user	Routes should be appealing and be perceived as safe and usable. Well used, well maintained, lit, overlooked routes are more attractive and therefore more likely to be used.	21. Lighting		Most or all of route is unlit	Short and infrequent unlit/ poorly lit sections	Route is lit to highway standards throughout	2
			22. Isolation		Route is generally away from activity	Route is mainly overlooked and is not far from activity throughout its length	Route is overlooked throughout its length	1
	Impact on pedestrians, including people with disabilities	ntroduction of dedicated on-road cycle provision can enable people to cycle on-road rather than using footways which are not suitable for shared use. Introducing cycling onto well used footpaths may reduce the quality of provision for both users, particularly if the shared use path does not meet recommended widths.	23. Impact on pedestrians, Pedestrian Comfort Level based on Pedestrian Comfort guide for London (Section 6.1)		Route impacts negatively on pedestrian provision, Pedestrian Comfort is at Level C or below.	No impact on pedestrian provision or Pedestrian Comfort Level remains at B or above.	Pedestrian provision enhanced by cycling provision, or Pedestrian Comfort Level remains at A	2
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	1
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	2

Key Requirement	Factor	Design principle	Indicators	Critical	0 (Red)	1 (Amber)	2 (Green)	Score
		users, particularly if the shared use path does not meet recommended widths.						
	Minimise street clutter	Signing required to support scheme layout	24. Signs informative and consistent but not overbearing or of inappropriate size		Large number of signs needed, difficult to follow and/ or leading to clutter	Moderate amount of signing particularly around junctions.	Signing for wayfinding purposes only and not causing additional obstruction.	1
	Secure cycle parking	Ease of access to secure cycle parking within businesses and on-street	25. Evidence of bicycles parked to street furniture or cycle stands		No additional cycle parking provided or inadequate	Some secure cycle parking provided but not enough to meet demand	Secure cycle parking provided, sufficient to meet demand	2
Attractiveness					provision in insecure nonoverlooked areas			
							Audit Score Total	43
							Audit Score Percentage	86%
							Contain Critical?	No
							Cohesion	83%
							Directness	100%
							Safety	75%
							Comfort	100%
							Attractiveness	80%

KEY: Quality of Section	
0	Low: Score<50
1	Intermediate: 50<=Score<70
2	High: Score>70
C	Critical: Design fails due to one or more critical scores.

Appendix 3. Healthy Streets Assessment Downham Road and Cam Drive

Metrics		Score				Existing layout	Notes	Proposed layout	Notes
		3	2	1	0				
1	**Motorised vehicle speed**	When motorised traffic is travelling at its fastest the majority of vehicles are travelling below 20 mph	When motorised traffic is travelling at its fastest the majority of vehicles are travelling 20-25mph	When motorised traffic is travelling at its fastest the majority of vehicles are travelling 25-30mph	When motorised traffic is travelling at its fastest the majority of vehicles are travelling at 30 mph+	**1**	**Traffic speeds seem to be greater on northern end of road, where the carriageway is wider and road is straighter**	**3**	**New design constrains speed both through speed limit and space limitation in carriageay.**
2	**Volume of motorised traffic**	There are 199 or fewer vehicles in the peak hour (both directions)	There are 200-499 vehicles in the peak hour (both directions)	There are 500-999 vehicles in the peak hour (both directions)	There are more than 1000 vehicles in the peak hour (both directions)	**2**	**Moderate traffic when reviewed at 13:10 on a weekday. Multiple schools nearby, presumably heavier traffic at other times**	**2**	**Reduction likely for new scheme, but still comparable to current usage due to schools**
3	**Mix of vehicles**	No large vehicles use the street	The proportion of large vehicles is less than 2% of motorised traffic in the peak hour	The proportion of large vehicles is 2-5% of motorised traffic in the peak hour	The proportion of large vehicles is greater than 5% of motorised traffic in the peak hour	**1**	**very few LGVs seen and no HGVs**	**2**	**Scheme will be unlikely to affect vehicle types.**
4	**Cycle safety at junctions**	Assessing the poorest performing junction for cycle safety, 80% or more of all movements are assessed as green under the Junction Assessment Tool (LTN 1/20)	Assessing the poorest performing junction for cycle safety, 50-79% of all movements are assessed as green under the JAT	Assessing the poorest performing junction for cycle safety, there are no red scores under the JAT	A red score under the JAT has been found on one or more of the movements at any of the junctions on the street	**0**	**no provision at any junction. Right turn unprotected off Merlin Drive, for instance, with no raised table**	**2**	**Added cycle track on West side of road will remove the need to cross carriageway to make this right turn.**
5	**Ease of crossing side roads**	The weakest side road has a narrow, tight junction geometry such that a turning motorised vehicle must slow down to less than 10 mph and raised table/continuous footway at the entrance	The weakest side road has a narrow, tight junction geometry such that a turning motorised vehicle must slow down to less than 10 mph but instead of a raised table at the entrance it has dropped kerbs	The weakest side road has dropped kerbs and these are on the desire line or a raised table/continuous footway	The weakest side road is missing at least 1 dropped kerb or dropped kerbs are not on the desire line	**0**	**St. Andrew's Way has dropped kerb misalligned from desire line**	**2**	**Turning radii brought down to 1.5m and dropped kerbs aligned closer to major arm.**
6	**Ease of crossing between junctions**	See table for scoring crossing facilities between junctions	See table for scoring crossing facilities between junctions	See table for scoring crossing facilities between junctions	See table for scoring crossing facilities between junctions	**1**	**Raised tables at points along road, but absent from southern end of road**	**3**	**Zebra crossings between all junctions.**

Scoring

	Metrics	Score 3	Score 2	Score 1	Score 0	How to measure this?	Existing layout	Notes	Proposed layout	Notes
	junctions					info	1	No side road has any crossing facility, but step free access is provided across all junctions through dropped kerbs	2	between all junctions. Raised tables at bigger roads but too many smaller junctions to provide them everywhere
8	**Navigation of crossings for people with visual impairments**	At the weakest crossing there is tactile paving on both sides of the crossing, it has the correct design and correct materials	At the weakest crossing there is tactile paving on both sides of the crossing, it has the correct design but incorrect materials	At the weakest crossing there is tactile paving on both sides of the crossing but it is made from the wrong materials or is an incorrect design	At the weakest crossing there is no tactile paving on at least one side of the crossing	info	0	Upherds Lane has missing tactiles on both sides	3	Tactiles added across route
9	**Quality of the footway surface**	At the weakest point on the street there is a smooth, non-slip surface	At the weakest point on the street there are a few minor defects	At the weakest point on the street there are many minor defects	At the weakest point on the street there is at least one major defect (a level difference of 15mm or more)	info	2	minor defects across entire street	3	Will resurface where necessary.
10	**Space for walking**	At peak times for pedestrians and the narrowest point: There is 2m or more clear width for walking in quiet locations (flows of <600 pedestrians an hour) OR There is 2.5m or more clear width for walking in moderately busy locations (flows of 600-1200 pedestrians an hour) OR There is 3m or more in busy locations (flows of >1200 pedestrians an hour)	At peak times for pedestrians and the narrowest point: There is 2-2.5m clear width for walking in moderately busy locations (flows of 600-1200 pedestrians an hour) OR There is 2.5-3m clear width for walking in busy locations (flows of >1200 pedestrians an hour)	At peak times for pedestrians and the narrowest point: There is 1.5-2m clear width for walking in quiet or moderate locations (flows of <1200 pedestrians an hour) OR There is 2-2.5m clear width for walking in busy locations (flows of >1200 pedestrians an hour)	Regardless of the peak pedestrian flow, at the narrowest point there is less than 1.5m clear width for walking	info	0	Space extremely limited around most side road junctions	2	Increased where possible, largely through tightening junctions

Scoring

Metrics		Score 3	Score 2	Score 1	Score 0	How to measure this?	Existing layout	Notes	Proposed layout	Notes
11	**Quality of the carriageway surface**	At the weakest point on the street there is an even and smooth, skid resistant surface	At the weakest point on the street there are a few minor defects	At the weakest point on the street there are many minor defects	At the weakest point on the street there is at least one major defect (a level difference of 20mm or more)	info	**2**	**minor defects on carriageway, especially on some humps**	**3**	**Will resurface where necessary.**
12	**Space for cycling**	At the weakest point, where cycles are separated from other traffic the width of the lane/track is more than 2.2m+ (1-way) or 3.5m+ (2-way) At the weakest point, where cycles are mixing with general traffic or in an unseparated cycle lane on the carriageway the width of the nearside general traffic lane is 4.5m+	At the weakest point, where cycles are separated from other traffic the width of the lane/track is less than 1.5m-2.2m (1-way) or 2.5m-3.5m (2-way) At the weakest point, where cycles are mixing with general traffic or in an unseparated cycle lane on the carriageway the width of the nearside general traffic lane is 4m-4.5m	At the weakest point, where cycles are separated from other traffic the width of the lane/track is less than 1.5m (1-way) or 2.5m (2-way) At the weakest point, where cycles are mixing with general traffic or in an unseparated cycle lane on the carriageway the width of the nearside general traffic lane is less than 3.2m	At the weakest point, where cycles are mixing with general traffic or in an unseparated cycle lane on the carriageway the width of the nearside general traffic lane is 3.2m – 3.9m	info	**0**	**Non-segregated provision with ciritical lane width around 3.3 m**	**2**	**Segregated bi-directional cycleway of 3m.**
13	**Public seating**	Assessing the full length of the street, the longest distance between public seats is less than 100m	Assessing the full length of the street, the longest distance between public seats is 100m to 199m	Assessing the full length of the street, the longest distance between public seats is 200m to 500m	Assessing the full length of the street, the longest distance between public seats is more than 500m	info	**0**	**no benches**	**2**	**added pedestrian space could allow for benches just below every 200 metres.**
14	**Cycle parking**	Assessing the full length of the street, cycle parking exceeds demand and has step-free access	Assessing the full length of the street, cycle parking exceeds demand	Assessing the full length of the street, cycle parking meets demand	Assessing the full length of the street, cycle parking does not meet demand	info	**0**	**No cycle parking**	**3**	**Add cycle parking to meet demand, especially around school**
15	**Trees**	Assessing the full length of the street, there are trees along the full length of both sides of the street	Assessing the full length of the street, there are trees along at least 50% of the full length of both sides of the street	Assessing the full length of the street, there are trees on this street but less than 50% of the full length of both sides of the street has tree planting	Assessing the full length of the street, there are no trees on the street	info	**0**	**no trees on public land**	**1**	**No space for more**

Scoring

	Metrics	Score 3	Score 2	Score 1	Score 0	How to measure this?	Existing layout	Notes	Proposed layout	Notes
				has tree planting						
16	**Green infrastructure**	Assessing the full length of the street, at least three green infrastructure features on the full length of the street	Assessing the full length of the street, two green infrastructure features on the full length of the street	Assessing the full length of the street, only 1 green infrastructure feature on the full length of the street	Assessing the full length of the street, there is no green infrastructure in the public realm	info	**3**	**grass patches at numerous points on street**	**3**	**GI left as is.**
17	**Lighting**	Assessing the full length of the street, street lighting provides continuous lighting of all the footway on both sides of the street	Assessing the full length of the street, street lighting provides intermittent lighting of the footway on both sides of the street	Assessing the full length of the street, street lighting provides intermittent lighting of the footway on one side of the street	Assessing the full length of the street, there is no street lighting over the footways on this street	info	**1**	**Street lighting absent at some points on footway and generally targets the carriageway.**	**3**	**As is**
18	**Reducing convenience of driving short journeys**	Assessing the street as a whole there is no through-movement for private motorised traffic at all times	Assessing the street as a whole there is no through-movement for private motorised traffic at certain times	Assessing the street as a whole, there are no restrictions on through movement for private motorised traffic but there are parking restrictions.	Assessing the street as a whole, there are no restrictions on through movement for private motorised traffic and there are no parking restrictions	info	**0**		**2**	**Road to be one-way.**
					Are there any bus services running on this street? Yes/No		**Yes**		**Yes**	
19	**Bus stops**	Assessing the weakest bus stop, there is sufficient waiting space based on peak patronage that is clear of the walking space, the bus stop has seating, rain and sun protection for 50% of peak customers, step free access (and safe crossing of any cycle paths to access the stop)	Assessing the weakest bus stop, there is sufficient waiting space based on average patronage that is clear of the walking space, the bus stop has seating, rain and sun protection for at least 4 customers, step free access (and safe crossing of any cycle paths to access the stop)	Assessing the weakest bus stop, the bus stop has seating and rain and sun protection for at least 4 customers	Assessing the weakest bus stop, the bus stop does not have seating and rain and sun protection for at least 4 customers	info	**0**	**Signpost only bus stop**	**3**	**Protection could be added on pavement, with step free access and safe crossing of cycle lane. Meets some of the bench requirements as well**

	Existing Layout Score	Proposed Layout Score
Healthy Streets Score	23	77
Everyone feels welcome	25	81
Easy to cross	25	79
Shade and shelter	0	67
Places to stop and rest	0	80
Not too noisy	40	80
People choose to walk and cycle	25	81
People feel safe	23	79
Things to see and do	33	67
People feel relaxed	25	81
Clean air	33	75

Appendix 4. Example structure for use across ditches and small watercourses