Cambridge and Peterborough JPSF

HORNINGSEA GREENWAY

Outline Business Case

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1 STRATEGIC CASE

1.1 OVERVIEW

1.1.1. The Horningsea Greenway scheme will offer improved active mode connectivity. The Greenway will include upgrades to shared-use paths between Horningsea and Fen Ditton, a high-quality parallel crossing at the junction of B1047 as well as safety improvements at the Fen Ditton Church junction. The scheme will also include traffic calming measures including raised tables and 20mph speed limits.

1.1.2. This Strategic Case for the Horningsea Greenway project forms the first of the five cases for the Outline Business Case (OBC). The purpose of the Strategic Case is to set out the strategic and policy context for the Horningsea Greenway, to demonstrate the need for the project and provide an assessment of the project's ability to address transport and wider policy requirements.

The Horningsea Greenway is one of the twelve sustainable travel corridor schemes proposed as part of the Greenways project by Greater Cambridge Partnership (GCP). A Programme Outline Case (POC) for the Greenways Project was prepared in January 2022. This document focuses on the strategic need for the Horningsea Greenway scheme.

1.2 APPROACH

1.2.1. The Strategic Case has been structured to align with the Department for Transport's (DfT) Transport business case guidance for the strategic dimension which outlines key areas that should be covered as part of the business case documentation.

1.3 BUSINESS STRATEGY

1.3.1. The Greater Cambridge City Deal was signed between Government and local representatives in 2014. The GCP is the local delivery body, responsible for overseeing the delivery of the City Deal and the promotion of local economic growth and development. The GCP aims to:

- Deliver up to £1 billion of investment, providing vital improvements to infrastructure, supporting and accelerating the creation of 44,000 new jobs and 33,500 new homes to Greater Cambridge by 2031; and
- Enable a new wave of innovation-led growth in the Greater Cambridge area by investing in infrastructure, housing and skills, thereby addressing housing shortages and transport congestion bottlenecks that will facilitate its continued growth and a continuation of the 'Cambridge Phenomenon'.

1.3.2. To ensure infrastructure investment aligns with the above aims, the Greater Cambridge City Deal Assurance Framework has established key strategic objectives against which projects will be prioritised. The objectives aim to create and retain high-tech businesses of the future, target investments to the needs of the Greater Cambridge economy, improve connectivity between clusters and labour markets, and attract and retain skilled people by investing in transport and housing.

1.3.3. The Horningsea Greenway effectively meets multiple strategic objectives of the City Deal as it offers a green active travel corridor that enables safe and easy travel to workplaces, local schools, colleges and shops. The scheme is in line with GCP's objective of delivering fast, reliable and

affordable ways of travelling between employment and housing hubs as it provides improved links to Cambridge from Horningsea, Fen Ditton and onwards on other active mode infrastructure to Midsummer Common. Lastly, the scheme reduces community severance by improving transport links across B1047 and provides safe active travel connections between the places where people live, work and shop, thus encouraging more walking and cycling trips.

1.4 SCHEME BACKGROUND

1.4.1. In 2016, the Greater Cambridge Greenways project began with a review of the existing cycling and walking routes into Cambridge. GCP then consulted local communities to understand how the Greenways could best meet their needs and mitigate concerns. Formal consultations were then carried out on each route, before reports were issued for approval at Executive Board meetings throughout 2020.

1.4.2. Horningsea Greenway is one the twelve Greenways which aim to make cycle journeys easier, cheaper, healthier, greener and pleasant into and out of Cambridge as well as promoting the enjoyment of the countryside for leisure purposes. Additionally, the scheme also contributes to making local journeys, such as school and nursery runs safer and easier.

1.4.3. Horningsea is located approximately 10km north of Cambridge. Cyclists are currently served by shared use paths adjacent to the B1047.

1.4.4. Figure 1-1 shows the Horningsea Greenway which provides improvements to walking and cycling facilities between Horningsea, Fen Ditton and north Cambridge. The route also provides a link to the Chisholm Trail which in turn links to both Cambridge North station and the Biomedical Campus, as well as the Swaffham and Bottisham Greenways. Beyond Fern Ditton the Horningsea Greenway connects with other active mode facilities which continue westwards past the Green Dragon bridge and as far as the Riverside bridge with its link to Chesterton.

1.4.5. In 2016, the Greenways project began with a review of the existing cycling and walking routes into Cambridge. GCP then consulted local communities to understand how the Greenways could best meet their needs and mitigate concerns. Formal consultations were then carried out on each route, before reports were issued for approval at Executive Board meetings throughout 2020.

1.4.6. The Horningsea Greenway has undergone several consultations with stakeholders since 2016. The latest public engagement for the Horningsea Greenway was undertaken in autumn 2022. The Horningsea Greenway scheme was approved by the GCP Executive Board on 1 October 2020. The target completion date for the scheme is in 2025 with scheme opening in 2026.

Figure 1-1 - Horningsea Greenway

Source: Summer 2021, GCP

1.5 POLICY CONTEXT

1.5.1. This section provides the policy context within which the development of the Horningsea Greenway has been considered. It demonstrates that the delivery of the cycle scheme aligns with the strategic objectives of policies set at local, regional and national scales.

1.5.2. The alignment of the Horningsea Greenway with national policy is shown in Table 1-1. Further detail on national policy for the Greenways programme as a whole is set out in the Greenways POC.

Table 1-1 National Policy Summary

Policy	Key Strategic Objectives	Horningsea Greenway Scheme alignment
National Policy		
Net Zero Strategy: Build Back Greener (2021)	▪ Decarbonising all sectors of the UK economy to meet net zero target by 2050.	Provision of cycling and walking network encourages active travel, reducing reliance on the car and reduced greenhouse gas emissions. Delivery of the Horningsea Greenway will contribute towards the Net Zero Strategy's goal of making active travel a natural first choice for all who can take them by providing safer cycling and

Policy	Key Strategic Objectives	Horningsea Greenway Scheme alignment
National Policy		
		walking infrastructure between Horningsea and Cambridge.
The Environment Act (2020)	▪ Protection of the natural environment from the effects of human activity ▪ Protection of people from the effects of human activity on the natural environment ▪ Maintenance, restoration or enhancement of the natural environment ▪ Monitoring, assessing, considering, advising or reporting on environmental protection	The Horningsea Greenway aligns with the goals of the Environment Act, as biodiversity net gain is a key influence along with the general duty to conserve and enhance biodiversity in Cambridge.
Ten Point Plan for a Green Industrial Revolution (2020)	UK to be the world's number one centre for green technology, laying the foundations for economic growth, delivering Net Zero emissions.	Delivery of the Horningsea Greenway will directly contribute to the strategic goals of The Ten Point Plan by providing better air quality through delivering a sustainable active travel cycling route, and in doing so protect our natural environment. Provision of a cycle network will further encourage active travel, reducing reliance on the car and greenhouse gas emissions.
Gear Change (2020)	▪ Better streets for cycling and people ▪ Cycling and walking at the heart of decision making ▪ Empowering and encouraging local authorities ▪ Enabling people to cycle and protecting them when they do	Delivery of the Horningsea Greenway closely aligns to the vision of Gear Change, creating a safer and more attractive cycling environment in and around Cambridge. Through enabling residents and cycle user groups to use the cycle network as a form of active travel, the strategic goals of Gear Change shall be met.
Cycling and Walking Investment Strategy (CWIS) LTN 1/20 (2020)	Cycling and walking to be the natural choice for short journeys, and to increase cycling and walking levels.	The Horningsea Greenway will align with the CWIS by providing infrastructure in line with design outlined in the LTN 1/20. Being developed in liaison with local communities and cycling user groups, the route is designed to be inclusive of different stakeholder groups as outlined in both the CWIS and LTN 1/20.

Policy	Key Strategic Objectives	Horningsea Greenway Scheme alignment
National Policy		
		Delivery of the Horningsea Greenway will provide communities access to a well-connected cycle network for both commuting and recreational purposes.
National Planning Policy Framework (updated 2021)	▪ To provide strong, vibrant, healthy communities ▪ To contribute to protecting and enhancing our natural, built, and historic environment; including making effective use of land	The Horningsea Greenway will help to further the sustainable development goals of the NPPF and align with its key principles by: ▪ Improving the health of communities by promoting the use of sustainable modes of transport by the provision of an active travel network ▪ Encouraging the use of non-car modes to minimise air quality effects of car travel ▪ Creating a well-designed, beautiful and safe environment for pedestrians and cyclists ▪ Providing Natural Capital benefits and ecosystem services delivered through green infrastructure strategies, which combined offer an effective use of land.
Transport Investment Strategy (2017)	▪ To create a more reliable, less congested and better-connected transport network ▪ To support the creation of new housing	Delivery of the Horningsea Greenway will help to achieve the objectives of the TIS by providing an alternative way of travelling to the car, minimising the potential for increased congestion. Provision of alternate attractive travel option will enable the network to better cope with increased demand from planned housing and population growth.

The alignment of the Horningsea Greenway with regional policy is shown in

1.5.4. Table 1-2. Further detail on regional policy for the Greenways programme as a whole is set out in the Greenways POC.

Table 1-2 – Regional Policy Summary

Policy	Key Strategic Objectives	Horningsea Greenway Scheme alignment
Cambridgeshire and Peterborough Independent Commission on Climate (2021)	Better air quality and access to nature, to improve health and wellbeing.	Delivery of the Horningsea Greenway will contribute to the Commission's recommendations for active travel which includes making cycling more accessible. Reducing the number of journeys made by car will reduce levels of greenhouse gas emissions and improve local air quality. An uptake of active travel will contribute to better health and wellbeing.
England's Economic Heartland Transport Strategy (2020)	Improve local and rural connectivity to support a green recovery from COVID-19 and sustainable growth, whilst reaching Net Zero by 2050.	Delivery of the Horningsea Greenway will directly contribute to the furthering of this strategic aim to 'improve local and rural connectivity.' The Horningsea Greenway along with the other Greenway schemes will together provide a network of radial routes from the centre of Cambridge, providing surrounding communities with access to the centre. Doing so through active travel will reduce greenhouse gas emissions.
The Cambridgeshire and Peterborough Local Transport Plan (2019)	Aims to connect all new and existing communities sustainably and provide an integrated rural public transport network.	Delivery of the Horningsea Greenway will further these strategic goals by providing a sustainable and active travel network in Cambridgeshire and Peterborough. Communities will be safer and better connected, whilst air quality levels will be improved. The delivery of Horningsea Greenway will be key to ensuring a positive uptake of technologies such as affordable e-bikes and cargo bikes, and for new bike sharing schemes that are supported by the policy.

Policy	Key Strategic Objectives	Horningsea Greenway Scheme alignment
Local Transport and Connectivity Plan (Draft, 2022)	Aims to address four transportation challenges highlighted by the impact of the pandemic: ▪ Connectivity and accessibility ▪ Making systems work ▪ Affordability and flexibility ▪ Environmental impact Aims to provide improvement in six key areas of productivity, connectivity, climate, environment, health and safety.	The Horningsea Greenway scheme contributes towards delivering elements of an integrated transport system recognised in the LTCP, such as providing safe and attractive walking and cycling infrastructure. The delivery of Horningsea Greenway scheme will encourage mode shift to sustainable modes of transport by providing active travel infrastructure.

1.5.5. This section addresses local policies and the alignment of the Horningsea Greenway with these polices.

Cambridge Local Plan (2018)

1.5.6. The Cambridge Local Plan covers the period of 2018-2031 and identifies the need for 14,000 additional homes and 22,000 jobs. It identifies a series of 'Areas of Major Change' (AOMC), through which a number of the Greenways will run. The Horningsea Greenway will provide connections for local residents and provide an opportunity for an active commute to new businesses and for employees in the area.

South Cambridgeshire Local Plan (2018)

1.5.7. Chapter 10 of the Local Plan addresses transport, outlining the aim to 'promote and deliver sustainable transport and infrastructure.' The plan highlights the need for transport provision to be balanced in favour of sustainable modes, to give people a choice as to how they travel.

1.5.8. The Horningsea Greenway will contribute directly to this strategic aim, providing a sustainable and active travel choice for local communities and commuters alike. By investing in the cycle network, both first and last mile journeys may be made by an active mode, thereby integrating into the wider transport network.

First Proposals: Emerging Greater Cambridge Local Plan (2021)

1.5.9. The Greater Cambridge Local Plan aims to effectively plan and allocate sites over both Cambridge and South Cambridgeshire. The plan aims to make Greater Cambridge a place where a large decrease in climate impacts correlates with a large increase in quality of life for all communities. It outlines that new development must reduce carbon emissions and reliance on the private car and contribute towards creating thriving neighbourhoods.

1.5.10. Delivery of the Horningsea Greenway furthers the aims of the emerging Joint Local Plan as active travel is proven to improve quality of life through better health and access to greenspace. It will also contribute to a reduction in greenhouse gas emissions through reducing the demand on the road network and thereby levels of car use.

Active Travel Strategy for Cambridgeshire Consultation Draft (2022)

1.5.11. The Active Travel Strategy for Cambridgeshire builds on achievements in encouraging active travel to date reflected in the high levels of cycling in the city of Cambridge, with the aim of further improving and increasing the proportion of journeys made by active modes across all of Cambridgeshire. The Strategy will enable and encourage more people to switch some of the journeys they once made by private car to active modes, making the use of active modes, travellers preferred mode of travel.

1.5.12. Following consultation, which came to an end in November 2022, a programme of schemes for future funding bids and delivery will be finalised, aligning with the Local Cycling and Walking Infrastructure Plan.

1.5.13. The Strategy will provide a comprehensive set of policies that will enable quality provision of active travel infrastructure and initiatives in Cambridgeshire to contribute to the County Council's target to achieve Net Zero Carbon by 2045.

SUMMARY OF POLICY CONTEXT

1.5.14. Delivery of the Horningsea Greenway contributes to key strategic policies through delivering an active and sustainable mode of travel via a green infrastructure network which will encourage a modal shift away from the car. In doing so, the scheme will deliver multiple environmental, social and economic benefits, and contribute to the reduction in greenhouse gas emissions required to meet Net Zero targets by 2050.

1.6 STRATEGIC PROBLEMS AND ISSUES

1.6.1. This section sets out the socio-economic context, the current situation and outlining the strategic need for the scheme.

ECONOMIC CONTEXT

Employment and Skills

1.6.2. Cambridge is a key economic centre for research, innovation and technology, and is strategically important for attracting international investors into the UK. This relies heavily on Cambridgeshire continuing to offer strong links between businesses, training campuses and housing developments.

1.6.3. Tackling congestion was identified in the City Deal as a key barrier to growth. GCP aims to reduce traffic by up to 15% on 2011 levels, equivalent to taking one in four cars off the road compared to today's traffic flows. Commuters into Cambridge by car spend on average a quarter of their journey time stuck in traffic, with significant implications for their productivity and wellbeing. Absence of attractive sustainable travel options linking housing, education and employment further adds to reliance on car use.

1.6.4. Specifically, a number of rural settlements near the A14/B1047 (Horningsea Road) have been 'missed out' by several key transport projects, leaving local residents disconnected from main

stations, business parks, and key employment sites[1]. Without action, by 2031 car trips into the city are set to increase by up to 70%, with already lengthy journey times expected to double along these links.[2] The proposed Horningsea Greenway provides an alternative active travel commuter link from the north-eastern settlements at Horningsea and Fen Ditton to Cambridge City Centre.

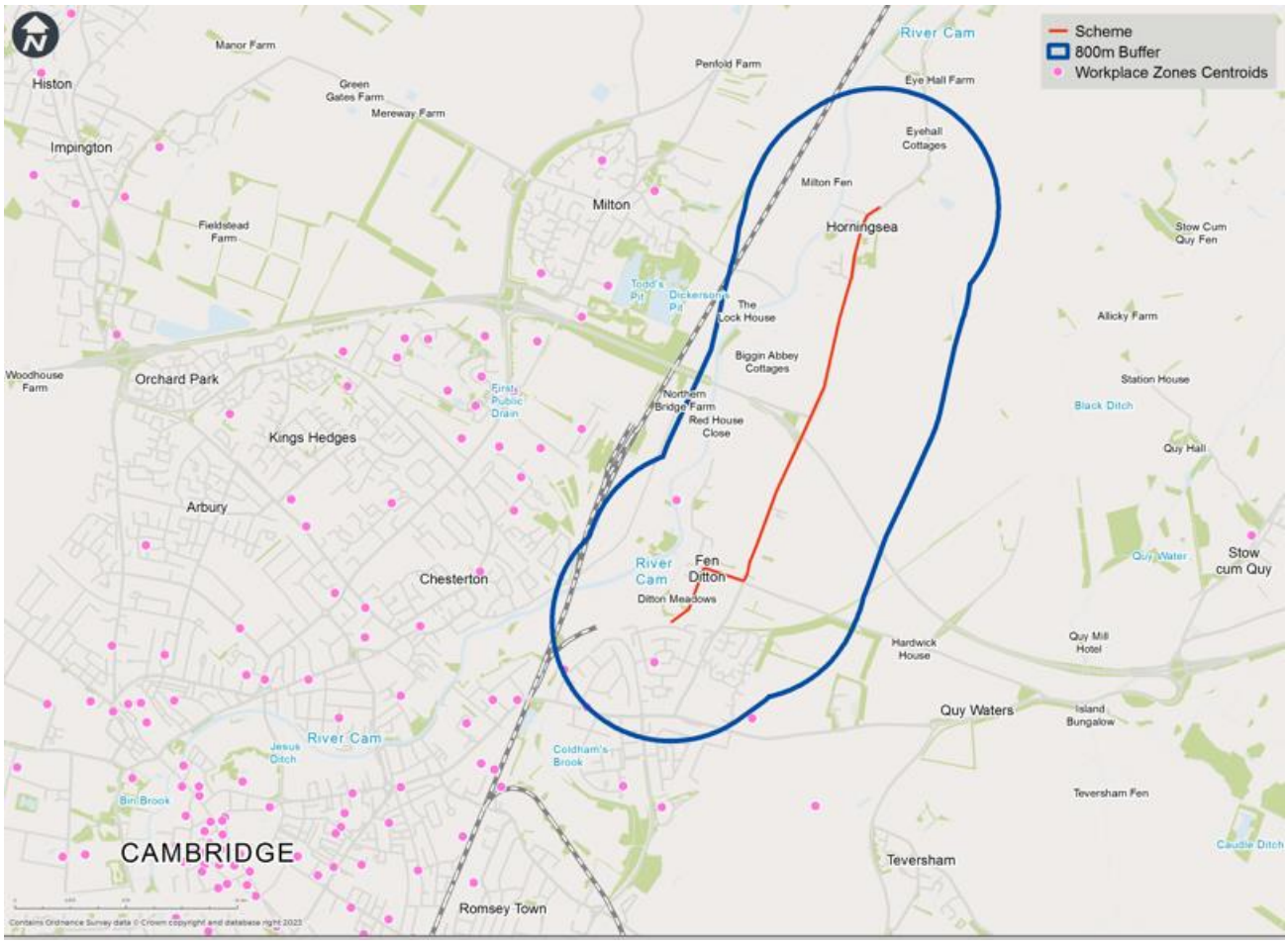
1.6.5. 10% of East Cambridgeshire residents (including residents in the Horningsea Greenway corridor), commute to work in Cambridge by walking and cycling, compared to the national average of 14%. 84% of the working population in East Cambridgeshire use the car for access to employment. This is significantly higher than the national average at 73%, which adds considerably to the cost of transport and limits employment accessibility[3]. Lack of equitable access to the transport system by the absence of affordable and alternative active travel options curtails job accessibility as well as limiting the potential labour market for employers.

1.6.6. Economic growth in the region will correlate with a greater number of trips made, and therefore a greater demand on the road network if nothing changes. Without new sustainable transport interventions peak hour journey times are forecast to increase by as much as 90%.[4] This traffic congestion will cause delays resulting in a fall in productivity.

1.6.7. As indicated in Figure 1-2 the workplace zone centroids are concentrated in the west and southwest of the scheme corridor in the city centre. To the north of Cambridge, the workplace zone centroids are located further apart at Chesterton, Fen Ditton, and Horningsea. In the absence of a safe, continuous and attractive active travel option, commuters working in workplaces in central Cambridge are reliant on cars for commuting trips further adding to traffic flows along not only strategic corridors, but also local routes. Increased traffic on local village roads creates an unsafe and unpleasant environment for active travel, hence further discouraging uptake of cycling or walking.

[1] Document.ashx (cmis.uk.com)
[2] Cambourne to Cambridge (greatercambridge.org.uk)
[3] Cambridge to Peterborough Travel to Work Summary, 2021
[4] Greater Cambridge Greenways Programme Outline Case, January 2022 (Draft)

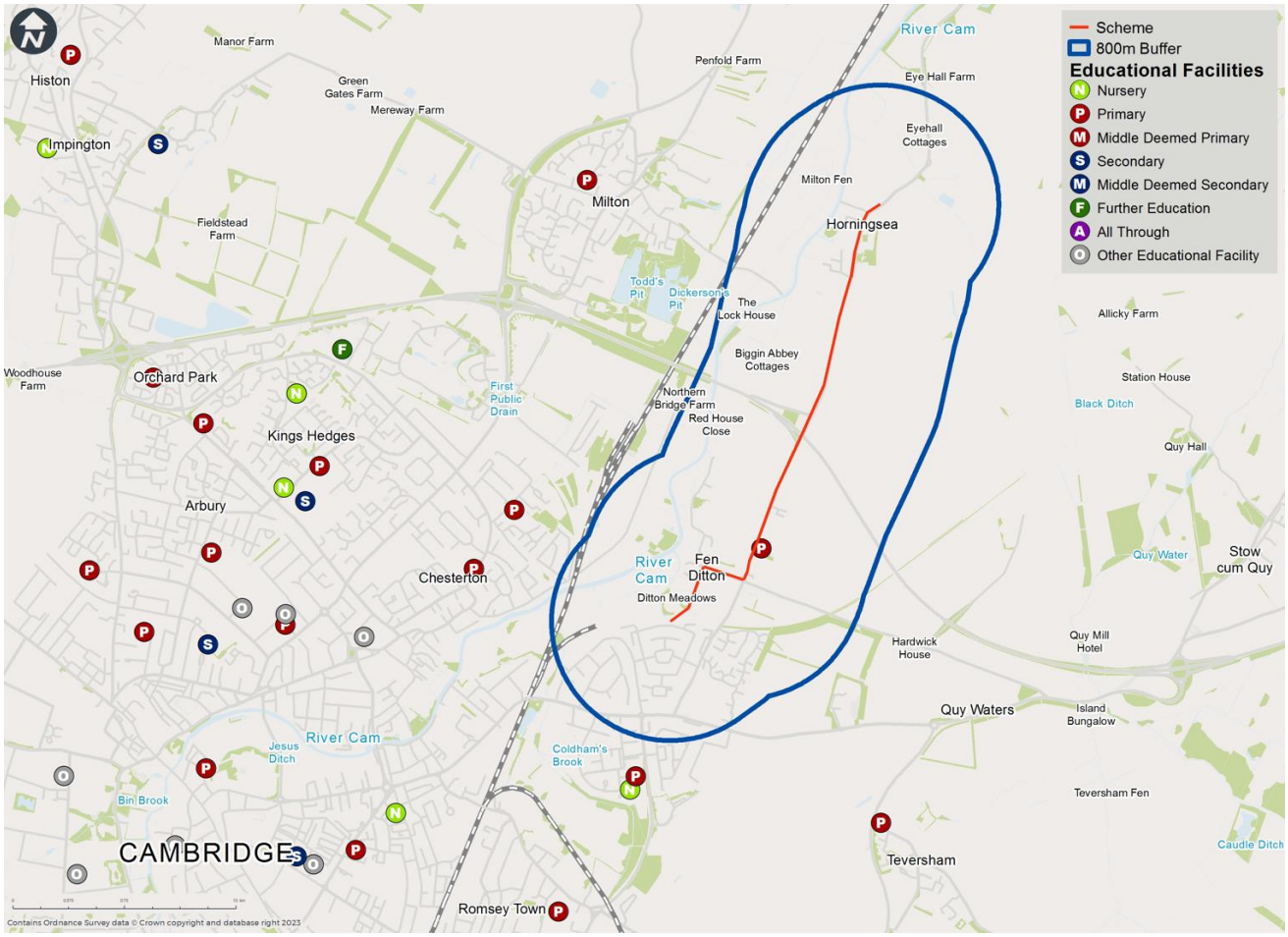
Figure 1-2 - Workplace Zone Centroids



1.6.8. The Draft LTCP identified through stakeholder engagement that poor transport services and transport connectivity is a major challenge and constraint for students, adult learners and employees to access opportunities. The cost of transport that inhibits many lower-income groups to access learning or employment opportunities and exacerbates rural disparities has also been raised. It is noted that transport in the towns and rural communities is a particular challenge for accessing learning or employment opportunities.

1.6.9. Figure 1-3 presents the educational centres near the scheme area including the Fen Ditton Community Primary School and the Galfrid Primary School in the northeast of Cambridge. However, there is a lack of continuous high quality active travel infrastructure connecting these education centres with villages and parishes in the area. Students will be able to cycle to Fen Ditton Primary School in less than ten minutes from Horningsea using the new, safer greenway route. This will encourage active travel trips for shorter journeys to educational centres, improving the health and wellbeing of local students.

Figure 1-3 - Educational Facilities in the Horningsea scheme Corridor



Spatial Development

1.6.10. The 'city fringe' growth in Cambridge has been shown to yield at least 41% active travel mode share and only 33% travel by car.[5] This indicates that there is existing demand and potential new demand for active travel infrastructure from fringe markets such as Fen Ditton and Horningsea.

1.6.11. As per the HELAA Published Sites November 2021 and HELAA Site Updates (Amended Land Use or Development Amount) July 2022 sites, an additional 2,162 residential units are proposed to the east and west of Horningsea Road to support future housing demand[6].

Population Growth

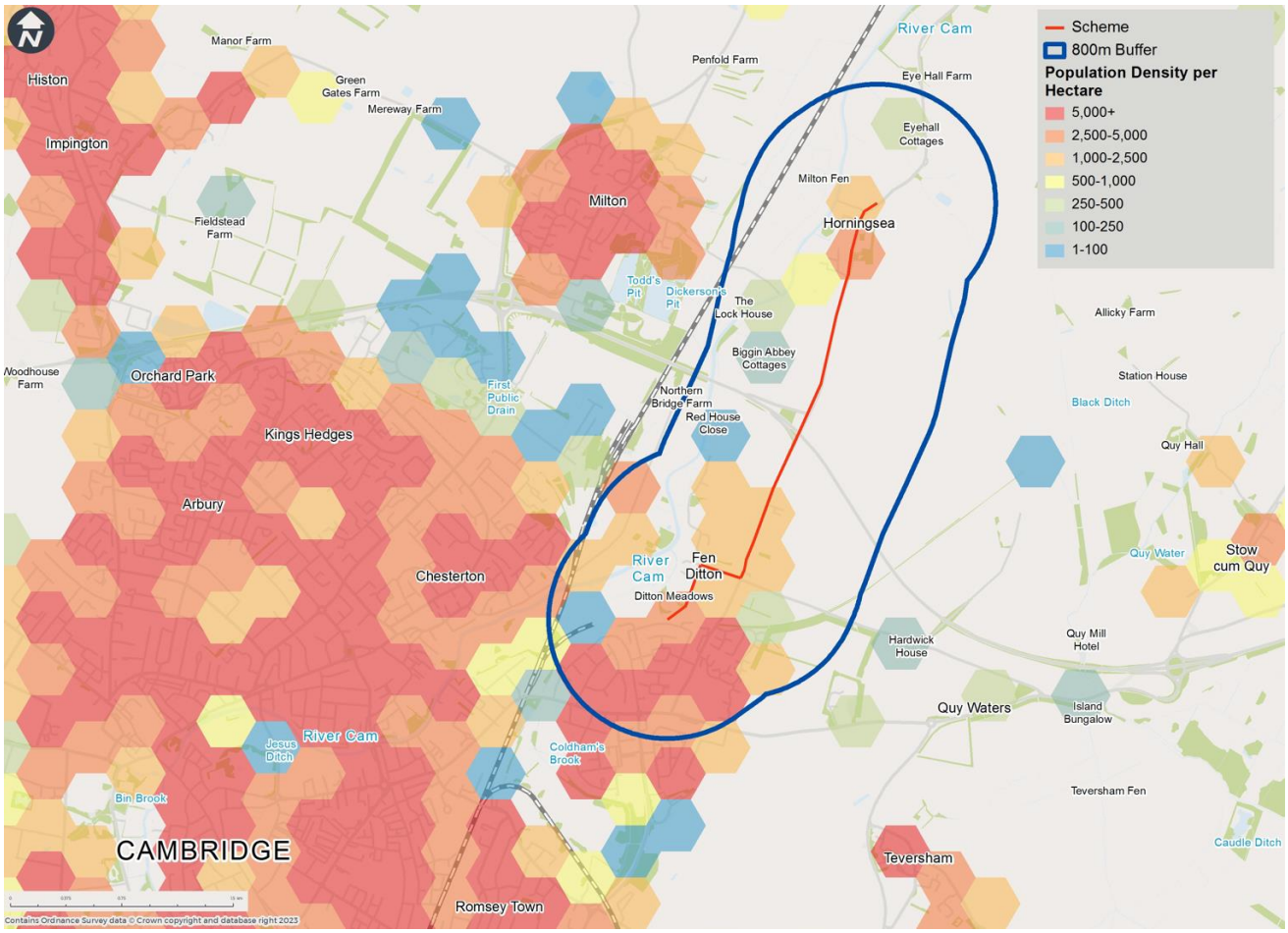
1.6.12. The population of Cambridge is expected to grow in the coming years, and the transport network is required to accommodate that growth. In East Cambridgeshire, the population size has increased by

[5] Draft LTCP. Draft-LTCP.pdf (yourltcp.co.uk)
[6] Site submissions (greatercambridgeplanning.org)

4.6% from around 84,200 in 2011 to 88,100 in 2021. This figure is lower than the overall increase for England which was 6.6%.

1.6.13. Horningsea and Fen Ditton are located within the Cambridge greenbelt. Further south east of the greenbelt lies Stow-cum-Quy where commercial and residential development sites are proposed. The Horningsea Greenway would enable a sustainable travel link from these settlements to Cambridge which is a major employment centre for East Cambridgeshire urban fringe. Figure 1-4 shows the resident population per hex-cell, with each hex-cell representing an area of 5 hectares to enable consistent comparison across the study area.

Figure 1-4 - Resident Population (Census 2021 estimate)



SOCIAL CONTEXT

Community Characteristics

1.6.14. Figure 1-5 presents Mosaic data (collected by Experian), a cross-channel consumer classification system which segments the population into 15 groups based on their consumer behaviour.

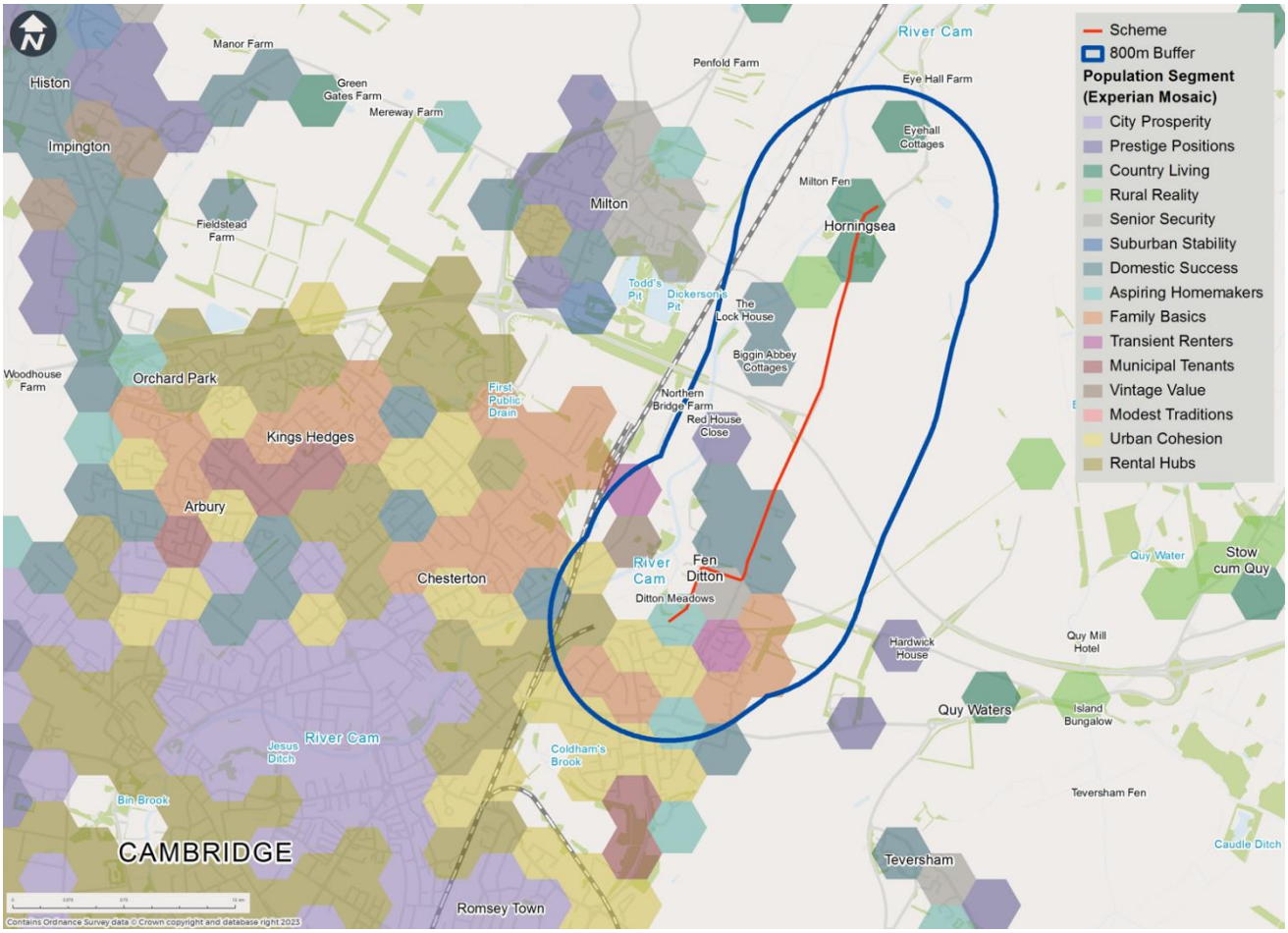
1.6.15. The mosaic presents clusters of ‘Prestige Positions’, ‘Country Living’, ‘Rural Reality’, ‘Domestic Success’ and ‘Aspiring Homemakers’ population segments in the scheme area near Horningsea and Fen Ditton. Closer to Cambridge concentrations of ‘City Prosperity’ and ‘Urban Cohesion’ population are identified, with clusters of ‘Country Living’ in Milton Fen and Horningsea. ‘Country Living’

populations are well-off homeowners who live in the countryside often beyond easy commuting reach of major towns and cities.

1.6.16. Both ‘Prestige Positions’ and ‘Domestic Success’ populations have low propensity for using public transport or shared modes and rely majorly on cars. However, families in Domestic Success are headed by couples typically aged in their late 30-40s, with many having school age children. While these populations have affinity to use sustainable travel for school trips, lack of safe active mode travel connection to schools could deter mode shift and increase reliance on cars for shorter trips as well.

1.6.17. ‘Rural Reality’ and ‘Aspiring Homemakers’ consist of low income and middle income households respectively and have a preference for affordable modes of transport services. ‘Aspiring Homemakers’ particularly require access to school. Limited affordable alternative transport options create challenges such as inequitable access to education and employment for these population segments. There are clusters of ‘Transient Renters’ near Fen Ditton, who are mainly single people who pay modest rents for low-cost homes.

Figure 1-5 - Mosaic Groups



Ageing Population

1.6.18. In East Cambridgeshire there has been an increase of 27.2% in people aged 65 years and over and a 37% increase in the population of people over the age of 90 in the last decade. Figure 1-6 shows

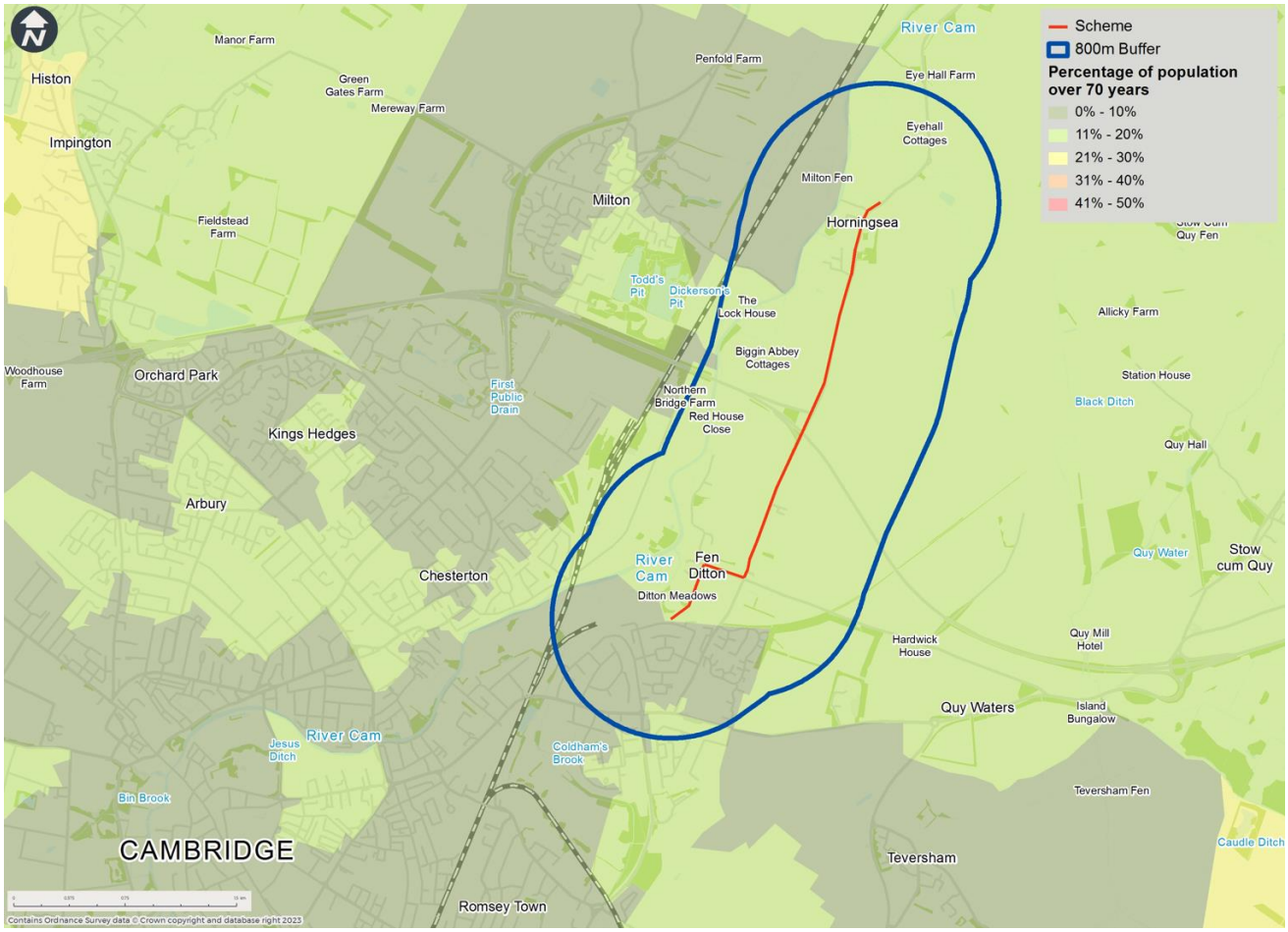
the proportion of over 70-year-olds in the scheme area based on Census 2021 data. It is observed that the majority of the scheme area consist of 11-20% of the population being over 70 years of age.

1.6.19. In a report prepared by the Centre for Ageing Better and Sustrans[7], it is noted that levels of physical activity and of active travel drop off rapidly with age. Considering physical activity levels make people healthier and help to lead to longer and more independent lives, it is deemed essential that older people should be targeted to address the decline. Given that over 65-year-olds represent 20.7% of the population in East Cambridgeshire, the lack of active travel infrastructure and options to enjoy the outdoors adversely impacts overall community health and wellbeing. Active travel improvements and opportunities are considered to be factors that contribute to encouraging active travel and result in physical and mental wellbeing in people within the 65 year and over age group.

1.6.20. Barriers to cycling are more pronounced for some user groups. In terms of age, the percentage of the population that cycles at least once a week drops from 46% of people aged 56-65 to 24% of people aged 66+. Recognising that East Cambridgeshire has seen an increase of 27.2% in elderly population in the region, the negative correlation between cycling and age is a major challenge. Improvements to cycling infrastructure including surface improvement, lighting, and safer crossings all of which contribute to road safety and personal safety are considered necessary to encourage uptake of cycling, specifically the elderly.

[7] Best foot forward: Exploring the barriers and enablers to active travel among 50-70 year olds | Centre for Ageing Better (ageing-better.org.uk)

Figure 1-6 - Percentage of Population over 70 years

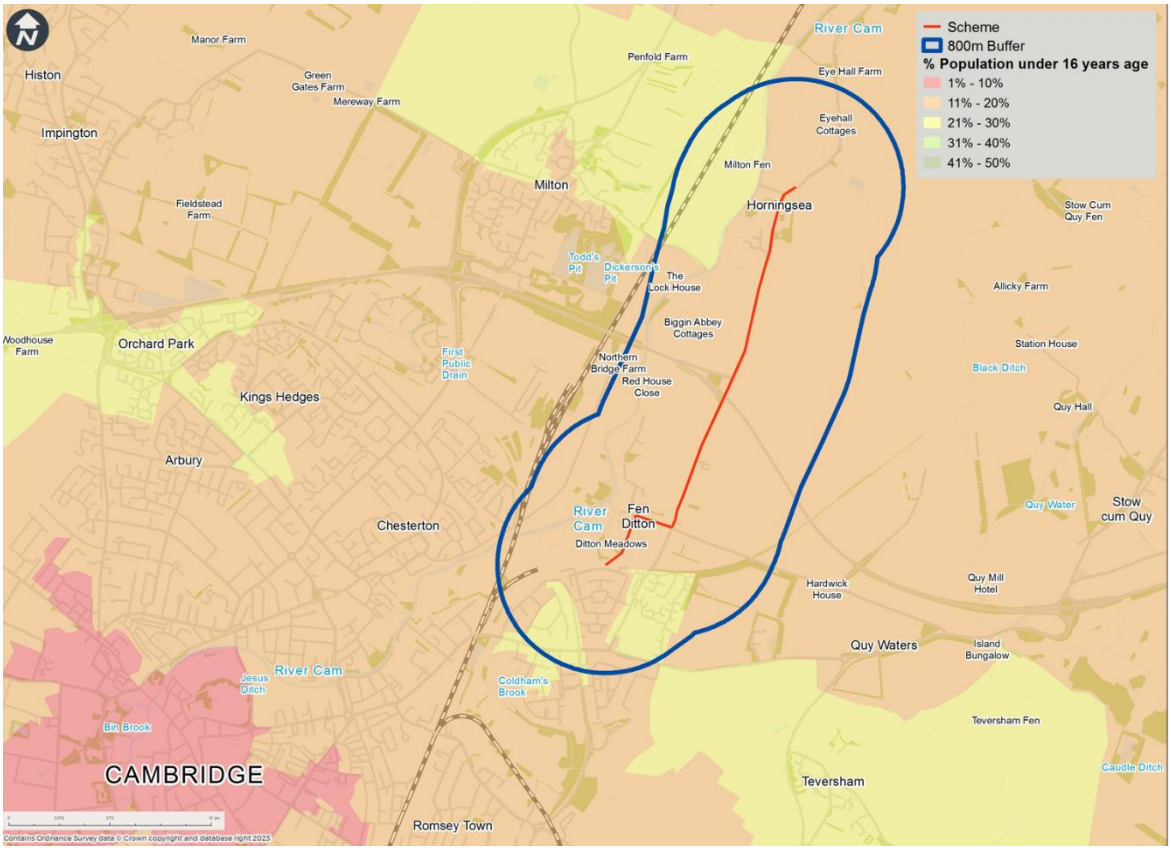


Access to Education

1.6.21. Figure 1-7 presents the proportion of children in the north-eastern Cambridge area. As can be observed the proportion of children in the Horningsea and Fen Ditton area is 11-20% of the total population. There is one school near the centre of Fen Ditton, and several more towards the north of Cambridge. Lack of safe sustainable travel links connecting across the A14 and B1047 makes walking or cycling school trips potentially unsafe and creates barriers to access to educational opportunities beyond the scheme area. Furthermore, in the absence of a continuous safe active travel corridor connecting to schools, school trips from settlements within 2km from the primary school at Fen Ditton are encouraged to rely on cars instead of active travel.

1.6.22. In addition to providing more direct cycling routes for school children, there is a need for cycling infrastructure to be of high-quality and continuous with safe crossing opportunities.

Figure 1-7 – Percentage of children under 16 years



TRANSPORT CONTEXT

Road Network

1.6.23. The areas which the Horningsea Greenway connects can currently be accessed by vehicles from Cambridge using the A14 (Junction 34) and B1047. The B1047 connects Cambridge with Fen Ditton and Horningsea via the A603 and the A1134. The A14 is particularly busy at Fen Ditton. Although there is an existing cycleway adjacent to the River Cam, there is no verge separating it from the A14 carriageway and the route is not continuous within Fen Ditton.

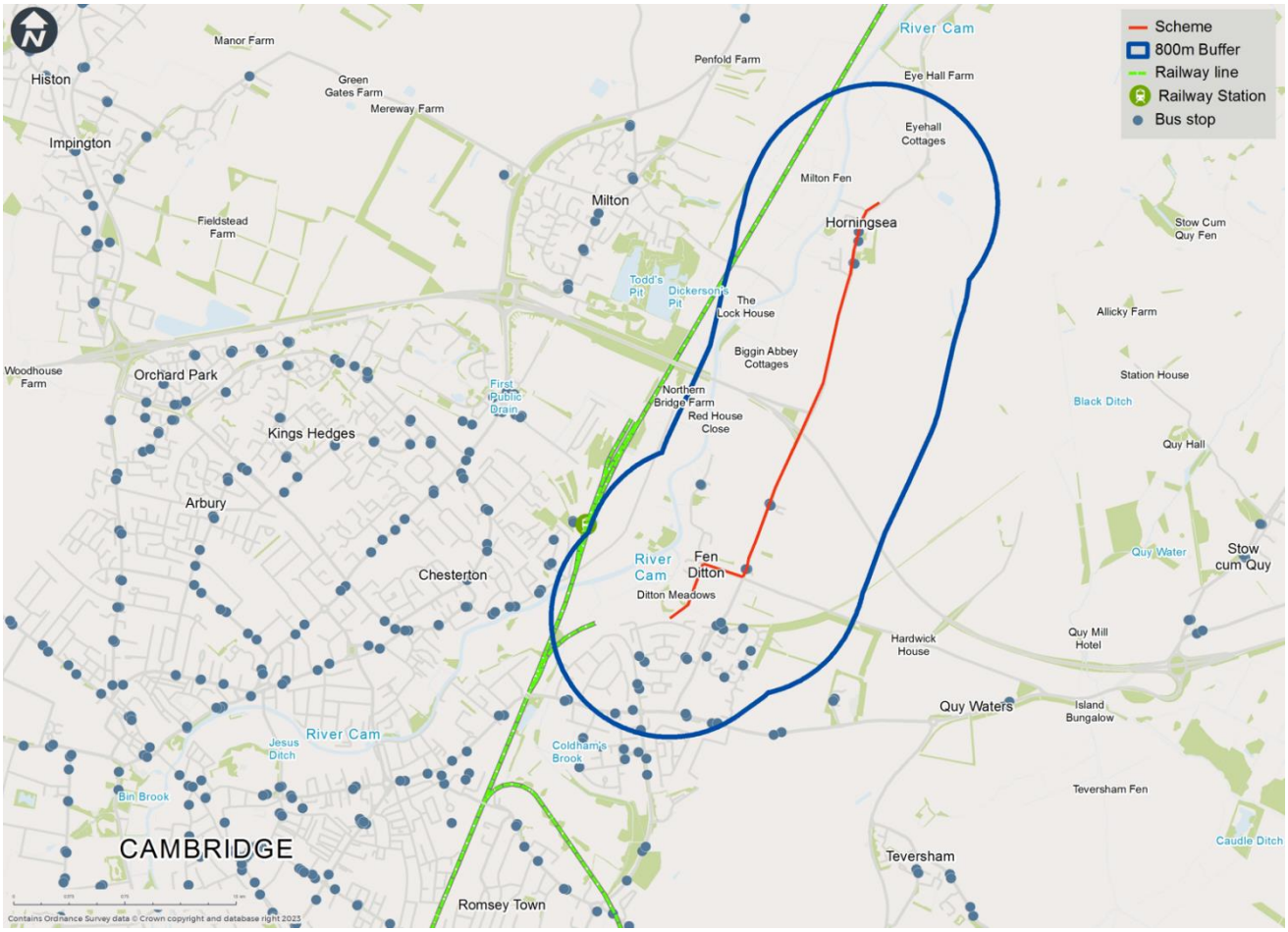
1.6.24. The East Cambridgeshire Transport Strategy emphasises the need for capacity improvements to the A14 in order to support considerable population and housing growth. The later has led to a significant trend in traffic growth. This trend is supported by the 2019 Traffic Monitoring Report[8] (Cambridgeshire County Council, CCC), which reported an 8% increase in the number of motor vehicles entering and leaving Cambridge per 12-hour day compared to 2009 with associated increased congestion and journey time delay.

[8] https://www.cambridgeshire.gov.uk/asset-library/Traffic-Monitoring-Report-2019.pdf

Bus Network

1.6.25. Horningsea and Fen Ditton are connected by bus service number 19 which has a frequency of 2 buses an hour. Travelling from Horningsea to Cambridge City Centre by bus involves a lengthy journey and multiple changes. The journey involves a change from bus service number 19 to number 9 at Caravan Park and then proceeds along the A1309 to Cambridge City Centre, taking approximately 48 minutes.

Figure 1-8 - Intermodal Connections



Cycle Network

1.6.26. Horningsea is located approximately 7km northeast of Cambridge across relatively flat terrain. Cyclists are currently served by a shared use path adjacent to Horningsea Road which is of varying quality and width. Horningsea Greenway will follow 3.45 kilometres of existing road or path, with no new path to be created as part of the scheme.

1.6.27. Currently, the scheme corridor consists of predominantly off-road national cycle routes connecting Horningsea to northeast Cambridge, with a short on-road path near Fen Ditton. Figure 1-9 demonstrates that there is a significant level of demand across the Greenway corridor, particularly on the Wadloes Footpath through Ditton Meadows.

Figure 1-9 - Existing Cycle Trips in the Horningsea Corridor

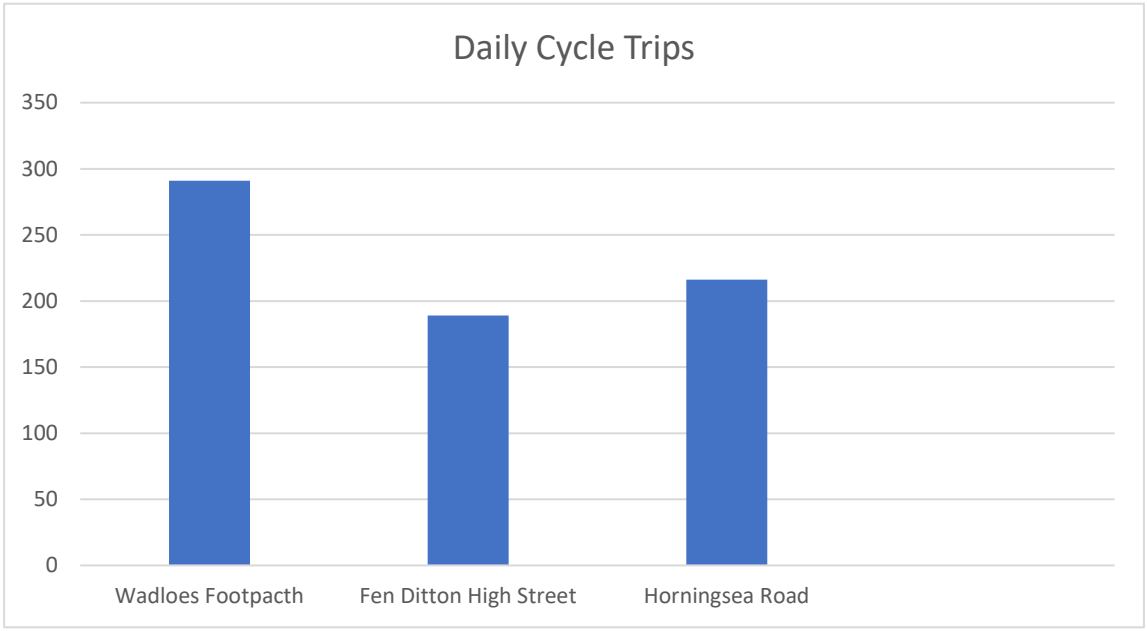
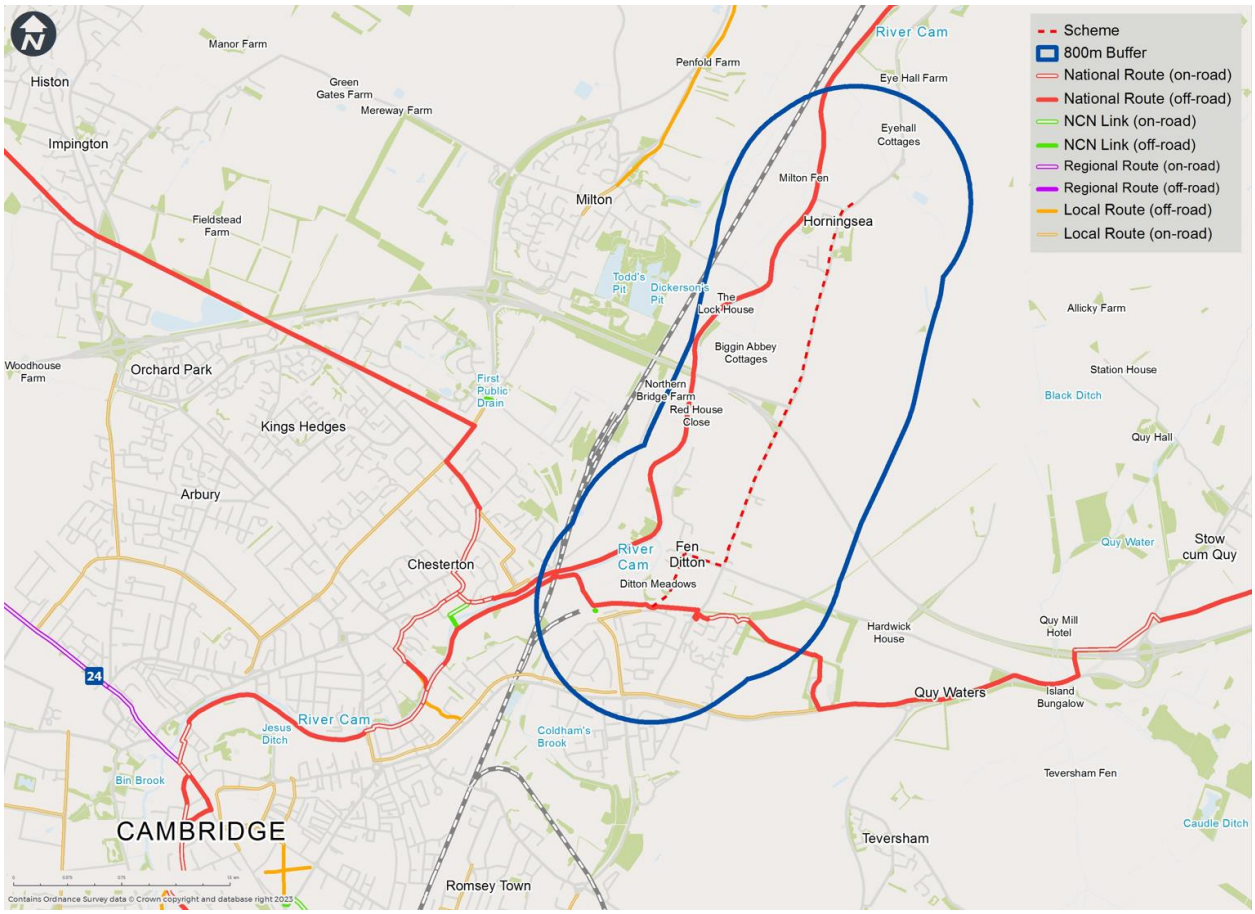


Figure 1-10 - Existing Cycle Network



1.6.28. The scheme connects to other city cycle schemes such as the Chisholm Trail, providing a link to Cambridge Station and Cambridge North station. The Horningsea Greenway provides an opportunity to connect residents at Horningsea and Fen Ditton to further national cycle routes, as well as the regional cycling network. Route 51 is a long-distance national cycling route that begins in Oxford and runs through Bedford and Cambridge where it passes through Fen Ditton and Horningsea, converging with route 11 which runs from King's Lynn to Bishop's Stortford.

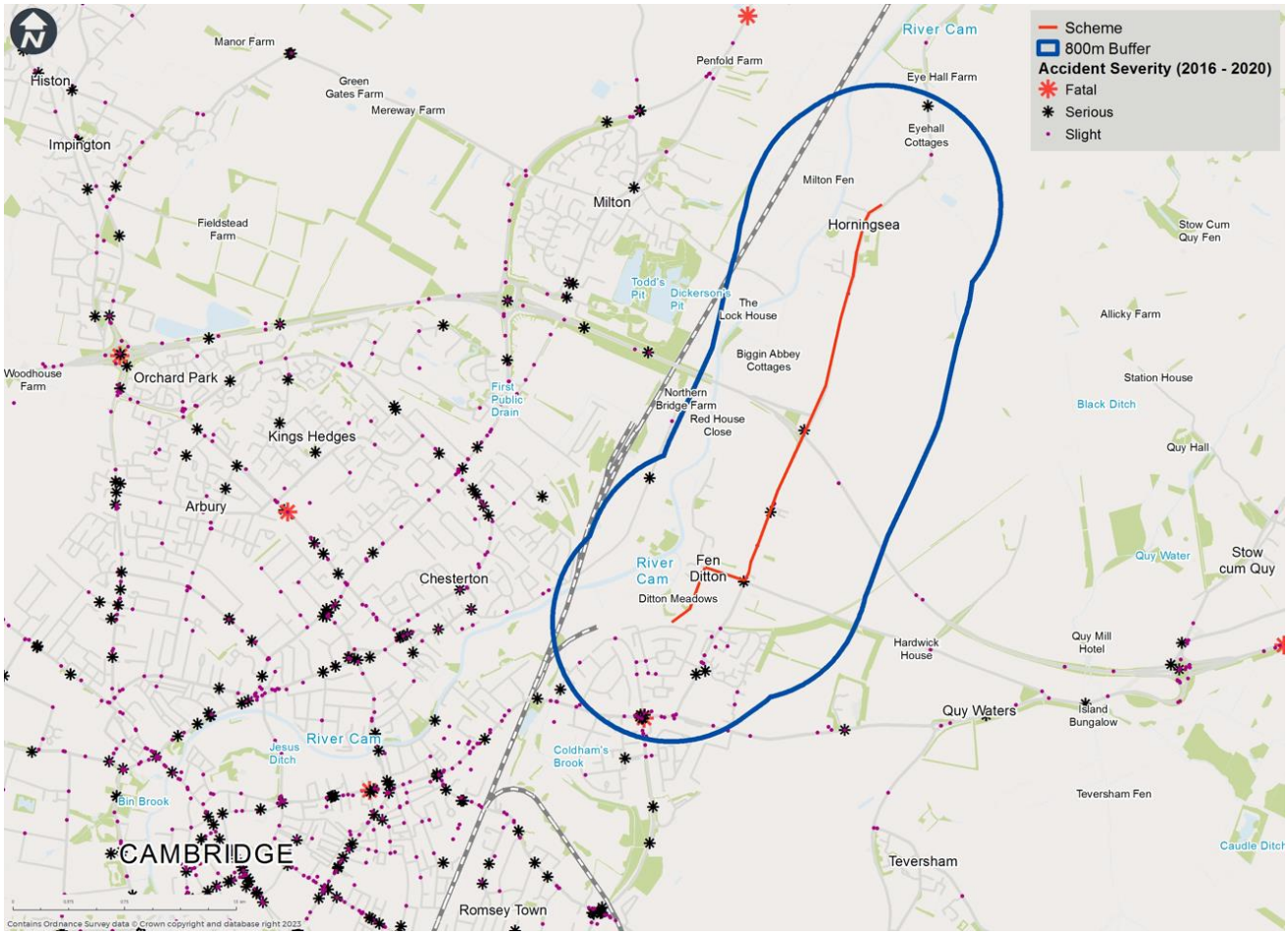
1.6.29. The quality of cycle infrastructure provision is, however, of variable quality with much of the cycle route off-road and unpaved. The existing Horningsea shared path is adjacent to the busy B1047, which presents a safety issue for cyclists. There is a lack of safe crossing locations along the existing routes for pedestrians and cyclists, particularly at the A14 crossing.

Road Safety

1.6.30. A study of accidents involving cyclists over the five-year 2016-20 time period indicated that there was 1 serious accident involving a cyclist on Fen Ditton High Street, as shown in Figure 1-11.

1.6.31. The main impediments to safety along the existing routes include surface quality, lack of safe crossing locations and absence of speed limits and traffic calming measures on shared routes.

Figure 1-11 - Accidents by Severity



Demand and Support for Active Mode Infrastructure

1.6.32. The Walking and Cycling Index[9] is delivered by Sustrans in collaboration with Cambridgeshire County Council and GCP. The results presented in the report for 2021 include local walking and cycling data and an independent survey of 1,296 residents aged 16 or above in Greater Cambridge.

1.6.33. It is evident from the report that leisure and destination-based trips are approximately equal in the Greater Cambridge region. Of all walking and wheeling[10] trips, 48% were undertaken by adults to a destination (such as work, school, shopping), 46% of trips were for enjoyment or fitness by adults and children and 6% were trips undertaken only by children to school.

1.6.34. 74% of the surveyed residents agree that more cycle tracks along roads, physically separated from traffic and pedestrians will support more liveable neighbourhoods. 68% support the creation of more low-traffic neighbourhoods and 65% agree that increasing space for people socialising, walking and cycling on their local high street would improve their local area.

1.6.35. An increase in the number of people walking and wheeling regularly (at least five days a week) from 2019 is noted. The counts from the River Cam Screenline monitoring showed that there has been an increase in the level of cycling in the city up to 2017, but there were signs of the trend levelling off in 2018.[11] The statistics from the Walking and Cycling Index also note that the number of people cycling in Greater Cambridge has stayed the same since 2019.

1.6.36. Barriers to cycling in Greater Cambridge are identified to be more pronounced for some user groups. Safety including road safety and personal safety is recognised as the single largest barrier to cycling. 50% of men cycle at least once a week as opposed to only 40% of women. While 49% of non-disabled people cycle at least once a week only 29% of disabled people cycle at least once a week.

1.6.37. Wider pavements, more frequent road crossings, with reduced wait times, nicer places along streets to stop and rest, better accessibility, fewer cars parked on pavements and reduced fear of crime and antisocial behaviour in the area have been noted as improvements that would encourage residents to walk more.

1.6.38. Similarly for cycling improvements such as traffic free routes, cycle tracks with physical segregation, signposted cycle routes along quieter roads, and better links to public transit are noted to encourage cycling.

ENVIRONMENTAL CONTEXT

1.6.39. Implementation of the Horningsea Greenway scheme will encourage some mode shift away from motorised forms of transport resulting in a reduction in levels of traffic on the B1047 reducing the

[9] https://www.sustrans.org.uk/media/10484/greater-cambridge-walking-and-cycling-index-2021.pdf
[10] The Walking and Cycling Index recognises some people, for example wheelchair or mobility scooter users, identify with the term wheeling instead of walking. Therefore, the terms walking and wheeling together and consider walking and wheeling to include the use of mobility aids and pushchairs. All walking survey responses within this report include responses from people who wheel.
[11] https://www.greatercambridgeplanning.org/media/1398/gclp-strategic-spatial-options-assessment-existing-transport-conditions-report-nov2020.pdf

impact of greenhouse gases and health-related pollutants such as NOx and PM10. A healthier environment will contribute to meeting strategic aims of reducing greenhouse gas emissions and achieving Net Zero targets.

1.6.40. Construction of the Horningsea Greenway will also have Green Infrastructure and Natural Capital impacts. The scheme will be designed to provide environmental, cultural and social benefits including wildlife corridors, linking areas of habitat together and creating new areas of habitat. The net impact will be to create well-designed places that deliver on natural capital enhancements and biodiversity gain in line with the Cambridge Local Plan and Environment Bill.

Noise

1.6.41. Noise has a large impact on both the physical and mental health of those living and working near major road links such as the A14. Traffic noise can be a significant contributor to ambient noise levels; by delivering the Greenways and encouraging modal shift away from the car, noise levels in and around the scheme area can be expected to reduce.

1.6.42. Additionally, it is expected that the impact of the construction noise would be minimal and short lived due to the nature of the interventions proposed.

Air Quality

1.6.43. Horningsea Greenway scheme does not fall within any Air Quality Management Area (AQMA). However, the Cambridge AQMAs lies southwest of scheme approximately 1km from the village of Horningsea[12]. An Air Quality Management Area (AQMA) lies at the northern end of the scheme approximately 280m from the A603 / Grantchester Road junction.

1.6.44. AQMAs are areas declared by the council for monitoring and improvement where it has been found that air quality objectives are not being met. The delivery of the Horningsea Greenway will improve air quality locally by providing a cycling and walking infrastructure that encourages mode shift away from car travel.

Biodiversity

1.6.45. The Proposed Scheme does not fall within any ecological statutory designations, of which the closest Fenland Special Area of Conservation (SAC), is located approximately 8.5km away. Eversden and Wimpole Woods SAC are located approximately 14km north east of the Proposed Scheme. There are six non-statutory designations within 2km of the Proposed Scheme and the potential for protected species have been assessed. Further ecological surveys will be required to confirm the presence and impact to such species.

[12] Department for Environment Food and Rural Affairs (n.d) Air Quality Management Areas. Available at: https://uk-air.defra.gov.uk/aqma/ [Accessed: 18/01/2023].

Historic Environment

1.6.46. There are Conservation Areas[13] in Horningsea and Fen Ditton which the local councils have a duty to protect. The Horningsea Greenway passes through several Conservation Areas, as well as a Tree Preservation Area near Fen Ditton Primary School.

1.6.47. There are a number of designated heritage assets within a 50m study area of the Proposed Scheme, which include Fen Ditton Conservation Area, Horningsea Conservation Area, and a Grade II* and II listed buildings[14]. It is vital to preserve the setting of the historic buildings and open spaces and ensure that the development of any transport scheme contributes to this preservation. There is a need to manage traffic levels to avoid noise, congestion, and pollution which all have a significant negative impact. This can be partly achieved through the delivery of sustainable active transport networks such as the Horningsea Greenway.

1.7 IMPACT OF NOT CHANGING

1.7.1. Without delivery of the Horningsea Greenway scheme, the car will remain the dominant mode of transport for commuting even for shorter trips that could be undertaken by active travel. There is a risk that existing demand for cycling declines due to an increasingly unattractive cycling environment, and reliance on the car will increase. Not only will this have negative consequences for local communities with increased congestion, but the environment will also suffer from high levels of greenhouse gas and carbon emissions, and physical and mental wellbeing will be negatively affected. The Cambridge City Deal objectives of developing active travel modes to support the planned travel needs of new housing developments and employment will also be adversely impacted.

1.7.2. Without the delivery of the Horningsea Greenway, the opportunity to realise net biodiversity gains will be reduced, resulting in a less attractive environment without an enhanced natural habitat. Delivery of the Horningsea Greenway is therefore key in meeting the challenges identified with the current situation, and as described below, in supporting national, regional, and local strategic priorities.

1.8 STRATEGIC NEED

The strategic need for the Horningsea Greenway is set out in this section. The key objectives are aligned with the Greenways Programme as a whole.

1.8.1. Table 1-3 focuses on the more specific needs for the Horningsea Greenway.

[13] https://www.scambs.gov.uk/planning/search-by-map/
[14] Historic England. (n.d) Conservation Areas. Available at: https://historicengland.org.uk/listing/what-is-designation/local/conservation-areas/ [Accessed: 18/01/2023].

Table 1-3 – Strategic Need for the Horningsea Greenway

Facilitating a growing economy	As the economy and population of Cambridge continues to grow, with the planned delivery of 33,480 new home and 44,000 new jobs by 2031, there is a strategic need to provide a sustainable transport network to cater for the increased demand. The Transport Strategy for Cambridge and East Cambridgeshire indicates that 11,500 new homes are needed in the area to keep up with rapid population growth, which will result in an increase in the number of people making road-based commuter trips into Cambridge including along the B1047 and A1134/A1303. Without the provision of a sustainable alternative, current levels of congestion will worsen, and journey times will increase on the local road network. In network terms the Horningsea Greenway links to the Bottisham and Swaffham Greenways at Fen Ditton. Active mode provision continues towards Cambridge via the Chisholm Trail. This route provides an excellent off-road alternative to the A1303 (Newmarket Road). This will provide an incentive for both existing and new residents to consider switching mode from car to cycling. This will not only lessen the impact of traffic congestion as new residential developments are completed but encourage a shift by current car users to cycling. In the Economic Case an assessment of new to cycle demand as a result of the implementation of the Horningsea Greenway indicates that an uplift to existing cycle demand of 25% and pedestrian demand of 10% is anticipated.
Connecting the city with sustainable transport modes	Economic growth will correlate with a greater number of trips made, and therefore a greater demand on the road network if nothing changes. Without new sustainable transport interventions peak hour journey times in Cambridge are forecast to increase by as much as 90%. This traffic congestion will cause delays resulting in a fall in productivity. There is therefore a strategic need to reduce the number of trips made by car and provide a sustainable and active alternative transport solution. The Horningsea Greenway will provide a key element of this sustainable transport plan providing an improved cycling and walking corridors connecting the city with Horningsea. The Greenway will provide significant improved cycling connectivity. By providing a more direct sustainable transport connection between Horningsea and Cambridge, the Horningsea Greenway will encourage more walking and cycling trips. At a strategic level the Horningsea Greenway will link into the City Access / Making Connections plans prioritising sustain able transport through a new bus network, better cycling and walking routes and high-quality public spaces. The City Access programme will increase the attractiveness of the cycling network, connecting the Greenway programme of active mode corridors with the city centre including the Horningsea Greenway. The impact of this wider cycling connectivity will be to encourage significant mode shift to non-car modes. Making Connections will implement a Sustainable Travel Zone (a road-user charging scheme) to funding public transport, cycling and walking improvements, whilst discouraging car use in the city centre. Improved cycling infrastructure and connectivity will, in conjunction with improvements to the bus network, offer attractive active mode and public transport options as an alternative to the car.

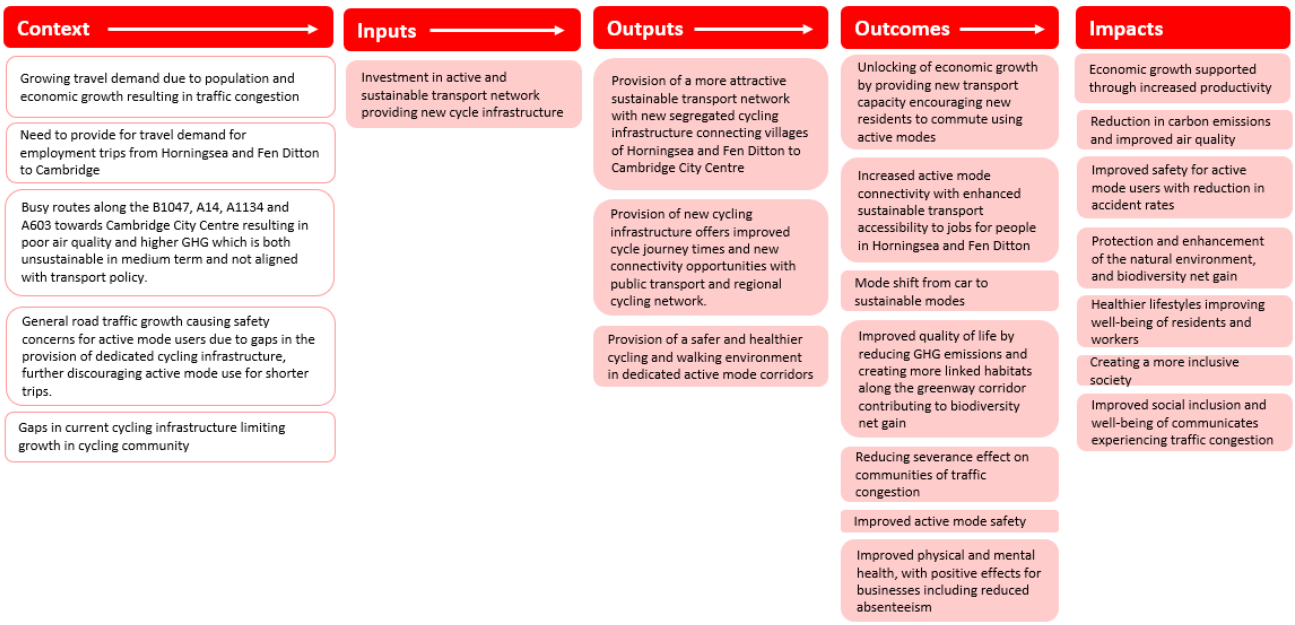
Sustainability Agenda	The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries, developed and developing, in a global partnership. They recognise that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth. All while tackling climate change and working to preserve our oceans and forests. Horningsea Greenway supports the sustainability agenda as part of the overall Greenways project which promotes sustainable development of the Greater Cambridgeshire region by making cycling more attractive as a mode of transport. The enhanced active travel connectivity to employment and education provided by the Greenways encourages modal shift to sustainable modes of transport, It further reduces inequitable access to opportunities by providing affordable travel options to education and job centres.
Decarbonisation Agenda	National policies outlined in Section 1.5 detail the strategic need to align with Net Zero targets through the Ten Point Plan for a Green Industrial Revolution, Gear Change, and the Cycling and Walking Investment Strategy. At a regional level, the Cambridgeshire and Peterborough Independent Commission on Climate outline the importance of acting on sustainable opportunities to improve air quality, greenspace, and meet Net Zero targets. The Horningsea Greenway has the potential to be a Net Zero carbon project by offsetting construction carbon and adhering to the strategic aims of the outlined policies. With 81% of NOx coming from road traffic in Cambridge, there is a strategic need for modal shift away from the private car towards more sustainable modes of cycling and walking. Through the delivery of the Horningsea Greenway a net reduction in highway-kilometres is expected as a result of modal shift to active modes, which in turn will lead to a net decrease in greenhouse gas emissions.
Delivery of Biodiversity Net Gain	In order to align with Net Zero targets, the principle of Biodiversity Net Gain (BNG) has been developed. Both the National Planning Policy Framework (NPPF) and the Government's 25 Year Environment Plan sets out the strategic need to incorporate net gains for biodiversity. This is detailed through the Environment Bill and the Town and Country Planning Act (TCPA), which present the requirement of a minimum 10% BNG. The Greater Cambridge Partnership takes the commitment to BNG further through its commitment of 20% as outlined in the Cambridge Local Plan. The Local Plan also details the importance of the maintenance of the Green Belt surrounding Cambridge, which will contribute to the biodiversity of the region. The Greenways project as a whole has strong potential to deliver positive gain for biodiversity. There are significant opportunities to achieve this by providing both wildlife corridors adjacent to the road network and prioritising the linking of areas of habitat together and creating new habitats where possible.

1.9 STRATEGIC OBJECTIVES

LOGIC MAPPING

1.9.1. The logic mapping process reflects the current situation, the strategic priorities established in the key national, regional, and local policies and the strategic needs. These relationships apply both to the overall Greenways Programme and individual schemes including the Horningsea Greenway. The exercise to map these factors and the opportunities has resulted in the identification of the objectives and planned impacts of the Horningsea Greenway project. This logic map is shown in Figure 1-12.

Figure 1-12 - Logic Map



1.10 SMART OBJECTIVES AND MEASURES OF SUCCESS

1.10.1. The Greater Cambridge City Deal (2014) outlines strategic objectives aimed at enabling a new wave of innovation-led growth by investing in the infrastructure, housing and skills that will facilitate the continued growth of the Greater Cambridge area. The City Deal will provide £1billion of local and national public sector investment to fund growth in Greater Cambridge, enabling an estimated £4bn of private sector investment in the Greater Cambridge area focussing on areas such as West Cambridge, supported by the implementation of the Horningsea Greenway.

1.10.2. Delivery of the Horningsea Greenway will further the strategic goals of the GCP through providing enhanced opportunity for active travel to new residents and commuters. With an increased number of people using active travel modes, levels of congestion will be reduced, and air quality and public health improved. Table 1-4 presents the Horningsea Greenway SMART strategic and operational objectives that are aligned with the overall Greenways Programme together with measures of success.

Table 1-4 – Horningsea Greenway SMART Objectives

Strategic Objectives	Operational Objectives	Measures of Success
Encourage commuting by sustainable transport modes and reduce traffic congestion	Capacity: Provide the cycle network capacity to accommodate increases in active travel demand due to new housing and employment growth	Increase in cycle network capacity Ability to contribute to a reduction in vehicular road traffic Propensity to reduce congestion/delay
Contribute to improved air quality and better public health	Connectivity: Improve accessibility to jobs and opportunities by active modes through a reduction in journey times and increase ease of interchange with public transport modes	Reduced journey time for cycling Scale of catchment (jobs, housing) Ability to unlock growth Ease of interchange with public transport
	Communities: Contribute to the creation of safe and attractive communities by reducing emissions, severance and the dominance of traffic improving personal security and road safety, further resulting in improved community health and wellbeing through uptake of active travel	Road safety Protection of green spaces; net biodiversity gain (across the Greenways programme) Environment (air quality and carbon reduction) Quality of the public realm Severance Increase in cycling and walking trips Improved public health and wellbeing

1.10.3. To plan for the successful delivery of the scheme, the following shall be monitored:

- Planning consents
- Phased programme of construction
- Dependencies are to be understood and delivered

1.11 SCOPE

1.11.1. The proposed Horningsea Greenway links north-east Cambridge to the village of Horningsea (to the north-east of the city). The 8km route follows a mix of existing quiet roads (B1047 Horningsea Road), off-road and busier roads (A14 at Junction 34), with the aim of providing a high-quality route to improve active travel in the area. Users of the Horningsea Greenway will be able to avail themselves with onward active mode facilities towards Midsummer Common in the city centre. The Horningsea Greenway route and associated walking and cycling improvements provides an excellent off-road alternative to the A1303.

The scheme will also improve active mode links with Cambridge via the Chisholm Trail which will provide connections to Cambridge Station to the south and Cambridge North station across the new Abbey-Chesterton bridge. The Horningsea route will connect to the Swaffhams and Bottisham Greenways at Fen Ditton which will provide improved active mode connectivity across east and north-east Cambridge. From Fen Ditton, the Horningsea route connects with other walking and cycling improvements onwards past the Green Dragon bridge and as far as the Riverside bridge which will connect active mode users to and from workplaces, schools, and shopping.

1.12 COMPLEMENTARY SCHEMES

1.12.1. There are a number of complementary schemes which will support the development of the Horningsea Greenway by extending the network of cycling infrastructure across Cambridge. These complementary schemes are also described in the Greenways POC.

Cambridge City Access

1.12.2. The City Access project aims to improve access to Greater Cambridge by introducing measures to reduce congestion, encourage active travel and improve air quality. The Horningsea Greenway project is aligned with the objectives of the City Access project. The scheme provides improvements to existing cycling and walking infrastructure and proposes to develop additional routes which encourages active travel and improves air quality as well as provides high quality public spaces.

1.12.3. The scheme provides sustainable travel options to people living in the village of Horningsea and Fen Ditton to use as an alternative to car travel on the A1303 and B1047 to and from Cambridge.

1.12.4. The City Access Programme comprises of three elements: firstly, the Making Connection Programme improving the environment for active travel modes, transforming the city's bus network and reducing congestion and pollution, secondly, development of an Integrated Parking Strategy, including the delivery if more residents' parking schemes, and thirdly, making the best use of the city's road network including the recent road network classification consultation.

1.12.5. The City Access project is developing a package of measures to deliver a commitment to reduce traffic in Cambridge by 10-15% from 2011 levels by 2030 and is a key complementary scheme for the Greenways programme. To optimise the success of both, it is vital that the Greenways programme is delivered in conjunction with the eight packages comprising the City Access Strategy (illustrated in **Figure 1-13**).

Figure 1-13 - Cambridge City Access Strategy Measures

Source: Greater Cambridge Partnership

1.12.6. The Horningsea Greenway will benefit from the positive impacts on reallocation of road space for public transport and active modes incorporated in the City Access Strategy including:

- Reduced traffic congestion within the city centre;
- Faster, cheaper and more reliable bus journeys, enabling expansion of Park & Ride capacity and facilities;
- Safer, easier, and more attractive walking and cycling journeys;
- Reduced pollution and cleaner air;
- Fewer stationary or slow-moving vehicles;
- More cycling and pedestrian infrastructure;
- Preservation and enhancement of Cambridge's historic environment;
- Improvements to the quality and reliability of public transport; and
- Continued growth in cycling.

1.12.7. The Horningsea Greenway scheme forms part of the larger Greenway Programme network that provides improvements to existing cycling and walking infrastructure and proposes to develop additional routes which encourages active travel and improves air quality as well as provides high quality public spaces. The Horningsea Greenway will enable the achievement of Cambridge City Access objectives in the Horningsea travel corridor and provide an alternative active travel corridor for car travel on the B1047 and A1303 onwards into Cambridge on linked active mode routes.

The Swaffhams Greenway

1.12.8. The Swaffhams Greenway connects Swaffham Prior to Swaffham Bulbeck and provides an onward link to Fen Ditton and Cambridge. The route runs past Stow-cum-Quy where it converges with the

Bottisham Greenway and then continues to Fen Ditton. At this point the route joins the Horningsea Greenway and proceeds to the Chisholm Trail at the Abbey-Chesterton bridge.

1.12.9. The Horningsea and Swaffhams Greenway schemes and will provide a safe and attractive active travel route that will connect workplaces, local schools and colleges, shops and transport hubs.

Bottisham Greenway

1.12.10. The 9.5 km long Bottisham Greenway connects Bottisham to Stow-cum-Quy, Newmarket Road, and Fen Ditton before continuing towards Cambridge city centre. The route proceeds along the A1303 and connects to the A14 underpass which will be easier and safer to use due to lighting and landscaping improvements.

1.12.11. The route converges with the Swaffhams Greenway and continues along High Ditch Road past the Wing housing development to Fen Ditton. At this point the route connects to the Horningsea Greenway, providing a safe and attractive active travel route separate from road traffic.

1.13 STRATEGIC IMPACTS

1.13.1. This section discusses the economic, social, and environmental strategic impacts of investment in the Horningsea Greenway.

1.13.2. The Horningsea Greenway forms part of a wider policy of developing sustainable transport in the Greater Cambridge area. It contributes to the provision of a sustainable transport network that adds to transport capacity and connectivity essential to maximise the opportunities for housing and economic growth.

1.13.3. Reliance on the road network will increase congestion and delay as traffic growth occurs which will increase in frequency and impact, which investment in additional highway capacity, even if feasible, will not be able to mitigate. Therefore, investment in high quality, safe, attractive, and comprehensive infrastructure to support pedestrians, cyclists and public transport users is essential to meeting this need.

Economic Impacts

1.13.4. From an economic standpoint investment in Horningsea Greenway will help reinforce Cambridge's competitive knowledge-based economy. It will provide employees in Horningsea and the other areas served by the Greenway with accessibility benefits due to the improved active mode linkage to the city centre. Segregated cycle infrastructure and reduced cycling times will make sustainable travel to work an attractive option for commuting. Associated with this there will be productivity benefits and reduced employee absences due to sickness. Furthermore, an active travel network is an attractive feature for future businesses looking to locate in Cambridge. Provision of the high-quality active travel corridor enables future-proofing behavioural change for sustainable travel use by connecting planned new housing and employment developments.

1.13.5. A secondary economic impact will be benefits to general road traffic in the congested transport corridors as continuing road users benefit from a reduction in road traffic levels and a reduced rate of growth in road traffic as others choose to use the Horningsea Greenway as an alternative transport corridor.

Social Impacts

1.13.6. The Horningsea Greenway will achieve health benefits by encouraging active lifestyles as residents switch to cycling. Physical activity will also have a positive impact on mental health too. The scheme will encourage modal shift resulting in reduced levels of congestion and hence creating a more pleasant living environment. The Horningsea Greenway will also improve the safety of both active travel and road network users through reduced congestion and a reduction in potential accidents involving cyclists.

Environmental Impacts

1.13.7. The Horningsea Greenway will encourage mode shift from motorised forms resulting in reduced levels of greenhouse gases and pollutants such as NOx and PM10. This will contribute towards achieving strategic aims of Net Zero targets and improving the air quality of surroundings.

There are also Green Infrastructure and Natural Capital impacts. The Horningsea Greenway will be designed to provide multiple environmental, cultural and social benefits. The net impact will be to create well-designed and beautiful places including habitat enhancement along Horningsea Road that deliver on natural capital enhancements and biodiversity gain in line with the Cambridge Local Plan and Environment Bill.

Table 1-5 – Scheme Benefits

Benefit	Description
Increased safety of the cycle network	Segregated travel away from general traffic on the congested road network will decrease the number of accidents.
Reduced road traffic for motorists	Users who continue to use the road network will benefit from a reduction in traffic volume and congestion, translating into journey time savings and improved access to jobs and services.
Environmental benefits	Improvement in air quality and carbon reduction as the Horningsea Greenway encourages a switch from motorised forms of transport and reduced levels of congestion.
Health benefits	A modal shift towards active travel will bring about numerous health benefits, both physical and mental. Access to an active-travel network will future-proof behavioural change.
Improved connectivity and accessibility	Improved access to a quality sustainable transport mode linking the city centre and the Horningsea corridor.

1.14 OPTION DEVELOPMENT

Overview

1.14.1. The Horningsea Greenway scheme was developed through a process of identification, prioritisation and consultation.

1.14.2. The Horningsea Greenway will provide an improved link to Fen Ditton as well as important connections to Chesterton via the Riverside bridge. The onward route will continue via the Chisholm Trail which will provide links to Cambridge North station and Cambridge station to the south. Widening of the shared-use paths along the B1047 (Horningsea Road), new signage, and landscape improvements will provide a convenient and safe route between Horningsea and Cambridge.

Option Assessment

1.14.3. Outline concept design-based work was carried out by 5th Studio, with support from JCLA (landscaping) and Allan Tyler (cost). Nigel Brigham carried out an independent review of the 5th Studio designs. The Horningsea Greenway initial designs went to public consultation between 16th September – 28th October 2019. A further engagement period took place between 21st November and 16th December 2022. The decision was made to combine the Horningsea, Bottisham and Swaffham consultations due to the close proximity of the villages and the interconnectedness of the routes.

Consultation

1.14.4. A multi-channel approach was taken during the Horningsea consultation and the public were asked their preferences regarding the individual elements of the proposed greenway route. In summary, the consultation results showed that 67% of the 143 respondents supported shared-use path improvements from Horningsea to the A14, 57% supported the Horningsea village gateway element, and 56% supported improved signage and path widening at junction of the byway and Horningsea Road. Other elements were also well supported.

1.14.5. Through a 'bottom up' methodology, the GCP has engaged with local communities to ensure that routes meet the local needs of people and take advantage of local knowledge. Overall, local communities engaged positively and provided valuable feedback to help shape developments of the schemes. The key findings from the initial concept designs consultation are presented in Table 1-6.

Table 1-6 – 2019 Consultation

Consultation	Dates	Key findings
Initial concept designs	16th September – 28th October 2019	▪ Almost all the elements of the proposed route were supported, with the exception of element 2: 'Fen Ditton church road arm closure with landscaping around the churchyard entrance' which was supported by less than half of respondents and opposed by over a fifth. ▪ High support for the installation of solar studs in eight specific locations along the route ▪ Concerns were raised over the high cost of ongoing maintenance

Options

1.14.6. The initial proposals presented in the 2019 consultation material links Cambridge to Horningsea following existing shared-use cycle paths and quiet roads, with the aim to provide a high-quality alternative to a route alongside Horningsea Road.

1.14.7. The proposals include shared-use paths along most of the route, with new paths along the existing Fen Ditton Byway and where the Horningsea and Bottisham Greenway converge. Selective path widening, new signage and landscape improvements were proposed on some sections of the route, including the Wadloes Path 'Bow-Tie' section. New planting, new trees and adjustments to landscaping were also proposed for the scheme which will make the route attractive and support a wide range of wildlife.

1.14.8. Twelve potential bridge locations and associated approach routes for a new walking and cycling route between Horningsea and the riverside path on the west side of the River Cam have been considered. The objective of such a link would be to provide a high-quality route towards Cambridge (as an alternative to a route alongside Horningsea Road) and Milton.

1.14.9. After a review of the initial proposals, it was agreed that the focus of the scheme should be on a route via the existing path alongside Horningsea Road between Horningsea and the northern extent of Fen Ditton, and then via the byway and Green End to the end of the Wadloes path. This choice was made on the basis that the route would form a quieter, 'greener' alternative that would complement the recently completed improvements that provide a shared-use path along Horningsea Road through the village. Furthermore, a new cross-country route alongside the river would not justify the additional land and cost acquisition required and would have a detrimental effect on the riverside footpath.

GCP Board Approval

1.14.10. A summary of findings and final route options were presented to the public and the GCP Executive Board in 2019. The GCP Executive Board then considered the elements of the scheme and selected preferred attributes to be taken forward to the next stage of project development. Approval to proceed to planning and detailed design was granted by the Executive Board of GCP in June 2020.

1.14.11. The scheme is currently at preliminary design stage. Site surveys are being carried out and will be used, alongside feedback, to finalise the preliminary design before starting the detailed design.

1.14.12. The public engagement on the preliminary technical design was undertaken between 21st November – 16th December 2022. The review of the feedback and comments collected during the consultation is currently ongoing.

Constraints

1.14.13. The following significant constraints on the delivery of the scheme have been identified:

- Obtaining the rights for use and construction of the Greenway, which may involve private landowners.
- The need to ensure continuity, which can involve the need for high quality crossings of roads and other barriers.
- The need to satisfy planning requirements, which will include habitat, flooding and other issues.

1.14.14. These will be addressed through the ongoing development of the scheme and engagement with stakeholders and the feedback received from the 2022 consultation held between 21st November – 16th December 2022. A review of the consultation feedback is being undertaken.

Next Steps

1.14.15. The next stages in the design process will undertake the following tasks:

- Parking surveys
- Traffic modelling
- Environmental and ecology impacts
- Planning consent
- Engagement with landowners

2 ECONOMIC CASE

2.1 INTRODUCTION

2.1.1. The Economic Case identifies the impacts of the scheme to inform the assessment of the Value for Money (VfM). It considers the impacts that can be measured and quantified, and those which can be assessed qualitatively. To assess the VfM, these impacts have been compared to the scheme costs.

2.1.2. The Horningsea Greenway will be an improved walking and cycling route between Horningsea, Fen Ditton and Cambridge. The Horningsea Greenway is one route within a wider and developing sustainable travel network that is being created by the Greater Cambridge Partnership. The Greenways network will run through many different environments. These range from quiet rural settings along field edges or country lanes to busier built-up urban locations that may have more limitations on space. Within each environment the Greenways project aims to deliver a safe, attractive, and cost-effective sustainable travel route which users can enjoy all year round.

Figure 2-1 – Horningsea Greenway Scheme[15]

[15] https://www.greatercambridge.org.uk/sustainable-transport-programme/active-travel-projects/greater-cambridge-greenways/horningsea-greenway

Table 2-1 – Summary of Scheme Elements

Element	Infrastructure
Walking & Cycling	▪ Quiet Roads – speed limits reduced to 20mph ▪ Traffic calming – raised tables and removal of centre lining ▪ Protected path – A 3-metre-wide path with features that separate cyclists and pedestrians. ▪ Shared use paths – A 3-metre-wide path with a 2-metre grassy strip running parallel. Where the path runs beside the carriageway a green verge will separate the path from the road, this will be as wide as possible. ▪ Signage – Greenway specific wayfinding marker posts could be placed at regular intervals and junctions. ▪ Surfacing – Routes will be made from a hard, smooth surface.
Public Realm	▪ Lighting – solar studs could be used at specific points to aid wayfinding in low light ▪ Maintenance – a maintenance package for the route is being planned

2.1.3. Detailed drawings of the scheme measures are included within Appendix A.

2.1.4. The appraisal considers the incremental benefits of the intervention, comparing the benefits (and costs) of the scheme against the without scheme case.

2.2 APPROACH TO ECONOMIC APPRAISAL

2.2.1. The appraisal has been undertaken in alignment with the principles of the HM Treasury Green Book and the Department for Transport (DfT) Transport Analysis Guidance (TAG) for schemes of this nature. As set out in these guidance documents, the appraisal of the scheme will be largely undertaken in line with guidance of, the following:

- TAG Unit A1-1 (May 2018): Cost-Benefit Analysis
- TAG Unit A1-2 (July 2017): Scheme Costs
- TAG Unit A1-3 (March 2017): User and Provider Impacts
- TAG Unit A4-1 (May 2020): Social Impact Appraisal
- TAG Unit A4-2 (May 2020): Distributional Impact Assessment
- TAG Unit A3 (May 2019): Environmental Impact Appraisal
- TAG Unit A5-1 (May 2020): Active Mode Appraisal
- DfT Value for Money Framework

2.2.2. The appraisal of the scheme considers both the impacts that can be quantified, and monetised, as well as those that can only be assessed qualitatively. Considering the range of proposals along the corridor, various appraisal techniques have been used to assess the impacts which can be quantified. All benefits and costs have then been consolidated in a wider economic appraisal model.

2.2.3. In line with TAG, all costs and benefits in the appraisal have been presented in 2010 Present Values (PV), market prices. Costs and benefits have been deflated to 2010 prices using the GDP Deflator forecasts within the TAG Data Book v1.20.1 and discounted to 2010 values using the social discount rates also within the TAG Data Book. The market price adjustment factor of 1.19 from the TAG Data Book has been used to convert from factor prices to market prices.

2.2.4. It has been assumed that the scheme opening year is 2026. The impacts have been considered over a 20-year appraisal period. TAG Unit A1-1 Cost Benefit Analysis states that the appraisal period should ‘cover the period of usefulness of the assets encompassed by the options under consideration’.

2.2.5. The following sections set out the approach employed to appraise the various elements of the scheme.

ACTIVE MODE APPRAISAL TOOLKIT

2.2.6. In line with TAG Unit A5-1, the DfT's Active Mode Appraisal Toolkit (AMAT) (November 2022 update) has been used to estimate the benefits associated with improved cycling infrastructure along the proposed Horningsea Greenway. The tool considers the benefits in terms of physical activity, absenteeism, journey quality, environmental, indirect tax and congestion.

2.2.7. The current and anticipated scheme demand is input to the AMAT, as well as the change in infrastructure provision. Combining this with a number of assumptions from the National Travel Survey (NTS) regarding journey length, journey speed, purpose split and cycling diversion factors, the tool outputs the benefits associated with the intervention. The scheme costs can also be input to the tool such that the Benefit to Cost Ratio (BCR) can be calculated, however for this submission the benefits and costs have been brought together in the economic appraisal model. A wider appraisal model was used so that a number of benefit streams could be collated and then subtracted with the scheme costs to produce an overall BCR for the scheme.

2.2.8. Two assumptions in the AMAT were refined in order to more accurately represent the local conditions in Cambridge, as outlined below.

Table 2-2 – Refined Assumptions

	Default Assumption	Altered Assumptions	Rationale
Cycling – Average Length of Trip	4.84	5.14	National Travel Survey updated from 2012-14 to 2019 values
Number of days for which intervention data is applicable per year	253 days	305 days	Count data demonstrates that levels of demand in the corridor on Saturdays are broadly equivalent to weekday levels

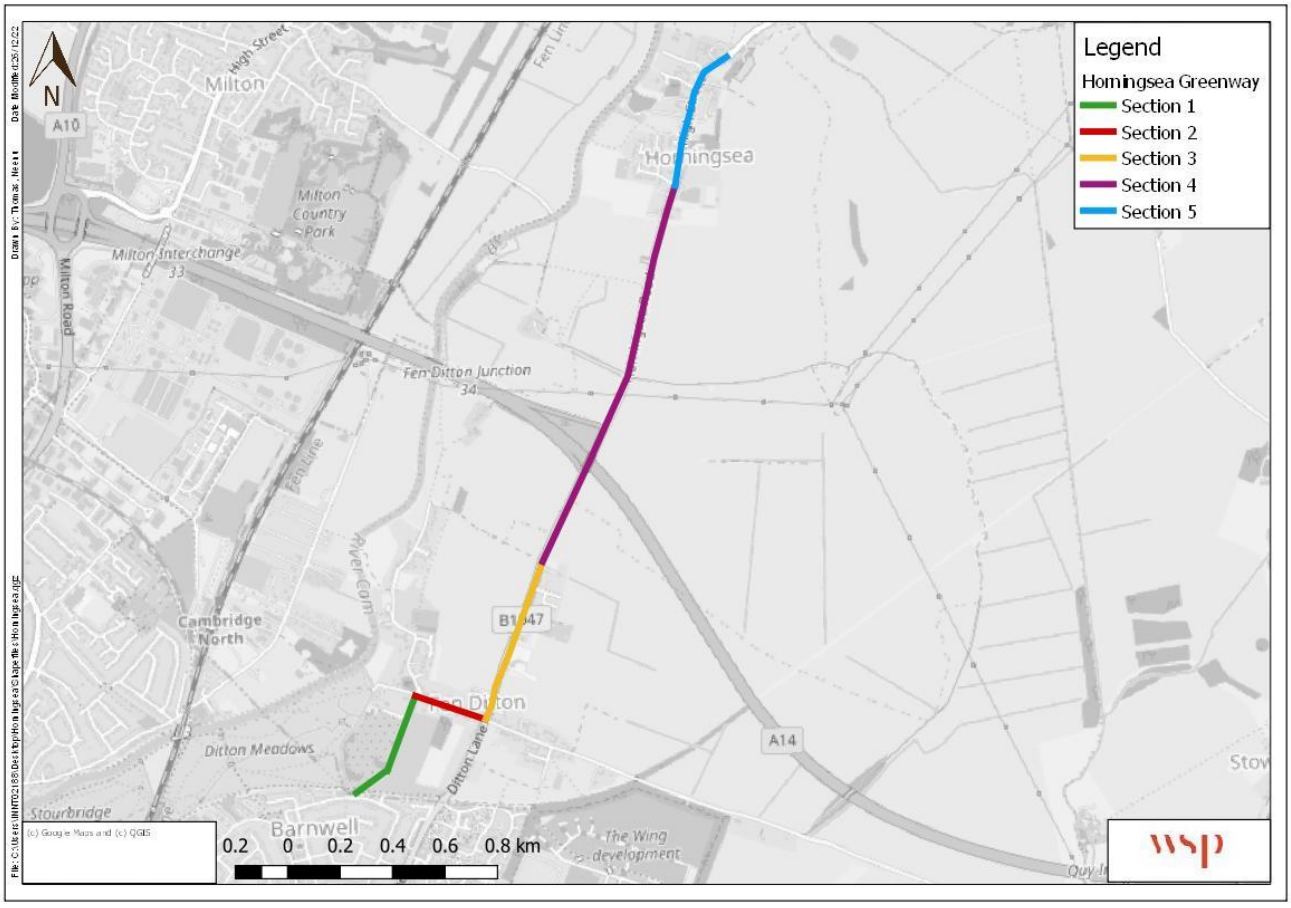
2.2.9. In line with DfT guidance and to ensure the scheme benefits were not double counted, the AMATs were split into sections depending on the type of existing and proposed infrastructure present along the corridor. For example, the AMAT requires an input of how much of an average cycling trip will use the intervention, where the length of an AMAT section is divided by average trip length (5.14km). This allowed the route to be broken by length, ensuring benefits were not replicated. The sections are set out in Table 2-3.

Table 2-3 – Summary of AMAT Sections

Section	Description	Length of Route	Existing Infrastructure	Proposed Infrastructure
1	Wadloes path-Ditton meadows	0.45km	Public Footpath/ quiet road	3m widened shared use path
2	Fen Ditton Village	0.28km	Quiet road	A quiet road, where vehicle speeds are limited to 20mph, with wayfinding and maintenance repairs
3	B1047 Horningsea Road	0.64km	Shared use path	3m widened shared use path
4	Horningsea to the A14 including bridge at J34	1.53km	Shared use with segregated markings for cyclists	3m widened shared use path
5	Horningsea Village	0.55km	Country Road, 40mph speed limit	Quiet road with 20mph speed limit

2.2.10. The sections discussed above are also shown in Figure 2-2 below.

Figure 2-2 - AMAT Sections

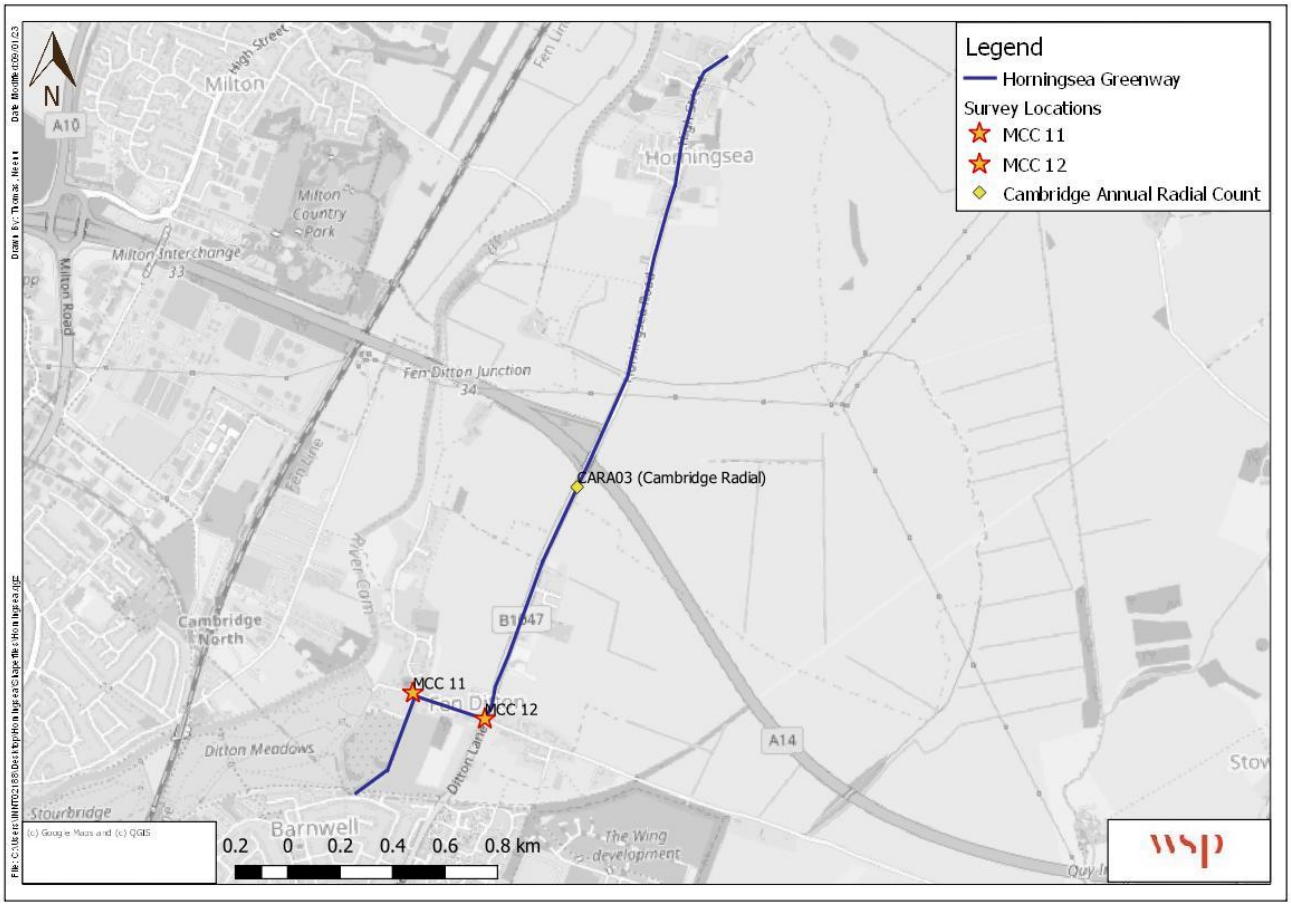


2.2.11. The following sections discuss the approach to using the AMAT toolkit in this submission.

Existing Demand

2.2.12. The AMAT requires the existing and scheme induced demand to be included as an input. To establish the existing cycling demand along the Horningsea Greenway route, Manual Classified Turning Counts (MCCs) were carried out along the route to gauge walking and cycling demand. Cambridge Annual Radial (CARA) survey which is an annual, one-day survey usually undertaken in October/November. CARA03 count site is along the Horningsea road (south of the bridge). Figure 2-3 outlines the locations of the MCCs and CARA03 site locations.

Figure 2-3 - Horningsea Count Data Locations



2.2.13. The Manual Classified Counts (MCCs) provided existing demand for sections 1, 2 and 3. The MCC was collected between 0700-1000 and 1500 to 1900, a total of 7 hours. Sections 4 and 5 are along the Horningsea Road. The existing demand for these sections is derived from the average of 2019 to 2022 CARA03 12-hour data provided by Cambridgeshire County Council. Due to the low demand in 2022 for the pedal cycles, assumed an average of the available data from 2019 to 2022 to estimate the cycle and walk demand for Horningsea sections.

2.2.14. As AMAT assumes a 24-hour flow as input to calculate benefits, the MCCs were factored up to 24-hour flows. This adjustment used 24-hour count data collected in March 2022 on Vinery Road, Cambridge. The flows have been annualised within the AMAT, using an annualization factor of 305

days. The selected Table 2-4 below outlines the cycling and walking demand used for each AMAT section.

Table 2-4 – AMAT Demand (Daily Trips – 24 Hours)

Section	Description	Source	Cycling Demand	Pedestrian Demand
1	Wadloes path-Ditton meadows	MCC 11	394	191
2	Fen Ditton Village	MCC 12	256	239
3	B1047 Horningsea Road	MCC 12	293	492
4	Horningsea to the A14 including bridge at J34	CARA03	150	57
5	Horningsea Village	CARA03	150	57

2.2.15. Table 2-4 demonstrates that there is a variable demand level across the Horningsea Greenway corridor, with higher demand levels seen on off-road footpaths, and lower demand along sections along the B1047 Horningsea Road. For example, demand is higher along Wadloes path-Ditton meadows and Fen Ditton-B1047 Horningsea Road junction. The difference in cycling and walking demand at Section 4 compared to Section 3 (both along B1047) is likely to be due to school trips to Fen Ditton Community Primary School.

Scheme Induced Demand

2.2.16. To estimate the scheme induced cycling demand, an uplift percentage of 25% was used, which was derived from pre- and post-implementation traffic surveys from several comparable schemes outlined in the GCP Impact Evaluation Evidence Paper (2019)[16], Cycle City Ambition Programme (2013-2018)[17], and Outcomes of the Cycling City and Town Programme (2017)[18], including:

- Arbury Road (Cambridge) – Traffic lanes narrowed to 2.6m with removed centre line and kerb lines moved to accommodate new raised cycleway as well as carriageway / footway resurfacing.
- Links to east Cambridge – shared foot and cycleway, parking restrictions and carriageway resurfacing.
- Filwood Greenway (Bristol) – mixed strategic route including off road cycle track though green space.

[16] GCP Impact Evaluation Evidence Paper (2019)
[17] Cycle City Ambition Programme 2013-18
[18] https://www.sustrans.org.uk/media/2970/2970.pdf

2.2.17. A walking demand uplift of 10% was used, which was derived from an average of case studies outlined in Making the Case for Investment in the Walking Environment (2011).[19] Examples from this study include:

- Kensington High Street
- Five Roads Home Zone, Ealing
- Wanstead High Street Walking Improvements

2.2.18. The demand forecasts are show in Table 2-5.

Table 2-5 – Horningsea Greenway Demand Forecasts (24 hours)

Section	Description	Cycling demand	Pedestrian demand
1	Wadloes path-Ditton meadows	493	210
2	Fen Ditton Village	320	263
3	B1047 Horningsea Road	366	541
4	Horningsea to the A14 including bridge at J34	188	63
5	Horningsea Village	188	63

Intervention

2.2.19. The AMAT allows the existing infrastructure for the route to be selected, and the proposed new infrastructure. Within the tool, the options that can be selected to capture this before and after state include:

- No provision
- Shared bus lane
- Wider lane
- On-road non-segregated cycle lane
- On-road segregated cycle lane
- Off-road segregated cycle track

2.2.20. The AMAT toolkit classifications for existing and proposed infrastructure only capture a certain number of cycle interventions and therefore the most comparable selection was made in the toolkit according to examples outlined in the user guidance. For example, the proposed infrastructure for the route includes several sections of shared use footways, which is not specifically a selection in the AMAT Toolkit and has therefore been categorised as ‘off-road segregated cycle track’. This category was selected as AMAT user guidance states that an off-road segregated cycle track is ‘a

[19] https://www.livingstreets.org.uk/media/1394/2011-making-the-case-full-report.pdf

path or track with right of way for pedal cycles that is separate to the road, typically with a level difference (that may or may not also be useable for pedestrians)'. For sections that include light touch on road measures such as sinusoidal speed humps, reduced speed limits and carriageway markings, 'shared bus lane' has been selected in order to differentiate these sections from existing on road sections, which have been classified as 'no provision'. Table 2-6 below outlines the type of existing / proposed infrastructure for each section of the route, alongside the subsequent classification for each section in the AMAT Toolkits.

Table 2-6 – Type of infrastructure / AMAT classification

Section	Type of Infrastructure (Existing / Proposed)	AMAT Classification (Existing / Proposed)
1	Off road bridleway / Shared path	Off-road segregated cycle track / Off-road segregated cycle track
2	On road, 20mph street / Quiet Road, 20mph street	No Provision / Shared Bus Lane
3	Shared use / Widened shared path	No Provision / Off-road segregated cycle track
4	Shared use with segregated markings for cyclists / Protected path	Off-road segregated cycle track / Off-road segregated cycle track
5	Off road footpath / Quiet Road, 20mph street	No Provision / Shared bus lane

2.2.21. The AMAT requires the average proportion of a trip which uses the scheme infrastructure to be input. This has been calculated by comparing the length of each section to the average length of a cycle journey (5.14km).

Outputs

2.2.22. The output of the AMAT tool are the monetised impacts of the infrastructure under the following headings in 2010 PV:

- Congestion benefit
- Infrastructure
- Accident
- Local air quality
- Noise
- Greenhouse gases
- Reduced risk of premature death
- Absenteeism
- Journey ambience
- Indirect Tax

ACCIDENT REDUCTION

2.2.23. Accident data was obtained along the Horningsea Greenway corridor for the period between 2016 and 2021. During this period, two accidents occurred along the corridor in total, with one being slight (involving pedestrian) and one serious (involving cyclist).

2.2.24. The scheme proposals include improved cycle facilities along the corridor, such as:

- Introducing new off-road cycle paths
- Traffic calming including:
  - Reducing speed limits from 30mph to 20mph
  - Raised tables
  - Proposed cycle markings

2.2.25. Due to greater separation between cyclists and vehicles and reduced vehicles speeds, the scheme proposals are expected to lead to a reduction in road collisions involving cyclists.

2.2.26. Following analysis of these collisions, one serious collision was considered to have been avoidable with the scheme in place. This was then divided to determine a yearly average, and then multiplied against the TAG values for accidents by severity, as shown in Table 2-7.

Table 2-7 – Accident Savings by Severity

	Accident Savings by Severity		
	Fatal	**Serious**	**Slight**
Cost of a casualty (£, 2010, TAG Databook v1.20.2)	-	£210,760	£21,483
Number of collisions involving cyclists	-	1	0
Number of cycle accidents that may have been prevented by the scheme (5 years)	-	1	0
Number of prevented cycle accidents per annum	-	0.2	0
Accident savings per annum (£, 2010)	-	£ 42,152.00	£ 0

2.2.27. This annual value of accident saving was then projected and discounted in the appraisal model for a 20- year period. The results are presented in the appraisal results section below.

NON-MONETISED IMPACTS OF THE SCHEME

2.2.28. There are a number of elements of the scheme for which the impacts cannot be quantified and monetised, these include:

- Reduced speed limits – the Horningsea Greenway includes traffic calming measures reducing speeds to 20mph
- Maintenance – a maintenance package is planned for the Horningsea Greenway. This will be carried out with reference to the GCP Greenways Maintenance Guidance. However, the maintenance costs rates by type of active mode infrastructure have not yet been assessed by the GCP.

2.2.29. Where appropriate, these elements of the scheme are considered within the Environmental and Social Impacts sections of the Economic Case.

SCHEME COSTS

2.2.30. It is estimated that the Horningsea Greenway scheme will cost in the region of £4.45m, based on direct construction works, design and other fees, risk contingency and inflation.

2.2.31. Indirect construction costs include main contractor's preliminaries, traffic management, overheads and profit. Indirect non-construction costs include Stats and professional fees.

2.2.32. Further detail on the estimation of the scheme costs is presented in the Financial Case. The cost profile of the scheme used in the economic appraisal is outlined in Table 2-8 below.

Table 2-8 – Cost Profile, £, Q4 2022 Prices

Cost	With Risk and Contingency	Without Risk and Contingency
Total Cost	£ 4,450,617	£ 3,277,079

2.2.33. The following investment costs have been considered:

- Construction costs
- Professional Fees

2.3 ECONOMIC APPRAISAL ASSUMPTIONS

2.3.1. The main appraisal assumptions are set out in Table 2-9.

Table 2-9 – Economic Appraisal Assumptions

Criteria	Assumption	Source
Opening year	2026	GCP
Base year	2010	DfT Base Year
Appraisal period	20 years	AMAT default
Discount rate	3.5% 0-20 years	January 2023 TAG Data Book v1.20.2 (A1 1.1)
GDP Deflator	-	January 2023 TAG Data Book v1.20.2 (Annual Parameters)
Existing path cycle demand	See Table 2-4 for a breakdown of demands used	Count Data
Scheme induced cycle demand	25%	Schemes outlined in GCP Impact Evaluation Evidence Paper Cycle City Ambition Programme 2013-2018
Existing path pedestrian demand	See Table 2-4 for a breakdown of demands used	Count Data
Scheme induced pedestrian demand uplift	10%	Living Street: Making the Case for Investment in the Walking Environment
Journey purpose split	Business: 12% Commuting: 25.5% Other: 62.5%	January 2023 TAG Data Book v1.20.2
Values of time	Commuter – 9.95 Other – 4.54 (£,2010)	January 2023 TAG Data Book v1.20.2 (A1.3.2)
Market price adjustment factor	1.19	January 2023 TAG Data Book v1.20.2 (A1.3.1)
Optimism bias on capital costs	23%	TAG Unit A1-2
Cost spend profile	2024/25	WSP

2.4 APPRAISAL RESULTS

PRESENT VALUE OF BENEFITS

2.4.1. The tables below show a summary of the results of the appraisal for each element of the scheme by area of interventions.

Cycling and Pedestrian Provision

2.4.2. The table below shows the monetised benefits associated with the improved cycling and walking infrastructure which includes new off-road cycle paths, improvements to existing cycling infrastructure, footway widening and improved pavement evenness.

Table 2-10 – Cycling and Pedestrian Monetised Benefits

Cycling and pedestrian provision	£, 2010 PV over 20-year appraisal period
All Sections Combined	
Congestion	52,070
Infrastructure	1,109
Accident	7,952
Local air quality	1,157
Noise	408
Greenhouse gases	12,808
Reduced risk of premature death	2,117,120
Absenteeism	328,407
Journey ambience	1,733,861
Indirect taxation	-14,469

2.4.3. The largest benefit associated with the increased number of cyclists as a result of the scheme is the health benefit through increased physical activity including reduced risk of premature death. Journey ambience accounts for the second largest benefits impact followed by absenteeism benefits. There are decongestion benefits as a result of modal shift from private car to cycling, and associated impacts – fewer road accidents, improved air quality, reduced noise and reduced greenhouse gase emissions. The scheme benefits are in line with the objectives outlined in the strategic case including encouraging commuting by sustainable modes and reducing traffic congestion as well as contributing to improved air quality and better public health. The reduction in private car use has a negative impact on indirect tax revenues to central government due to the impact of mode shift resulting in less road traffic and a consequent reduction in fuel duty. However, the reduction of car trips is considered a positive when considering the strategic objectives of the scheme.

Accidents

2.4.4. Table 2-11 below shows the benefits of the scheme induced accident reduction.

Table 2-11 – Accident Benefits

Impact	£, 2010 PV over appraisal period
Accidents (Collision savings)	£ 786,249

2.4.5. The scheme proposals, which include greater separation from general traffic for active modes, is estimated to result in a total saving of £0.79m as a result of fewer collisions involving cyclists over the 20-year appraisal period. This is in addition to the accident benefit estimated in AMAT which results from a reduction in highway-kilometres due to mode shift to active modes.

PRESENT VALUE OF COSTS

2.4.6. The cost assessment included direct construction costs, indirect construction costs, indirect non-construction costs, and inflation. Inflation was assumed of 8.89% from 4Q 2022 to 3Q 2024, as well as an additional inflation contingency of 3% per annum over the construction period.

2.4.7. For the economic appraisal optimism bias has been applied to the scheme costs to reflect the systematic tendency to underestimate scheme costs. In July 2021, DfT adjusted the methodology for how optimism bias should be applied within the economic appraisal. The revised guidance (TAG Unit 1.2) states that the base costs with optimism bias applied should be compared to the risk-adjusted cost. The costs should be similar, but if there is a large disparity, the higher costs should be used. Due to a low variation between the two costs, the base cost with optimism bias has been used as the core scenario for the appraisal. A sensitivity test has been included with risk-adjusted costs.

2.4.8. TAG Unit A1-2 provides guidance for the recommended level of optimism bias to be applied for different types of projects at different stages of the scheme development. For a scheme of this nature, at the OBC stage, a 23% optimism bias has been applied to the base scheme costs within the economic appraisal.

2.4.9. Following the application of optimism bias, the scheme costs have been adjusted to produce costs consistent with the benefits, namely in 2010 prices and values, with the market factor adjustment applied.

2.4.10. The present values of the scheme costs are shown in Table 2-12.

Table 2-12 – Present Value Costs

	£,2010 PV
Present Value of Costs (PVC)	£ 2,139,270

2.5 VALUE FOR MONEY STATEMENT

2.5.1. The core scenario benefits and costs described above produce a benefit to cost ratio (BCR) of 2.3:1, as presented in Table 2-13 below.

Table 2-13 – Economic Appraisal, Core Scenario, £2010 PV

Benefit / Cost Type	£ 2010 PV, 20-year appraisal
Noise	408
Local air quality	1,157
Greenhouse gases	12,808
Journey quality	1,733,861
Physical activity	2,445,527
Accidents	7,952
Economic efficiency: commuters	13,272
Economic efficiency: other	32,519
Economic efficiency: business users and providers	6,279
Wider public finances (indirect tax)	-14,469
Present Value of Benefits (PVB)	**5,025,561**
Present Value of Costs (PVC)	**2,139,270**
Net Present Value (NPV)	**2,886,291**
Benefit-Cost Ratio (BCR)	**2.3**

2.5.2. Appendix B provides the disaggregation of results in the Transport Economic Efficiency (TEE), Public Accounts (PA) and Analysis of Monetised Costs and Benefits (AMCB) tables.

2.6 SENSITIVITY TESTS

2.6.1. Sensitivity testing has been undertaken to explore the sensitivity of the expected outcomes of the appraisal to changes in inputs. The following sensitivity tests have been carried out, drawing on the key assumptions made in the core scenario:

- Test 1: New to cycle demand reduced to 20%
- Test 2: New to cycle demand increased to 12.5%
- Test 3: New to cycle demand reduced to 30%
- Test 4: No pedestrian demand uplift
- Test 5: 30-year appraisal
- Test 6: Accidents reduced by 50%
- Test 7: 46% optimism bias
- Test 8: Capital costs including risk / no optimism bias

2.6.2. The table below shows the impact on PVB, PVC, NPV and BCR of each of these tests compared to the BCR for the core scenario.

Table 2-14: Sensitivity Analysis

Test	PVB (£m)	PVC (£m)	NPV (£m)	BCR
Core Scenario	**5,025.6**	**2,139.3**	**2,886.3**	**2.3**
Test 1: New to cycle demand reduced to 20%	4,544.1	2,139.5	2,404.6	2.1
Test 2: New to cycle demand increased to 12.5%	3,832.4	2,139.8	1,692.6	1.8
Test 3: New to cycle demand reduced to 30%	5,491.1	2,139.1	3,352.0	2.6
Test 4: No pedestrian demand uplift	4,715.8	2,139.3	2,576.5	2.2
Test 5: 30-year appraisal period	7,414.1.	2,138.8	5,275.3	3.5
Test 6: 50% adjustment to accidents	4,632.4	2,139.3	2,493.2	2.2
Test 7: 46% optimism bias	5,025.6	2,539.5	2,486.1	2.0
Test 8: Capital cost inc.risk / no optimism bias	5,025.6	2,362.2	2,663.4	2.1

2.7 ENVIRONMENTAL IMPACTS

2.7.1. The section below sets out the appraisal of the active travel elements of the scheme considering the environmental impacts set out in TAG Unit A3. The Environment TAG worksheets are included in Appendix D.

NOISE

2.7.1. Overall, the scheme is expected to reduce vehicle traffic as people transfer to foot or bicycle. Traffic noise would reduce accordingly. Based on the outputs of the AMAT, the monetised impact on noise of modal shift from private car is estimated to be £408 (2010 PV).

2.7.2. Given the nature of interventions, the impact of construction noise is expected to be minimal and short lived.

AIR QUALITY

2.7.3. Modal shift to cycling and walking, and associated reduced road traffic, will result in locally improved air quality. Based on the outputs of the AMAT, the monetised impact on air quality of modal shift from private car is estimated to be £1,157 (2010 PV).

GREENHOUSE GASES

2.7.4. The net reduction in highway-kilometres as a result of modal shift to active modes, will lead to a net decrease in greenhouse gas emissions. Based on the outputs of the AMAT, the monetised impact on greenhouse gases of modal shift from private car is estimated to be £12,808 (2010 PV).

LANDSCAPE AND TOWNSCAPE

2.7.5. The landscape along the route is characterised that of a relatively flat and open rural landscape with medium to large, rectilinear arable fields and smaller pastoral fields around settlement edges and along the River Cam. Scattered linear villages along local roads are screened by groups of trees,

hedgerows, and shelterbelts. The scheme would have beneficial effects on the landscape pattern and neutral effects on landcover, the tranquillity, and cultural elements of the landscape. A strategic focus on landscape enhancement through new planting could result in slight benefits. Overall, impacts will be neutral.

2.7.6. The townscape is of low scale residential urban fringe with villages at Fen Ditton and Horningsea. The townscape character in Fen Ditton and Horningsea matters locally where the townscape is designated locally by Conservation Areas. The open character to the north matters regionally and is protected as Green Belt. The scheme is anticipated to have a neutral effect on the layout, density and mix, scale, appearance, human interaction, culture, and land use of the townscape. Overall, the changes to the townscape due to the scheme are minor and do not impact wider townscape character, with minor changes for local visual amenity.

2.7.7. Overall, the summary assessment score is neutral.

HISTORIC ENVIRONMENT

2.7.8. There are a number of designated heritage assets within a 50m study area of the Proposed Scheme, which include; Fen Ditton Conservation Area, Horningsea Conservation Area, and a Grade II* and II listed buildings.

2.7.9. Impact on the form of designated heritage assets will be neutral to slight positive and negative. There will be direct impacts on the Fen Ditton Conservation Area and Horningsea Conservation Area arising from new signage, traffic calming measures and resurfacing works. It is anticipated that there will be a slight negative impact. Neutral impact is anticipated on the significance of the Grade II listed buildings within Fen Ditton Conservation Area, though changes to the settings. The proposal to remove the highway between the Grade II listed War Memorial and the Church is anticipated to result in a slight positive impact. Neutral impact on the significance of Grade II* listed buildings in the Fen Ditton Conservation Area and the Grade II listed buildings within the Horningsea Conservation Area.

2.7.10. Impacts on the survival, condition, and complexity of the designated heritage assets, including listed buildings will be neutral.

2.7.11. Impacts to the context will be neutral to slight impact. There will be a change to the context of Fen Ditton Conservation Area and Horningsea Conservation Area likely to result in a slight adverse impact. Impacts on the period of the designated heritage assets is considered neutral.

2.7.12. The impact to non-designated heritage assets and buried heritage assets has not been determined at this stage.

2.7.13. Overall, the summary assessment score is neutral to slight adverse / beneficial.

BIODIVERSITY

2.7.14. Impacts on the Eversden and Wimpole Wood Special Area of Conservation (SAC), and on the barbastelle bats that use the woods and are the principal reason for its European designation, will be neutral. Impact Fendland SAC designated for Molinia meadows on calcareous, pesty or clayey-silt-laden soils and Cladium mariscus and species of the Caricion davalliane is considered as neutral. There are five Local Nature Reserve (LNR) within 2km of the Proposed Scheme, consisting of grassland and scrub habitats with importance for birds and invertebrates. Impact to these LNR is

considered neutral. Slight adverse impact is anticipated for the Ditton Meadows County Wildlife Site (CiWS), as a result of pollution risk from the Proposed Scheme.

2.7.15. There are many hedgerows within the Proposed Scheme, with the majority acting as boundaries rather than crossing the Scheme. Impact to these hedgerows are considered neutral. A slight impact will impact protected species such as bats, Water vole (*Arvicola amphibius)*, and Otter (*Lutra lutra*). Impact is considered neutral for the following species Amphibians (Great Crested Newt *Triturus cristatus*). birds, Barn owl *Tyto alba*, Reptiles (common and widespread species), Amphibians (Other amphibians), Hedgehog (*Erinaceus europaeus*) and Brown hare (*Lepus europeaus)*.

2.7.16. Overall, the summary assessment score is neutral to slight adverse.

WATER ENVIRONMENT

2.7.17. Surface water and groundwater features are located with 500m of the Proposed Scheme. River Cam and tributaries is channelled within the study area and has been assessed as magnitude level of slight beneficial, as runoff quality may increase due to a modal shift to green modes of transport and overall is considered insignificant adverse impact.

2.7.18. The majority of the Proposed Scheme is located in Flood Zone 1. A small area is within Flood Zone 2 and 3, but this are does not include any proposed works so unlikely to impact floodplain storage. There are numerous land drains and ditches in the area, flooding risk is considered as insignificant.

2.7.19. With standard mitigation, any risks of chemical contamination of ground or surface waterbodies is not considered to be significant and therefore overall, the summary assessment score is neutral – slight adverse.

SUMMARY

2.7.20. The table below summarises the environmental impacts of the scheme.

Table 2-15 – Summary of Environmental Impacts

Environmental Impact	Assessment, £
Noise	£408 (2010, PV)
Air Quality	£1,157 (2010, PV)
Greenhouse Gases	£12,808 (2010, PV)
Landscape	Neutral
Townscape	Neutral
Historic Environment	Neutral to Slight Adverse / Beneficial
Biodiversity	Neutral to Slight Adverse
Water Environment	Neutral to Slight Adverse

2.8 SOCIAL IMPACTS

2.8.1. The following sections summarise the social impacts of the Horningsea Greenway scheme.

2.8.2. Given the stage of business case development, the assessments are largely qualitative. Some social impacts are monetised using a quantitative assessment based on output from the AMAT tool.

RELIABILITY

2.8.3. Through providing a continuous walking & cycling route from Horningsea to Fen Ditton, the Horningsea Greenway scheme will improve reliability for those travelling by active modes travelling along this corridor.

2.8.4. The impact of the scheme on reliability is estimated to be **Slight Beneficial.**

PHYSICAL ACTIVITY

2.8.5. The improvement to active mode facilities will encourage more cycling and pedestrian travel. Increased usage of the cycle network will promote more physical activity. Greater levels of cycling will result in health benefits through reduced health problems including diabetes and high blood pressure. TAG uplift in physical activity is also likely to result in a reduction in absenteeism which will give rise to positive benefits for the user and businesses.

2.8.6. AMAT estimates the monetised impact of physical activity to be **£2,445,527** (2010 PV).

2.8.7. In addition, an increase in walking trips along the Horningsea Greenway route will result in further health benefits. These benefits have not been fully captured within the appraisal (i.e. health impacts as a result of the increase in pedestrians due to the provision of dedicated crossings and improved lighting).

JOURNEY QUALITY

2.8.8. TAG Unit A4.1 sub-divides journey quality impacts into three groupings:

- traveller care (including cleanliness, level of facilities, information and the general transport environment)
- travellers' views (including the view and pleasantness of external surroundings in the duration of the journey)
- traveller stress (including frustration, fear of accidents and route uncertainty)

2.8.9. The improvements to the cycling and walking infrastructure along the route will improve the pleasantness of surroundings for users.

2.8.10. Based on the outputs of the AMAT tool, the monetised impact on journey quality is estimated to be **£1,733,861**.

ACCIDENTS

2.8.11. The scheme is anticipated to result in a reduction in traffic movements as people are encouraged to use active modes. Users of motorised modes who shift mode to active modes will result in fewer vehicles and an overall reduction in highway-kilometres travelled and the number of highway accidents.

2.8.12. Based on the outputs of the AMAT, the monetised impact on accidents is estimated to be **£7,952**.

SECURITY

2.8.13. The improved lighting provision along the route will increase the perception of safety for pedestrians and cyclists. Lighting improvements such as solar studs will give a sense of security to users of the Greenway, particularly on off-road sections.

2.8.14. The impact of the scheme on security is estimated to be **Moderate Beneficial**.

ACCESS TO SERVICES

2.8.15. The expansion, and improvement, of cycling and pedestrian infrastructure provided by the Horningsea Greenway scheme will improve accessibility between Horningsea and Cambridge. In addition, accessibility for both pedestrians and cyclists will be enhanced with respect to improvements in pavement evenness and level access.

2.8.16. The impact of the scheme on access to services is estimated to be **Slight Beneficial**.

AFFORDABILITY

2.8.17. Affordability will increase for previous bus or car users as the cost of travel will decrease as they will no longer pay fares or fuel and non-fuel vehicle operating costs.

2.8.18. The impact of the scheme on affordability is estimated to be **Slight Beneficial**.

SEVERANCE

2.8.19. The introduction of the Horningsea Greenway will improve the cycle facility between Horningsea and Cambridge. The pathway is already in use, and it has been modified to adapt more with the user benefits. Improved crossing facilities and surface quality is expected to reduce the severance currently created due to the lack of facilities benefitting the active modes.

2.8.20. The impact of the scheme on severance is estimated to be **Slightly Beneficial**.

OPTION AND NON-USE VALUES

2.8.21. The proposed scheme does not introduce new travel options and therefore the impact is considered to be **Neutral**.

SUMMARY

2.8.22. The table below summaries the social impacts of the scheme.

Table 2-16 – Summary of Social Impacts

Social Impact	Assessment
Reliability	Slight Beneficial
Physical Activity	£2,445,527
Journey Quality	£1,733,861
Accidents	£7,952
Security	Moderate Beneficial
Access to Services	Slight Beneficial
Affordability	Slight Beneficial
Severance	Slight Beneficial
Option and Non-Use Values	Neutral

2.9 DISTRIBUTIONAL ANALYSIS

2.9.1. Distributional Impacts (Dis) consider the variance of transport intervention impacts across different social groups. The analysis of Dis is a constituent of the AST. Both beneficial and/or adverse Dis of transport interventions need to be considered, along with the identification of social groups likely to be affected.

2.9.2. In terms of distributional analysis, the categories that need to be considered include user benefits, accidents and affordability, together with the effects of the scheme on local noise and air quality. The effect of these impacts is assessed for the following social groups:

- Income distribution
- Children
- Young adults
- Older people
- Disabled
- Black and minority ethnic groups
- Those without access to a car
- Carers

2.9.3. Based on the proportionate approach set out in TAG Unit A4.2, the DI assessment for the active travel elements of the Horningsea Greenway scheme has identified the likelihood of impacts for each indicator. Where it is anticipated there will be impacts a qualitative commentary identifying the social groups most likely to be affected has been provided.

2.9.4. The findings from this DI assessment are set out in Table 2-17 below.

Table 2-17 – Distribution Impact Assessment

Indicator	Appraisal output criteria	Potential impact	Qualitative Comments	Assessment
User benefits	The TUBA user benefit analysis software or an equivalent process has been used in the appraisal; and/or the value of user benefits Transport Economic Efficiency (TEE) table is non-zero.	Yes, positive	AMAT has been used to appraise user benefits for the scheme. This analysis does not produce spatial distribution of the benefits, but an overall benefit.	User benefits for pedestrians and cyclists are forecasted to provide benefits for those who do not have access to a car (due to age, affordability and physical ability).
Noise	Any change in alignment of transport corridor or any links with significant changes (>25% or <-20%) in vehicle flow as an indicator of significant change.	Yes, positive	There are no significant changes (>25% or <-20%) in vehicle flow, speed, %HGV content expected as a result of the scheme.	No further assessment.
Air quality	Any change in alignment of transport corridor or any links with significant changes in vehicle flow, speed or % HGV content: ▪ Change in 24-hour AADT of 1000 vehicles or more ▪ Change in 24-hour AADT of HGV of 200 HGV vehicles or more ▪ Change in daily average speed of 10kph or more ▪ Change in peak hour speed of 20kph or more ▪ Change in road alignment of 5m or more	Yes, positive	There are no significant changes in vehicle flow, speed, %HGV content expected as a result of the scheme.	No further assessment.
Accidents	Any change in alignment of transport corridor (or road layout) that may have positive or negative safety impacts, or any links with significant changes in vehicle flow, speed, %HGV content or any significant change (>10%) in the number of pedestrians, cyclists or motorcyclists using road network.	Yes, positive	The scheme is expected to reduce the number of collisions that occur along the Greenway corridor as a result of the scheme proposals such as greater separation between active modes and vehicles. And improved crossing facilities for the active modes.	Through benefitting those who walk and cycle the scheme will benefit those who do not have access to a car, including due to age, affordability and physical ability.
Security	Any change in public transport waiting/ interchange facilities including pedestrian access expected to affect user perceptions of personal security.	Yes, positive	The installation of lighting suds along off-road sections of the route will improve the security of users along the corridor.	This may provide a particular benefit to socially vulnerable groups such as the disabled, elderly and ethnic minorities.

Indicator	Appraisal output criteria	Potential impact	Qualitative Comments	Assessment
Severance	Introduction or removal of barriers to pedestrian movement, either through changes to road crossing provision, or through introduction of new public transport or road corridors. Any areas with significant changes (>10%) in vehicle flow, speed, %HGV content.	Yes, positive	The introduction of new and improved crossing facilities along the greenway will reduce the severance currently created due to the lack of active mode benefitting upgrades.	This may provide a particular benefit to the economically disadvantaged along the greenway corridor who are most reliant on walking and cycling.
Accessibility	Changes in routings or timings of current public transport services, any changes to public transport provision, including routing, frequencies, waiting facilities (bus stops / rail stations) and rolling stock, or any indirect impacts on accessibility to services (e.g. demolition & re-location of a school).	Yes, positive	The expansion, and improvement, of existing cycling and pedestrian infrastructure along the route will improve accessibility between Horningsea and Cambridge. In addition, the improved paving infrastructure will improve accessibility for both pedestrians and cyclists in terms of pavement evenness and level access.	No further assessment.
Affordability	In cases where the following charges would occur; Parking charges (including where changes in the allocation of free or reduced fee spaces may occur); Car fuel and non-fuel operating costs (where, for example, rerouting or changes in journey speeds and congestion occur resulting in changes in costs); Road user charges (including discounts and exemptions for different groups of travellers); Public transport fare changes (where, for example premium fares are set on new or existing modes or where multi-modal discounted travel tickets become available due to new ticketing technologies); or Public transport concession availability (where, for example concession arrangements vary as a result of a move in service provision from bus to light rail or heavy rail, where such concession entitlement is not maintained by the local authority).	Yes, positive	The scheme will encourage modal shift to active modes, which may reduce the cost of travel for users	No further assessment.

2.10 VALUE FOR MONEY ASSESSMENT

2.10.1. The economic appraisal for the Horningsea Greenway scheme produces a BCR of 2.3:1, implying high value for money. The main benefits are associated with increased physical activity as a result of users switching to active modes. Benefits associated with the scheme's journey quality improvement accrue the second most scheme benefits. Other scheme benefits include decongestion from fewer vehicles being on the highway network as a result of modal shift. Overall, the benefits amount to £5.03m (2010 PV). The cost of the scheme is £2.14m (2010 PV), which includes 23% optimism bias.

2.10.2. Sensitivity tests undertaken demonstrate that the scheme can withstand an increase in costs and reduced pedestrian demand and still deliver medium and high value for money (i.e., a BCR between 1.8:1 and 2.6:1). If appraised over a 30-year period, the scheme has the potential to deliver very high value for money (i.e., a BCR above 3).

2.10.3. There are also other impacts not captured or monetised in the appraisal that positively impact on the case for the scheme, strengthening the value for money implied by the BCR. These include social benefits in terms of severance, security, affordability and access to services.

2.10.4. This appraisal has considered the Horningsea Greenway as a standalone scheme. There are potential connectivity benefits encouraging additional demand arising from the network effects of integration with neighbouring planned schemes including the Bottisham Greenway and the Swaffhams Greenway. Hence there is a strategic fit with GCP's policy ambitions to promote sustainable modes and deliver mode shift from private vehicles in order to ensure the ongoing economic growth of the region.

3 FINANCIAL CASE

3.1 INTRODUCTION

3.1.1. This chapter presents the Financial Case for the Horningsea Greenway scheme and demonstrates its initial affordability. It sets out the currently identified scheme costs and funding cover for the development and the implementation of the Horningsea Greenway.

3.2 SCHEME COSTS

3.2.1. Scheme costs and a cost profile for the Horningsea Greenway is provided in Table 3-1. The capital costs have been estimated by WSP. The outturn cost estimate is based on the concept design scheme drawings for the Horningsea Greenway and assumes scheme opening in 2026, with planned completion of construction by December 2025. It should be recognised that any delay to the scheme opening is likely to result in an increase in costs from those presented here.

3.2.2. Indirect construction costs include main contractor's preliminaries, traffic management, overheads and profit. Indirect non-construction costs include Stats and professional fees.

3.2.3. It is estimated that the Horningsea Greenway will cost in the region of £4.45m, including allowances for inflation, as set out in Table 3-1.

Table 3-1 – Horningsea Greenway Scheme Costs, £000s, Quarter 4, 2021 Prices

Item	2024	2025	Total
Direct Construction Costs	625	625	1,250
Indirect Construction Costs	414.5	414.5	829
Indirect Non-Construction Costs	352.5	352.5	705
Sub-total	**1,392**	**1,392**	**2,784**
Risk / Contingency	557	557	1,114
Inflation (Construction Mid-Point 3Q 2024)	173.5	173.5	347
Inflation Contingency	102.5	102.5	205
Scheme Total	**2,225**	**2,225**	**4,450**

3.2.4. The Horningsea Greenway scheme will incur maintenance costs. A Greenway Maintenance Guidance has been produced by the GCP. Currently, CCC and the GCP are assessing the costs of maintaining the Greenways network in coordination with the County Council's Highways team in order to apply for maintenance funding to accompany the development funding. This will provide the resources required by the maintenance teams to uphold the quality of the Horningsea Greenway. It is not expected that the maintenance costs will be excessive.

3.2.5. The Horningsea Greenway comprises existing road or path, with no new infrastructure to be created. Gritting, grass verge cutting, and hedge cutting are the only three treatments provided by

Highways when maintaining paths. However, it is likely that the Horningsea Greenway will require other interventions such as pothole filling, siding out, tree root damage and surface cracks filling, adding to the cost of maintaining the network.

3.3 FUNDING COVER

3.3.1. The development and implementation of the Horningsea Greenway is funded by the GCP through City Deal funding. The City Deal funding aims to enable the GCP to promote economic growth and development. However, the GCP is looking to secure an appropriate proportion of the costs from local developer contributions through the planning process. Third party funding will be reviewed for the Horningsea Greenway project. The GCP is also seeking opportunities to bid for other development funds such as the Transforming Cities Fund and National Highways designated funding to consolidate the GCP's overall programme budget.

4 COMMERCIAL CASE

4.1 INTRODUCTION

4.1.1. This chapter presents the Commercial Case for the Horningsea Greenway scheme, describing the proposed procurement approach, risk allocation and contract management processes which are aligned with the overall approach for the Greenways programme. Specific details are provided for the Horningsea Greenway.

4.2 PROCUREMENT APPROACH

4.2.1. The Greenways Programme will be implemented using established Cambridgeshire County Council contracts, or Government Procurement Frameworks will be used to procure external support for tasks including Design, Early Contactor Involvement and Communications (where not available internally). For the Horningsea Greenway scheme WSP has been procured for the design role under the Joint Professional Services Framework (JPSF), as shown in Table 4-1. JFG Comms via WSP is supporting the communications activities, CBRE are acting as Land Agents, Pathfinder Legal are providing legal services, and Milestone (formerly Skanska) has been appointed as ECI contractor for the scheme. This appointment has been made via Cambridgeshire County Council's Highways Framework Contract ECI during 2022 into main construction.

Table 4-1 – Programme Consultants and Contractors

Consultant	Role	Procurement Route
Atkins	Design, Business Case, Planning and main consultant for Waterbeach, St Ives, Sawston and Melbourn Greenways	Joint Professional Services Framework
WSP	Design, Business Case, Planning and main consultant for Comberton, Haslingfield, Barton, Fulbourn, Swaffhams, Horningsea and Bottisham Greenways	Joint Professional Services Framework
JFG Comms	Support the Communications activities required including day to day management of stakeholders and landowners	Joint Professional Services Framework via WSP
CBRE	Land Agents for the scheme, to value, negotiate and organise acquisition of land for the Greenways	Crown Commercial Services Framework
Pathfinder Legal	Legal support for land acquisition and any rights requirements	County Council Legal Services Agreement
Milestone	Early Contractor Involvement	CCC Highways Contract

4.2.2. To date, GCP has commissioned the consultants WSP and Atkins through its JPSF to prepare the Horningsea Greenway preliminary scheme designs and provide business case support.

4.2.3. Milestone Infrastructure has successfully managed and carried out similar construction works in and around Cambridge, for example the Histon Road project. Milestone Infrastructure has also committed to developing a major projects team to work on larger scale projects demonstrating Milestone's commitment to providing the necessary resources for the implementation of the Greenways network.

4.2.4. GCP is satisfied that Milestone continues to have:

- An appropriate recent history of carrying out highways / pavement works.
- A proven capability to administer and successfully complete works of similar value to the scheme.
- Site Management / Supervision capability with suitable experience of working adjacent to live carriageways and public interfaces.
- Health and Safety Management systems compliant with the type and locations for these works.
- The capability in resources either through direct labour force or subcontractor labour.
- An appropriate supply chain for the procurement of materials and plant to suit the Horningsea Greenway scheme requirements.

4.2.5. Early contractor involvement is expected to be incorporated with the traditional approach of separate contracts for the design and construction works for the scheme. This will allow close control of the design process by the client, but also enable the delivery contractor to influence the design to reduce risks and cost by using their experience of the buildability and risks of designs.

Construction Procurement

Under the County Council's Highways Term Service Framework (TSF), the project has access to Milestone Infrastructure to deliver the main construction of the scheme. Milestone are well placed as they also deliver the maintenance of the network, are in close liaison with Street Works and have already competitively tendered to win the TSF. They also have smaller teams able to do work that is relatively minimal, for example widening of existing footpaths in a more agile way than other frameworks or a full tender process would allow. However, it may be that other contractors are required to complete the scheme given the overall volume of works to deliver the overall Greenways Programme. In this situation, the primary option would be utilisation of the Eastern Highways Alliance Framework which provides access to multiple major contractors.

4.3 PAYMENT MECHANISM

4.3.1. The main payment option mechanism to be used for Milestone is the NEC contract Target cost Option C. GCP has Option A and Option E available, but Option C is the GCP's preferred option.

4.4 RISK ALLOCATION

An overall risk register has been produced for the Greenways programme. A scheme specific management of risk will be undertaken using the Horningsea Greenway risk management plan / risk register. The risk register is detailed in the Management Case. Specific factors pertaining to the Horningsea Greenway scheme, including construction risks, the stage that the project is at in its development and importantly, the level of risk in the project and the appetite to accept or transfer it to a contractor will be considered in making an informed decision on risk allocation. The approach will be to ensure that the contractual arrangements for the delivery of the Horningsea Greenway scheme places risks with the party best positioned to deal with them.

4.5 CONTRACT MANAGEMENT

4.5.1. Management of the contracts for the design and delivery of the Horningsea Greenway scheme is undertaken by the Programme Manager, who is employed by GCP and has day to day responsibility for the delivery of the scheme.

5 MANAGEMENT CASE

5.1 INTRODUCTION

5.1.1. The purpose of the Management Case of the business case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the scheme.

5.1.2. Demonstrating that the scheme can be successfully delivered requires evidence of successful delivery of similar projects, evidencing that the scheme is being managed in accordance with best practice, and that the necessary arrangements are in place for change and contract management, benefits realisation and risk management.

5.2 EVIDENCE OF SIMILAR PROJECTS

5.2.1. The GCP will deliver the Horningsea Greenway as part of the Greenways Programme using delegated powers from CCC, although in some areas such as Right of Way restrictions the GCP will rely on the County Council's statutory powers.

5.2.2. As a relatively new delivery body, the GCP has delivered a limited number of schemes within the current City Deal. However, the constituent members of the GCP have a long history of successfully delivering schemes both large and small in scale, to time and budget. Cambridgeshire County Council has successfully delivered large-scale public transport and active mode orientated transport projects in recent years, including those shown in Table 5-1.

Table 5-1 – Evidence of Similar Projects

Scheme Name	Objectives & Scope	Implementation
Chisholm Trail Phase 1 (c.£21m)	The 2.1km long Phase 1 of the Chisholm Trail is a walking and cycling route which aims to provide a mostly traffic-free route between Cambridge North and Cambridge stations and intermediate communities.	Phase 1 opened in December 2021, connecting Cambridge North to Coldham's Lane. Phase 1 of the trail is a joint project between the GCP and Cambridgeshire County Council.
Chisholm Trail Phase 2 (c.£21m)	The 1.4km long walking and cycling route connects to Phase 1 at Coldham's Common on Coldham's Lane, providing a link to Cambridge railway station and new housing developments alongside the railway line.	Ongoing
Babraham Road cycleway improvement works (£6m)	The 1.1km long 2.5m wide cycleway connects the Babraham Research Campus and Babraham with surrounding villages.	The cycleway was completed in December 2017 and delivered by Cambridgeshire County Council contractors.
Fendon Road roundabout (£2.1m)	Fendon Road roundabout is the UK's first Dutch-style roundabout which is designed with an outer ring for cyclists, in a contrasting red surface,	The scheme was opened in August 2020, and implemented by Cambridgeshire County Council and contractor, Milestone.

Scheme Name	Objectives & Scope	Implementation
	to give them equal priority with pedestrians over oncoming vehicles to provide a safer environment for cycling and pedestrians.	
Fen Ditton and Stow-cum-Quy. (Five Cross City Cycling Schemes total of £8m)	Construction of a new foot/cycleway on Ditton Lane and Horningsea Road which is part of the Cross City Cycling schemes being funded by the GCP.	The scheme was delivered by the GCP.
The Cambridge Core Traffic Scheme (c.£7m[20])	This scheme delivered improved access for pedestrians, cyclists and public transport through traffic management and priority measures in the area bounded by the inner ring road.	The measures were implemented in phases from 1997, promoting sustainable travel modes to improve the city centre environment. Between 1993 and 2003 the number of private vehicles in the city centre reduced by 15%. Public transport patronage on routes into Cambridge also increased.
Cambridgeshire Guided Busway (c.£150[21])	This busway was designed to provide a high-quality public transport connection between Huntingdon and St Ives, to the north west of Cambridge, and Addenbrooke's Hospital and Trumpington Park & Ride to the south of Cambridge.	The overall route is 42km long with 25km of that being guided busway and 17km of on-street provision including bus priority measures. Access to Cambridge City Centre is provided via on-street running. Construction began in July 2006 with the busway opened in August 2011. Although there were challenges during the delivery of the scheme, learning from this can benefit the delivery of future significant transport measures in the county.
Histon Road (c.£10.6m)[22]	The Histon Road project aims to provide better bus, walking and cycling facilities for those travelling on this busy key route into Cambridge. This is to be achieved through: - A new bus lane from Blackhall Road to Carisbrooke Road, - New bus stop bypasses for cyclists	Ongoing

[20] This is an estimate as the scheme was implemented over several phases since 1996 and includes a range of supporting measures
[21] Total cost of the Cambridgeshire Guided Busway including £109m contribution from Cambridgeshire County Council.
[22] https://www.greatercambridge.org.uk/transport/transport-projects/histon-road/histon-road-background

Scheme Name	Objectives & Scope	Implementation
	- Improved cycle lanes - 2 new pedestrian crossings - Removal of on-street parking	

5.3 COMPLEMENTARY SCHEMES

5.3.1. The Greater Cambridge Greenways Programme forms part of the GCP's wider strategy to create better and greener transport networks. There are several planning and transport proposals which have varying degrees of synergy with the objectives of the Greenways project.

5.3.2. This section details planning and transport proposals across Greater Cambridge which offer potential complementarity with the Greenways Programme and hence with the Horningsea Greenway. Key complementary schemes include the planned Comberton and Haslingfield Greenways which will offer connectivity to the north and south of the scheme.

5.3.3. The complementary schemes identified in this section offer network opportunities to maximise the benefits to cyclists and pedestrians through an extensive and inter-connected system of routes. This is a continuation of the current linkage which has been developed by delivering both Cross City Cycling and the Chisholm Trail and future projects through schemes such as Cambridge City Access.

Bottisham Greenway

5.3.4. Bottisham is located approximately 10km northeast of Cambridge across flat terrain and for cyclists it is currently served by shared-use paths adjacent to the A1303. In network terms, the Bottisham Greenway will connect with the Horningsea Greenway at Fen Ditton before continuing towards Cambridge via the Chisholm Trail. Parts of the exiting National Cycle Network in Fen Ditton (Wadloes Path) have been widened as part of a 'quick win' scheme.

5.3.5. 'Quick win' schemes are small-scale projects located within highways boundaries, and as a result can be delivered quickly. As a 'quick win', the GCP has recently widened and resurfaced the path near the A1303 to make it easier for walkers, cyclists, and horse riders to travel from Bottisham into Cambridge.

Swaffham Greenway

5.3.6. The villages of Swaffham Bulbeck and Swaffham Prior are approximately 13km and 15km from Cambridge respectively. Both villages at to the northeast of Cambridge across flat terrain and for cyclists they are currently served by shared-use paths adjacent to the B1102. The Swaffhams Greenway route links the villages to Stow-cum-Quy, where it converges with the Bottisham Greenway, continuing along to Fen Ditton, and then proceeds to the Horningsea Greenway.

5.3.7. The Swaffham route will provide a safer crossing point at Quy Road near Anglesey Abbey as well as links to the Chisholm Trail, which leads to Cambridge North and Central stations.

Cambridge South West Travel Hub

5.3.8. The Cambridge South West Travel Hub will intercept thousands of motorists who drive into the city and employment sites from the M11 and A10. The M11 Junction 11 is a vital access point into Cambridge from the south. Currently, Travel Hub provision is located on the city-side of this junction, the Trumpington Travel Hub site. A new Travel Hub site at Junction 11 in addition to the existing site would enable journeys to be faster and more reliable, reducing the increasing number of cars travelling into Cambridge.

5.3.9. The Travel Hub will have up to 2,150 car parking spaces, with 108 blue badge spaces and 108 electric vehicle charging bays, and 326 cycle spaces to encourage more people to get out their cars and cycle, walk, or use public transport. It will also have 12 parking spaces for coaches and an off-road public transport link between the hub and the A10 Hauxton Road/Addenbrooke's Road junction.

5.3.10. Plans for the Travel Hub were provisionally approved in July 2022. Further detailed design work will now be carried out and construction is expected to begin in 2024.

Chisholm Trail

5.3.11. The Chisholm Trail is a mostly off-road walking and cycling route under construction in Cambridge. Once completed, the full trail will run over 26 kilometres, linking Addenbrooke's Hospital and the Biomedical Campus in the south to Cambridge North railway station and the business and science parks. Phase 1 of the Chisholm Trail between Coldham's Common and Cambridge North railway station is 2.1km in length and opened in December 2021. The route also connects with the Guided Busway and the national Cycle Network, and green spaces in Cambridge including: Coldham's Common, the Leper Chapel Meadows and Barnwell Lake area, Ditton Meadows and Stourbridge Common.

5.3.12. Phase 2 is currently underway, however it requires access to land owned by Network Rail and other private owners in order for the trail to be completed. Phase 2 of the Chisholm Trail includes links to the Melbourn Greenway and the Fulbourn Greenway.

5.3.13. As part of the Greenways network, the Haslingfield Greenway will benefit from the additional connectivity offered by the Chisholm Trail improving accessibility to a range of destinations in the city.

Cross City Cycling Project

5.3.14. In January 2015, the Executive Board agreed that the Cross City Cycling projects should form part of the City Deal programme. The Cross City Cycling projects are a network of five cycling routes linking residents to workplaces and other centres of activity. These projects are as follows:

- Arbury Road
- Cambridge North Railway Station and Science Park
- Ditton Lane & Links to East Cambridge
- Hills Road and Cambridge Biomedical Campus
- Fulbourn/Cherry Hinton Eastern Access

5.3.15. The GCP has worked with partners in the County Council and contractors to deliver these projects which aim to reduce congestion and encourage cycling as a healthier mode of transport. These projects located on radial routes in residential areas improved connectivity with the city centre and

are complementary to the Greenways network connecting the city with the surrounding rural villages.

Cambridge City Access

5.3.16. The Cambridge City Access project is promoting ways to improve access by sustainable transport to the city centre and key employment sites, and to reduce congestion by encouraging commuters away from cars. The programme has been conceived and developed to:

- Reduce traffic by 15% from the 2011 baseline, freeing up road space for more public transport services, and other sustainable transport modes
- Ensure public transport is more affordable, accessible and connects to where people want to travel, both now and in the future
- Raise the money needed to fund the delivery of transformational bus network changes, fares reductions and improved walking and cycling routes
- Make it safe and attractive to walk and cycle for everyday journeys
- Support decarbonisation of transport and improvements to air quality
- Make Greater Cambridge a more pleasant place to live, work, travel or just be

5.3.17. A package of eight measures, ranging from the development of an integrated parking strategy to a review of the city's road network classification have been developed to help support sustainable growth in Greater Cambridge (illustrated in Figure 5-1). Central to this is the Making Connections programme.

Making Connections

5.3.18. The Making Connections programme is being developed to provide a transformational change in travel behaviour which will complement the strategy measures set out in Figure 5-1. Making Connections comprises a complete overhaul of the bus network to provide new routes, longer operating hours, more affordable fares and new destinations, funded by a charge for driving that will reduce congestion and free up space for public transport, walking and cycling. Investment in the bus network will reach around £50m a year, making it one of the biggest changes outside London since deregulation of the bus industry in the 1980s.

5.3.19. The programme will rebalance the use of highway space to enable more people to travel, whilst making Greater Cambridge a more attractive place in which to live and work, and to visit. It will reduce congestion, reduce emissions, increase public transport use, and boost walking and cycle use for short journeys in the city.

Figure 5-1 – Cambridge City Access Strategy Measures

Source: Greater Cambridge Partnership

5.3.20. The Greenways Programme as a whole will benefit from the positive impacts on reallocation of road space for public transport and active modes incorporated in the City Access Strategy including:

- Reduced traffic congestion within the city centre
- Faster, cheaper and more reliable bus journeys, enabling expansion of Park & Ride capacity and facilities
- Safer, easier, and more attractive walking and cycling journeys
- Reduced pollution and cleaner air
- Fewer stationary or slow-moving vehicles
- More cycling and pedestrian infrastructure
- Preservation and enhancement of Cambridge's historic environment
- Improvements to the quality and reliability of public transport; and
- Continued growth in cycling

5.4 GOVERNANCE, ORGANISATIONAL STRUCTURES AND ROLES

5.4.1. This section describes the programme governance and roles of the entities. The overall structure is shown in Figure 5-2.

Executive Board

5.4.2. The delivery of the Project will involve at least five key stage decisions to be taken by the Executive Board, as follows:

- Decision to proceed with the development of the Project; (Complete)
- Consideration of options and approval to consult on initial options; (Complete)

- Selection of a preferred option following consultation and agreement to take forward preliminary design;
- Approval of preliminary design and Outline Business Case with agreement to enter relevant statutory processes and the preparation of a Full Business Case; and
- Final approval to implement the project and complete a Detailed Design.

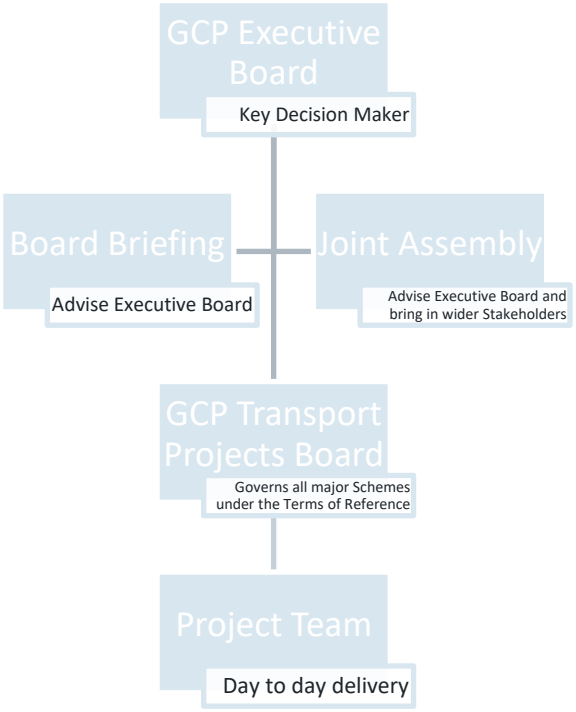
Transport Programme Board

5.4.3. The Transport Programme Board is the regular decision-making body for the Greenways. It takes decisions by exception on matters raised by the Senior Project Managers. It is held on a monthly basis with Highlight reports provided one week in advance of the meetings. It is the responsibility of the Senior Project Managers to attend the Board and ensure they are provided with any issues which are in exception.

5.4.4. A project is in exception if:

- The project will not deliver the objectives agreed with the Executive Board
- The forecast overall cost of the project exceeds what has been reported to the Executive Board
- The forecast completion of the project exceeds the date reported to the Executive Board
- A key decision milestone is forecast to be missed by 3 months (in line with the Executive Board cycle of meetings).
- A project is at risk of causing significant reputational damage to GCP or its partners

Figure 5-2 – Overall Greenways Programme Governance Structure



Cycling Projects Meeting

5.4.5. The Cycling Projects Meeting is primarily a coordination meeting between the different Active Travel projects. It includes

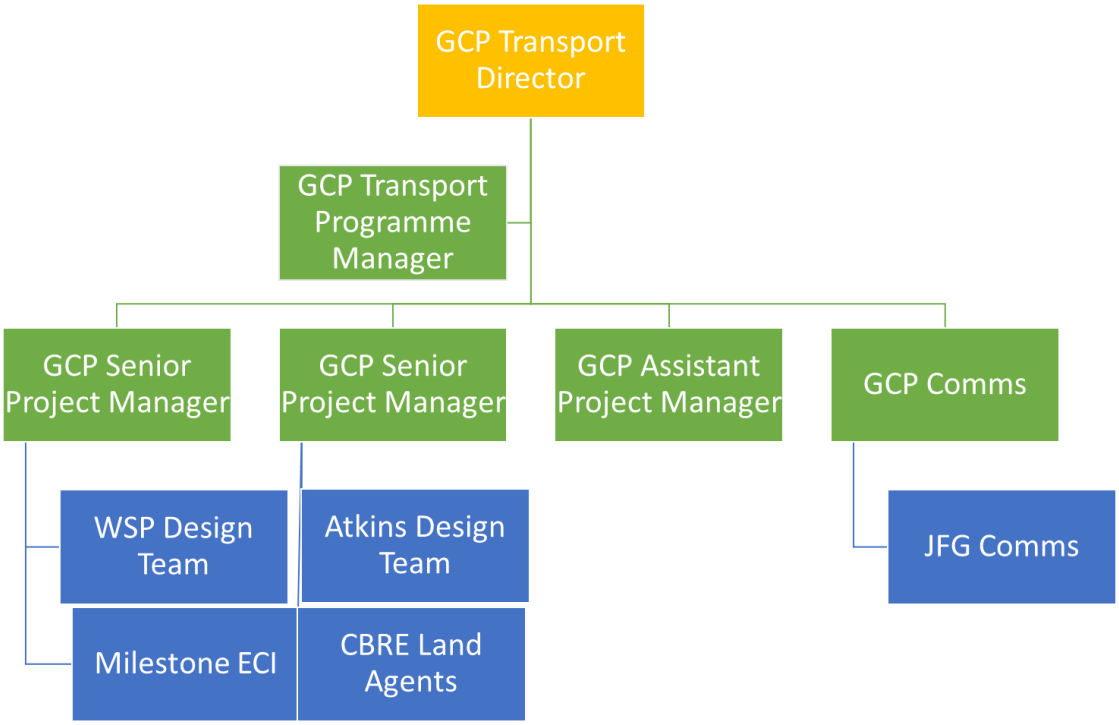
- Construction Programming, including prioritisation of routes (before ultimate sign off by Transport Programme Board)
- Decisions on design options (unless controversial at which point they will be escalated)
- Initial review of documents including the overall Business Case for the Greenways and design principles (before going on to appropriate decision-making bodies such as the Transport Programme Board)
- Decisions on timing of communications with the public and stakeholders

Resources

5.4.6. The Greenways is a complex programme of works. The following section sets out how the scheme will be managed.

5.4.7. Figure 5-3 sets out the structure of the team.

Figure 5-3 – Structure of the Greenways Management Team



5.4.8. The roles and responsibilities of each of the management team is detailed below.

Internal GCP Resources

5.4.9. The internal GCP resources are set out below.

GCP Transport Director

- Overall accountable for the project, responsible for the structure of the project team and owns the Business Case
- Monitor & control the project tolerance at a strategic level
- Make decisions on escalated issues

GCP Transport Programme Manager

- Responsible for monitoring and reporting on the programme budget to Transport Programme Board (TPB)
- Responsible for ensuring that Project Managers are adhering to the Assurance Framework
- Overall responsibility for producing the Procurement Strategy (i.e., Working with Project Managers to ensure the appropriate options are available)
- Monitors the progress of the programme against agreed key milestones (aligned to the reporting cycle for GCP)
- Resolutions of day-to-day issues (specific to Greenways Programme only)
- Escalates significant issues to GCP Transport Director
- Sign off of all key contract documentation where commercially sensitive (specific to Greenways Programme only)

GCP Senior Project Managers

5.4.10. The Senior Project Manager run the programme on a day-to-day basis in accordance with this document. The main responsibilities of the Project Manager are to:

- Be the face of the project, representing GCP at main stakeholder events to provide updates on the projects
- Be responsible for the relationship with key stakeholders including County, District and Parish Councils as well as bodies such as National Highways and Network Rail;
- Deliver the project to a required specification and quality within budget and according to plan
- Direct and motivate project support resources
- Project manage and plan all stages of the project
- Prepare project, stage and exception plans
- Manage project risks (includes contingency planning)
- Monitor progress, expenditure, and resources, initiating corrective action as required
- Keep the Transport Programme Board informed of deviations in plans and seek endorsement for associated action
- Prepare stage reports for the Joint Assembly and Executive Board
- Identify, commission and oversee external resources necessary for the assessment, evaluation, design, management and planning of the project
- Be responsible for project administration
- Facilitate a post construction review of the project; and
- Ensure that all new highway assets created/network amended is recorded. This includes the legal category of any new highway e.g., cycle track, together with details of extent, boundaries, and infrastructure

GCP Assistant Project Manager

- Organise Project meetings and taking minutes as appropriate
- Coordinate communications with stakeholders when required
- Update finance, programme and risk registers etc. as required
- Provide support to Senior Project and Programme Manager when required

GCP Communications Team

- Responsible for producing the overall Communications Plan for the Greenways Programme
- Responsibility for stakeholder management that is not specific to design, i.e., Councillors and Parishes

- Responsible for coordinating responses to enquiries (this is partly delegated to JFG Comms)
- Ensure the overall story of the Greenways is understood and communicated positively
- Produce regular updates for the public and key stakeholders

Consultant and Contractor Support

5.4.11. External support resources are procured through established County Council contracts or Government Procurement Frameworks for various tasks including Design, Early Contactor Involvement, Communications (where not available internally). The Horningsea Greenway scheme consultants and contractors have been procured, namely Atkins and WSP, as shown in Table 5-1. Milestone will be the proposed contractor responsible for construction under the Cambridge County Council Highways Contract. The consultant / contractor responsibilities are set out below.

Atkins and WSP

5.4.12. Atkins and WSP have been appointed to deliver the following aspects of the Greenways programme:

- Concept and Preliminary Design
- Transport modelling (as required)
- Transport assessment (as required)
- Environmental Impact Assessment and other relevant surveys and assessments (as required)
- Initial Cost estimating
- CDM Principal Designer
- Preparation of a proportionate TAG compliant Outline Business Case
- Preparation of Planning Application, submission, and determination support (as required)
- Wayfinding Strategy (Atkins only)
- Land referencing (WSP only)
- Engagement event materials

5.4.13. They will also be procured at the suitable time for:

- Detailed Design
- Full Business Case
- Procurement support
- Construction Supervision

Milestone

5.4.14. Milestone have been appointed in Early Contractor Involvement for the Greenways Programme. This work consists of:

- Producing budget estimates for the GCP schemes / projects
- Managing and co-ordinating the GCP programme of works, including co-ordination with highways contract to achieve efficiencies where possible linking planned GCP and CCC schemes / projects
- Producing and reviewing risk and opportunity registers for the schemes / projects
- Design maturity and buildability assessments
- Value engineering opportunities
- Review of utility diversions
- Assist where required for land take assessments, with particular focus on temporary land take requirements for construction period
- Construction programme development

- Planning and execution of design surveys including but not limited to; Ground Penetrating Radar ("GPR"), trial holes, ground investigation, TOPO and drainage surveys
- Developing traffic management solutions and co-ordinate with the CCC Streetworks team to confirm road space availability

5.4.15. Subject to performance and capacity this will lead to Milestone constructing the Greenways projects.

CBRE and Pathfinder Legal

5.4.16. CBRE have been appointed as the land agents responsible for the Greenways Programme. They are procured to:

- Complete land acquisition strategies for each Greenway
- Complete land valuation for each Greenway
- Advise on the process of CPO as required
- Negotiate land on behalf of the GCP

5.4.17. They are supported by Pathfinder Legal who are responsible for

- Preparation of CPO documentation as required
- Legal advice on the process for CPO
- Completion of acquisition paperwork
- Advice on legal process to designate, or change designation of PRoWs

5.5 PROJECT ASSURANCE, APPROVAL PLAN AND PROGRAMME

Programme Assurance

5.5.1. Responsibility for assuring the delivery of the project rests with the Programme Board and Cycling Projects Meeting and includes:

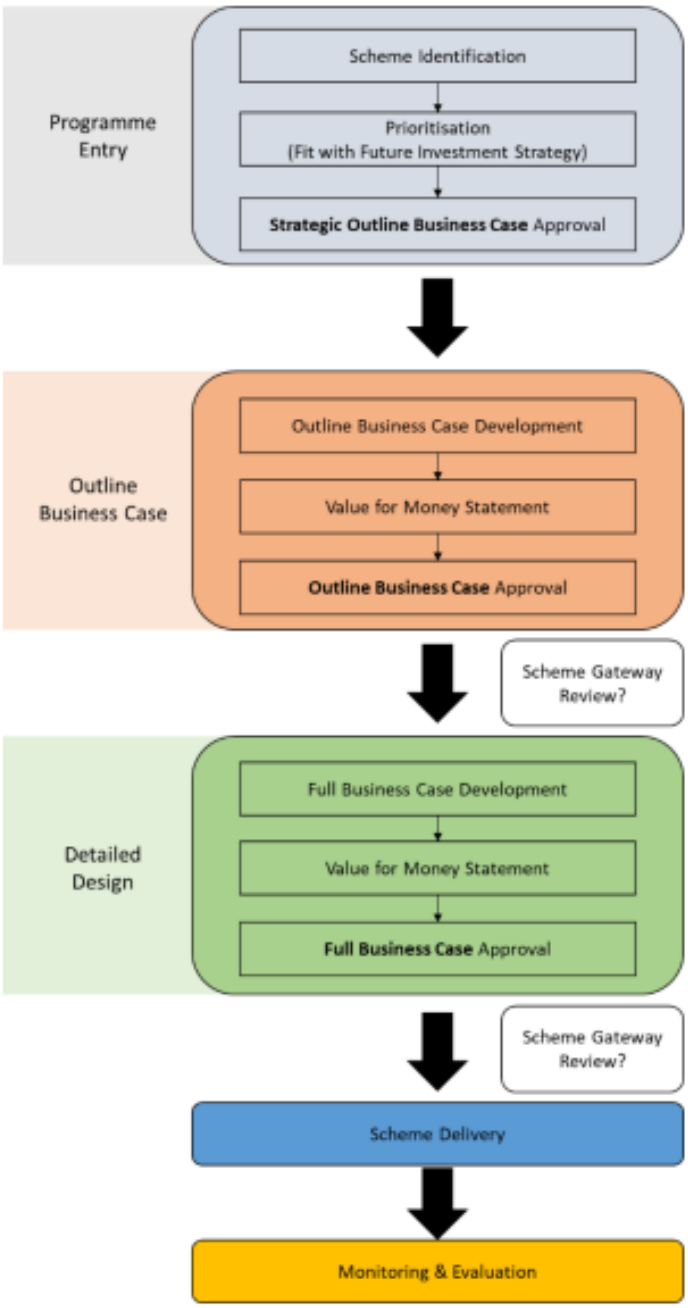
- Ensuring good liaison and collaboration throughout the project to achieve good governance
- Assuring that user needs and expectations are being met or managed
- Ensuring that risks are being controlled
- Monitoring project expenditure versus benefits
- Informing the project of any changes caused by external events
- Ensuring adherence to relevant procedures, standards and specifications; and
- Ensuring highway aspects designed in accordance with Manual for Streets 2 and the Design Manual for Roads and Bridges, LTN1/20, as appropriate

GCP Work Stages

5.5.2. The programme for the overall Greenways project is aligned with the GCP work stages process set out in the GCP Local Assurance Framework (LAF). This LAF sets out, "membership, responsibilities, and principles that are in place for agreeing and overseeing investments to deliver the overarching City Deal objectives". The LAF process is shown in Figure 5-4 commencing with programme entry through to full business case development. The Horningsea Greenway scheme, as with the other individual schemes, is developed at Outline Business Case stage as an addendum to the Programme Outline Case.

5.5.3. The Framework ensures compliance with DfT's minimum requirements for Assurance Frameworks.

Figure 5-4 - GCP Indicative Process for Business Case Development



Source: Greater Cambridge City Deal Assurance Framework

Approvals to Date

5.5.4. The programme entry work stage has been completed with the development of the programme outline case and approval by the Executive Board.

High Level Programme

5.5.5. This section provides an overview of the staged process through which the project will be delivered.

5.5.6. The high-level programme for the delivery of the Greenways is based on an approximately four-year programme. The Project will consist of a number of stages in line with the Major Infrastructure Project Delivery Stage, Key Decision Matrix and GCP Assurance Framework. This is shown in Table 5-2. This has been slightly adapted to allow for an additional stage for sign-off for the first versions of technical design.

5.5.7. Individual greenway scheme's outline business case development takes place in Delivery Stage 2a Approved Option and Delivery in Stage 3 Preliminary Design.

Table 5-2 – Greenways Programme Project Stages

Stage	Description	Approval
Strategy Stage 0: Policy and Strategy	Preparation of Project Initiation Document (PID)	Complete
Delivery Stage 1: Project Set Up / Initial Options	Project resource planning, development of stakeholder engagement strategy and preparation of project development briefs	Complete
Delivery Stage 2: Feasibility Study	Identification of options, conceptual design work, strategic business case and assessments to facilitate initial stakeholder engagement to allow selection of a Preferred Option	GCP Executive Board (Complete)
Delivery Stage 2a: Approved option	Feasibility Design of Preferred Option	GCP Transport Programme Board
Delivery Stage 3: Preliminary Design	Preliminary Design of Preferred Option and agreement of Outline Business Case	GCP Executive Board
Delivery Stage 4: Detailed Design	Final business case and detailed design to facilitate project approval Processes for planning permission, traffic regulation orders, compulsory purchase orders and Government statutory approvals as required	GCP Executive Board
Delivery Stage 5: Construction (Mobilisation and Construction)	Procurement of a provider(s) to construct the project Construction of the project Post-project review to assess how well the project objectives and outputs have been met	GCP Executive Board

5.5.8. The technical concept design for the Horningsea Greenway route has now been completed. This has given greater clarity on what the key delivery risks and opportunities are. This has enabled the project team to develop a more accurate programme for the subsequent preliminary and detailed design stages, as well as an indicative construction programme. As requested by the Executive Board, officers are now in a position to demonstrate how the programme can be achieved. The Outline Delivery Plan, shown in Table 5-3, sets out an indication of when the Horningsea Greenway route will be constructed, and what early works can be expected in 2023. The Outline Delivery Plan for the Horningsea Greenway provides milestones and scheduled dates for completion.

Table 5-3 – Horningsea Greenway Outline Delivery Plan 2022-2025

Year	Delivery Plan
2022	▪ Development of preliminary designs ▪ Public Engagement and preceding Stakeholder Engagement completed – autumn 2022 ▪ Topographical Surveys ▪ Environmental Surveys ▪ Planning and Consents Strategies ▪ Traffic Surveys ▪ Land Owner Discussions
2023	▪ Land Owner Negotiations ▪ Public consultation in Autumn 2022 ▪ Detailed design and technical approvals ▪ Planning Applications ▪ Traffic Regulation Orders (TRO) ▪ Compulsory Purchase Orders (CPO) / PRoW orders ▪ Full Business Case ▪ Early Physical Works: - Fen Ditton Primary School to Horningsea Village - Horningsea Road to Fen Ditton Road - Horningsea Village
2024	▪ Compulsory Purchase Orders (CPO) / PRoW order work to continue as in 2023 ▪ Finalisation of land agreements ▪ Construction (subject to approvals):
2025	▪ Construction to be completed of all remaining sections of the Horningsea Greenway

5.6 STAKEHOLDER ENGAGEMENT AND COMMUNICATIONS

5.6.1. This section sets out the strategy for developing communications and stakeholder management on the project. Effective communication is critical to the success of the Horningsea Greenway project. The key priorities for communications during the development of the design of the project are to:

- Provide all relevant stakeholders with clear, well-structured details of the GCP vision, project objectives and possible options, as well as being clear about what this project does and does not cover
- Create opportunities for stakeholders to express their opinions and encourage the opportunity to share their views on the options freely and openly
- Use an appropriate methodology for collecting stakeholder responses and analyse them
- Build upon the feedback received during the public consultation period
- Create a consistent message to convey that the Horningsea Greenway is part of the greenways programme to ensure stakeholders are aware that the Horningsea Greenway is not only part of the Greenways Programme, but also a part of a wider vision set forward by the GCP
- Ensure the benefits and impacts of the scheme are clearly presented to all stakeholders
- Identify advocates for the scheme
- Manage any reputational risks associated with the scheme
- Raise the profile of the GCP and its work
- Ensure all engagement and communication is recorded and reported where necessary

5.6.2. The Horningsea Greenway is now proceeding with development of the agreed alignments and initial design work. This involves environmental surveys, key structure design, more detailed costing, and land negotiation. Stakeholder engagement at this point has involved discussions with residents and stakeholders to understand and incorporate needs and concerns within principal design standards across all routes. The initial consultation event in 2019 was met with a positive response with most respondents in favour of the majority of the elements of the proposed Horningsea Greenway.

5.6.3. Many respondents supported the majority of the elements of the proposed Horningsea Greenway after the initial consultation even in 2019, with the exception of element 2 ‘Fen Ditton church road arm closure with landscaping around the churchyard entrance’ which was supported by less than half of respondents and opposed by over a fifth. Accordingly, this information was then fed into the designs for initial proposals for the Horningsea route.

5.6.4. Responses from the initial public consultation undertaken in 2019 shaped the proposals that were presented in the four-week engagement period that ran between 21st November 2022 and 16th December 2022. A range of key stakeholders along the Horningsea Greenway were engaged and continue to be engaged as the project progresses. These include partner authorities, council members, parish councils, representatives of walking, cycling and equestrian groups, and owners of land where access agreements are needed to operate or construct the route.

5.6.5. The consultation strategy for this stage of the Horningsea Greenway proposal was designed by the GCP communications team with input from the County Council’s Research Team. The strategy involved the identification of the audience, the design of consultation materials and design, and the analysis of the results.

Scheme Communications Plan

5.6.6. In addition to the strategic programme-wide communication messages and objectives set out above, an individual route engagement and communications plan has been developed and implemented for the Horningsea Greenway.

5.6.7. There are two key channels for proactive communications that the GCP will use to tell the story of the Horningsea Greenway as it is developed in the context of the Greenways Programme:

- The Website - The Greater Cambridge Partnership website is the key communications platform where information regarding the Greenways project is provided
- Quarterly GovDelivery Updates – Communication updates are issued quarterly to outline the progress made on the Greenways project

5.6.8. Designed by the GCP communications team with input from the County Council's research team, project communication is governed through the Communications Plan, as outlined below. The purpose of the strategy is to ensure that accurate and timely messages about the scheme are disseminated to a range of identified stakeholder groups.

Table 5-4 – Communications Method for the Horningsea Greenway

Audience	Type of Communication	Frequency	Responsibility
General Public	Formal consultation – online survey and paper return survey Regular website updates provided on GCP Greenways webpages (i.e., Greenway specific updates and preliminary design) GovDelivery Updates	Initial Horningsea consultation autumn 2019 Horningsea engagement autumn 2022 Quarterly	GCP Communications Team
Other Key Stakeholders	Meetings Emails	As Required	Project Manager
Members	Reports Briefing Sessions	As per Scheme Updates / Progress	Project Manager
Technical Officers **CCC / GCP**	Project Team Meetings	As Required	Project Manager
General Correspondence	Letters, Emails, GCP social media	As Required	Project Manager / Communications Team

5.7 RISK AND ISSUES MANAGEMENT

5.7.1. The Horningsea Greenways scheme risk management is documented in the Issues and Risks Log produced by WSP.

5.7.2. Key Risks for the Greenways Programme as a whole, are as follows:

- Resourcing – staffing of the project team and the Communications team
- Procurement process – the risk of time and cost extensions to procurement
- Consents – obtaining planning consents, and Network Rail and Highways England approvals
- Acquisition of land - potential delays in obtaining land access consents with possible associated delays to the completion of the elements of the preliminary design
- Cost escalation – effectiveness of project controls to manage costs
- Environmental impacts affecting the route of the scheme
- Other infrastructure schemes/developments taking precedence over the Greenway

5.7.3. Mitigation measures identified include the following:

- The Issues and Risks Log for the overall Greenways programme forms the basis for developing the individual Risk Issues and Logs for each of the Greenways schemes
- An overarching Stakeholder Engagement & Comms Plan and Tracker has been produced to plan and log all engagement across the Greenways project including undertaking re-engagement and wider stakeholder engagement. The GCP Comms team issue quarterly progress and communications updates via its website and Gov-delivery.
- Costings for the scheme to be reviewed by designers at every design stage
- Development of a land access strategy / prioritising land acquisition critical to the scheme development.
- Identification of alternative routes to minimise environmental impacts

5.7.4. A risk register has been produced for the Horningsea Greenway scheme for the current stage of scheme development, namely preliminary design. Risk mitigation will be assessed from a strategic perspective and will be reviewed monthly.

5.7.5. The key risks to the scheme are as follows:

- **Programme acceleration –** Quick Win schemes, as well as some sections or the route progressing ahead of others are likely to result in lack of correct resources, thus increasing the costs.
- **Substandard Pavement Depths –** No Coring survey is proposed. This may have reputational cost implications, an impact on safety, as well as traffic disruption.
- **Excavation Instability –** There are poor ground conditions and a high water table, resulting in health and safety risks and programme delays.
- **Existing Trees –** There is risk of damage to existing trees, including trees located within private gardens which could have a negative impact on the environment.
- **Costs –** If there is construction cost overrun there is risk of delay to the project.
- **Quality –** Lack of information due to insufficient specification for the works could result in unacceptable standards.
- **Ground Contamination –** Potential presence of ground contamination will result in additional construction costs.

- **Drainage -** Unforeseen works to existing drainage and/or lengthily negotiations with drainage authority for new connections will result in programme delays and additional construction costs.
- **Highways Boundaries / Hedges –** There is some opposition in relation to removal of existing hedges which may lead to late design changes leading to programme delay and additional costs.
- **Buildability –** The scope of works may increase during the construction phase leading to delays, compensation events and re-design.
- **Utility Diversion Works -** Statutory Utilities plant cannot be relocated or diverted/protected within budget and programme timescales, resulting in programme delays, design changes and cost increases.
- **Service Upgrade Works** – Utilities company disturbing the completed works and failing to reinstate to the desired standard, resulting in programme delay and extensive public disruption through uncoordinated programme.

5.7.6. Mitigation measures identified are as follows:

- **Programme acceleration –** robust programme in place.
- **Substandard Pavement Depths –** Carry out Visual Survey. Consider solutions to optimise the structural and functional performance of the existing pavement. Further investigation during construction to resolve specific soft spots.
- **Excavation Instability –** Carry out ground investigation in proposed excavation areas. Excavation to be designed by competent person.
- **Existing Trees –** Arboriculture survey. Residual risks to be shown on drawings. Tree removal will include stump gridding. Proposed levels to be higher than existing or the same
- **Costs –** Cost Estimates to be carried out at key milestones or if the scheme changes (WSP/ GPC). Early contractor involvement to obtain cost estimates. Monitor cost during construction to ensure cost do not exceed budget. Implement required corrective measures.
- **Quality –** Quality Assurance Process to be in place to monitor quality of construction works. GCP to implement site monitoring measures/ independent quality manager.
- **Ground Contamination –** Carry out ground investigation
- **Drainage -** Early consultation with drainage authority. Eliminate requirement for new connections application by re-utilising existing drainage The design of SuDS is based on infiltration to achieve its benefits, but it does not rely on infiltration (overflow system / perforated pipe provided)
- **Highways Boundaries / Hedges –** Obtain accurate highways boundary information. Liaise with CCC Search Team.
- **Buildability –** Ensure risk allowance/contingency is calculated and regularly reviewed as scheme develops. Undertake extensive SU surveys and investigations following the NRSWA process including GPR, trial holes, and extensive investigations (throughout the affected site length with particular attention to impacts from proposed tree removal and replacement). ECI to build scheme scope knowledge and understanding.
- **Utility Diversion Works -** Undertake extensive SU surveys and investigations following the NRSWA process (including GPR and trial holes).
- **Service Upgrade Works** – Work with SU to programme any required works, ensure that all communications with SU's are logged. Early liaison / coordination with utility companies to identify and reschedule programmed works.

5.8 MONITORING AND EVALUATION

5.8.1. On completion of the construction of the Horningsea Greenway, a review of the delivery process will be undertaken in accordance with the Greater Cambridge City Deal Project Review Protocol.

5.8.2. The Project Manager will facilitate the review to produce a review report for consideration by the Project Board, ahead of scrutiny by the Joint Assembly and sign off by the Executive Board.

5.8.3. A monitoring and evaluation plan and benefits realisation plan have been produced for the Horningsea Greenway scheme.

5.8.4. The DfT's 'Monitoring and Evaluation Framework for Local Authority Major Schemes' guidance document forms the basis of the monitoring strategy alongside the GCP's Assurance Framework.

5.8.5. The DfT guidance sets out the requirements for the monitoring of schemes and outlines three tiers of monitoring and evaluation, these are:

- Standard monitoring;
- Enhanced monitoring; and
- Fuller evaluation.

5.8.6. It is proposed that the Greenways programme follows enhanced monitoring practice as the scheme is likely to be more than £50m in value.

Monitoring and Evaluation Plan

5.8.7. The outline Monitoring and Evaluation Plan is set out below in Table 5-5. Monitoring of the key outcomes including cycle and pedestrian usage of the scheme will be implemented at key locations on the route. The monitoring will be undertaken through targeted counts, as a minimum on an annual basis, preferably more regularly to assess seasonal effects, assessing the new active mode usage with baseline demand. The Monitoring and Evaluation Plan will also monitor actual scheme expenditure compared to budget, and project delivery compared with key scheme programme milestones.

Benefits Realisation Plan

5.8.8. The Benefits Realisation Plan is shown in Table 5-6.

Table 5-5 – Outline Monitoring and Evaluation Plan

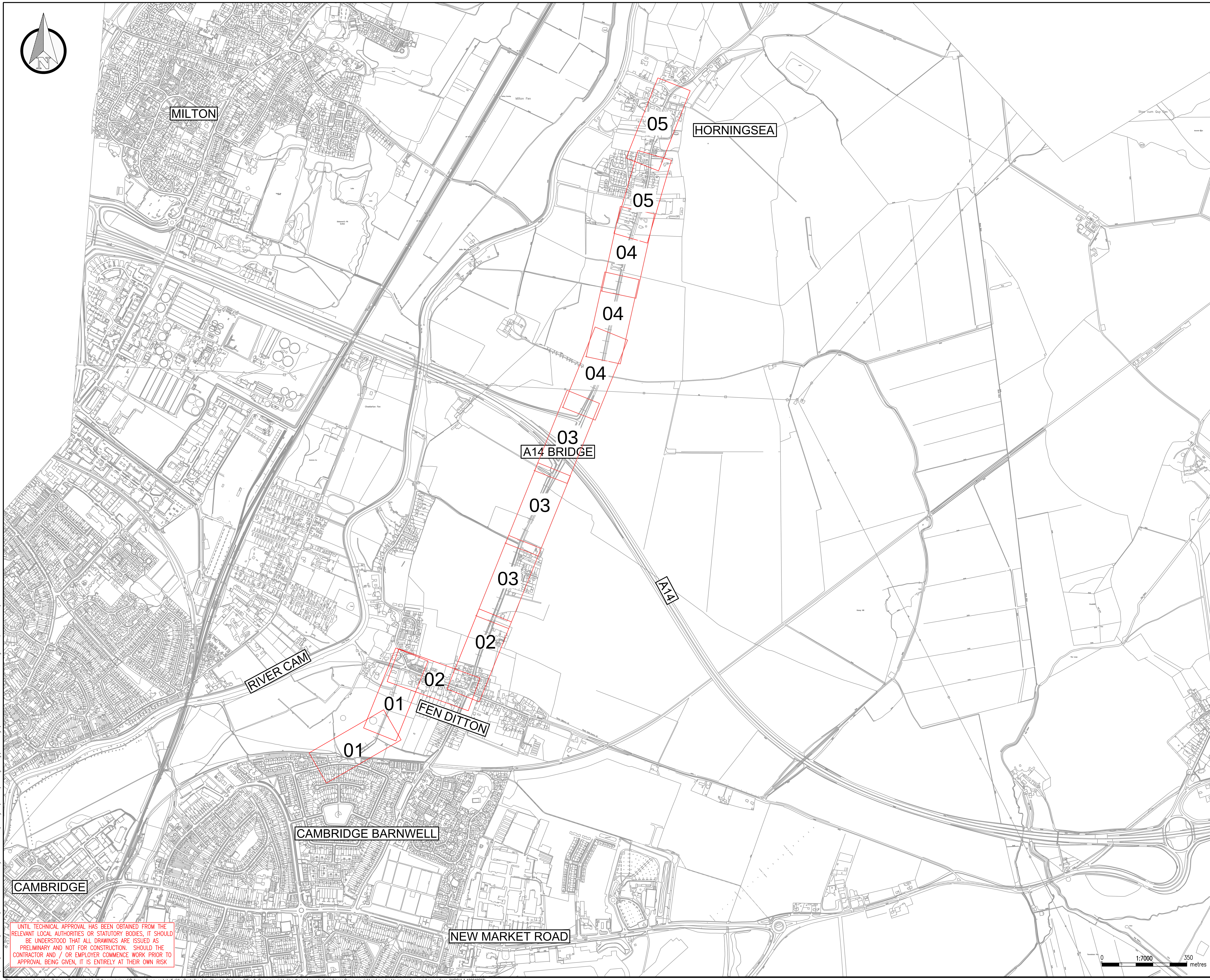
Objective	Enabling objective / outcome	Performance indicator	Methodology	Timescale	Owner of Monitoring Task
Encourage commuting by sustainable transport modes and reduce traffic congestion	Capacity: Provide the cycle network capacity to accommodate increases in active travel demand due to new housing and employment growth	Increase in cycle network capacity Ability to contribute to a reduction in vehicular road traffic Propensity to reduce congestion/delay	Active travel surveys Non-motorised user counts Traffic counts Before and after implementation queue length survey	Pre or during delivery / post opening (up to 5 years)	GCP
Contribute to improved air quality and better public health	Connectivity: Improve accessibility to jobs and opportunities by active modes through a reduction in journey times and increase ease of interchange with public transport modes	Reduced journey time for cycling Scale of catchment (jobs, housing) Ability to unlock growth Ease of interchange with public transport	Before and after air quality monitoring using air quality measurement facilities Active travel surveys Land use surveys and land value change assessments	Pre or during delivery / post opening (up to 5 years)	GCP
	Communities: Contribute to the creation of safe and attractive communities by reducing emissions, severance and the dominance of traffic improving personal security and road safety	Road safety Protection of green spaces; net biodiversity gain Environment (air quality and carbon reduction) Quality of the public realm Severance	Assessment of road traffic collisions Before and after air quality monitoring using air quality measurement facilities	Pre or during delivery / post opening (up to 5 years)	GCP
Efficient project delivery	Cost during construction and outturn costs against budget	Cost expenditure compared to milestones	Cost monitoring by area of spend compared with programme	During and post opening	GCP

Table 5-6 – Benefits Realisation Plan

Objective Supported	Enabling changes	Benefits experienced	Who will benefit	Benefit Owner
Capacity: Provide the cycle network capacity to accommodate increases in active travel demand due to new housing and employment growth	Provision of segregated cycling infrastructure: attract new active mode users in the Horningsea corridor	Unlock economic growth by providing new transport capacity / encouraging new residents to commute using active modes into Cambridge	Residents / employees / wider community	GCP / South Cambridgeshire District Council / Cambridge City Council
Connectivity: Improve accessibility to jobs and opportunities by active modes through a reduction in journey times and increased ease of interchange with public transport modes	Provision of new cycling infrastructure offering more direct routes/links and developing network connectivity with the Comberton and Haslingfield Greenways and other Cambridge active mode networks	Increased active mode transport accessibility to jobs in the city centre Mode shift from car to active modes	Residents / employees / wider community	GCP / South Cambridgeshire District Council / Cambridge City Council
Communities: Contribute to the creation of safe and attractive communities by reducing emissions, severance and the dominance of traffic improving personal security and road safety	Provision of new cycling infrastructure – development of dedicated active mode corridor leading to safer and healthier cycling & walking environment	Greater active mode travel safety Reduced GHG emissions, more linked habitats along the Horningsea Greenway corridor contributing to Bio-diversity Net Gain Reduced severance effect on residential communities due to traffic congestion relief Improved well-being of travellers, with positive effects for businesses through higher productivity	Residents / employees / wider community	GCP / South Cambridgeshire District Council / Cambridge City Council

Appendix A

SCHEME DRAWINGS



UNTIL TECHNICAL APPROVAL HAS BEEN OBTAINED FROM THE RELEVANT LOCAL AUTHORITIES OR STATUTORY BODIES, IT SHOULD BE UNDERSTOOD THAT ALL DRAWINGS ARE ISSUED AS PRELIMINARY AND NOT FOR CONSTRUCTION. SHOULD THE CONTRACTOR AND / OR EMPLOYER COMMENCE WORK PRIOR TO APPROVAL BEING GIVEN, IT IS ENTIRELY AT THEIR OWN RISK

REV	DATE	BY	DESCRIPTION	CHK	APD
P02	10/10/2022	RVA	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	11/07/2022	AP	FIRST ISSUE	RVA	AKM

DRAWING STATUS
S2 - FOR INFORMATION

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
HORNINGSEA GREENWAY

TITLE
GENERAL ARRANGEMENT
KEY PLAN

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:7000	11/07/2022	AS	RVA	AKM	A1

WSP PROJECT NO.
70088658

DRAWING No.
8658-WSP-HS-XX-DR-CV-100000

REV.
P02

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TIE IN TO BOTTISHAM SCHEME ROUTE

EXISTING DITCH

EXISTING BENCH TO BE RETAINED

EXISTING FOOTPATH TO BE WIDENED NORTH TO 1.5M

EXISTING CATTLE GIRD TO REMAIN

NUMBER OF TREES TO BE REMOVED TO ALLOWED SHARED USE PATH WIDENING TO BE CONFIRMED AT NEXT STAGE OF DESIGN

EXISTING SHARED USE PATH TO BE WIDENED TO 3m

EXISTING VEGETATION TO BE TRIMMED BACK

PROPOSED TREE

PROPOSED WAY FINDER SIGN

WADLOES FOOTPATH

PROPOSED SHARED USE PATH TO TIE INTO EXISTING FOOTWAY, TIE IN DETAILS TO BE CONFIRMED AT NEXT STAGE OF DESIGN

EXISTING TREE TO BE REMOVED

PROPOSED SHARED USE PATH TO TIE IN TO EXISTING SHARED PATH. THE EXACT POSITION OF TIE IN TO BE CONFIRMED AT NEXT STAGE OF DESIGN

HOWARD ROAD

TIE IN TO BOTTISHAM SCHEME ROUTE

EXISTING DITCH

FOR CONTINUATION SEE BELOW

CH. 0+000 CH. 0+050 CH. 0+100 CH. 0+150 CH. 0+200

HS01 HS01

WORK EXTENTS WORK EXTENTS

12.8

2.9 3 4.9 3.7

EXISTING PATH WIDTH

VEGETATION SHARED USE PATH VEGETATION DITCH

TYPICAL CROSS SECTION HS01: CHAINAGE 100
SCALE 1:100

0 1:500 25 metres

KEY

- PROPOSED FOOTWAY
- PROPOSED RED TACTILE PAVING
- PROPOSED CORDUROY
- PROPOSED CARRIAGEWAY RESURFACING
- PROPOSED RED ASPHALT SURFACING
- PROPOSED VERGE
- PROPOSED SHARED USE PATH
- PROPOSED NEW PARKING SPACES
- WORK EXTENTS
- PUBLIC FOOTPATHS
- HIGHWAY BOUNDARY
- EXISTING TREES
- PROPOSED SIGNS
- CROSS SECTION EXISTING PROFILE

NOTES
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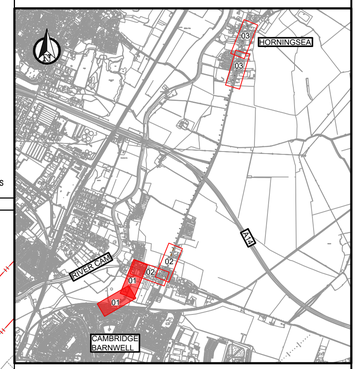
3. PROPOSED DESIGN WITHIN HIGHWAY BOUNDARY UNLESS OTHERWISE STATED.



FOR CONTINUATION SEE ABOVE

CH. 0+200 CH. 0+250 CH. 0+300 CH. 0+350 CH. 0+400

WADLOES PATH

EXISTING FARM ACCESS TO REMAIN

EXISTING LIGHTING COLUMN TO BE RETAINED

EXISTING FARM ACCESS TO REMAIN

EXISTING SHARED USE PATH TO BE WIDENED TO 3M

PROPOSED LIGHTING TO BE DETERMINED AT NEXT STAGE OF DESIGN

PROPOSED WAY FINDER SIGN

AREA SUBJECT TO FURTHER DISCUSSION/INFORMATION

SIGN 956

SIGN 966 SIGN 955

CYCLISTS REJOIN CARRIAGEWAY

PROPOSED QUITE ROUTE TO TIE IN WITH THE EXISTING NETWORK. THE EXACT LOCATION TO BE DETERMINED AT NEXT STAGE OF DESIGN

CHURCH STREET

SIGN 670

EXISTING PARKING SPACES TO BE RELOCATED

RELOCATED PARKING AREA WITH PROPOSED CYCLE SPACES

PROPOSED WAY FINDER SIGN

CH. 0+500

FOR CONTINUATION REFER TO DRG. 8658-WSP-HS-XX-DR-CV-100002

CH. 0+550

0 1:500 25 metres

KEY TO HEALTH AND SAFETY SYMBOLS

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REV	DATE	BY	DESCRIPTION	CHK	APD
P02	10/10/2022	RVA	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	11/07/2022	AP	FIRST ISSUE	RVA	AKM

DRAWING STATUS
S2 - FOR INFORMATION

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T +44 (0) 1223 558 050, F +44 (0) 1223 558 051
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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
HORNINGSEA GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 01 OF 03

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	11/07/2022	AS	RVA	AKM	A1

WSP PROJECT NO.
70088658

DRAWING No.
8658-WSP-XX-DR-CV-100001

REV.
P02

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AREA SUBJECT TO FURTHER INFORMATION/DISCUSSION

FOR CONTINUATION REFER TO DRG. 8658-WSP-HS-XX-DR-CV-100001

QUIET STREET ENVIRONMENT
NEW 20MPH SPEED LIMIT

SIGN 670
20

CH. 0+500
CH. 0+550
CH. 0+600
CH. 0+650
CH. 0+700
CH. 0+800

HIGH STREET

HS02

SIGN 670
20

LOCATION OF TRANSITION FROM QUIET STREET TO SHARED USE PATH TO BE CONFIRMED AT NEXT STAGE OF DESIGN

SIGN 956

SIGN 675
30
Zone ENDS

SIGN 674
20
ZONE

FOR CONTINUATION SEE BELOW

EXISTING RAISED TABLE TO BE EXTENDED TO ACCOMMODATE PROPOSED PARALLEL CROSSING, SUBJECT TO TRAFFIC DATE

0 1:500 25 metres

HIGHWAY BOUNDARY — HIGHWAY BOUNDARY

12.8
2 | 1.5 | 6.5 | 1.0 | 1.5

FOOTWAY | VERGE | CARRIAGEWAY | VERGE | FOOTWAY

TYPICAL CROSS SECTION HS02: CHAINAGE 625
SCALE 1:100

KEY

- PROPOSED FOOTWAY
- PROPOSED RED TACTILE PAVING
- PROPOSED CORDUROY
- PROPOSED CARRIAGEWAY RESURFACING
- PROPOSED RED ASPHALT SURFACING
- PROPOSED VERGE
- PROPOSED SHARED USE PATH
- PROPOSED NEW PARKING SPACES
- WORK EXTENTS
- PUBLIC FOOTPATHS
- HIGHWAY BOUNDARY
- EXISTING TREES
- PROPOSED SIGNS
- CROSS SECTION EXISTING PROFILE

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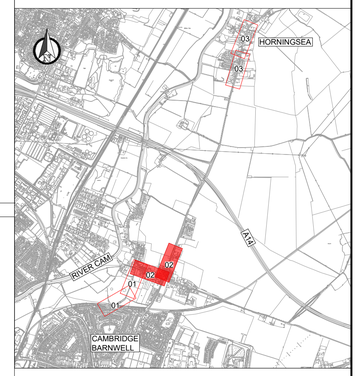

CH. 0+700
CH. 0+750

TIE IN TO THE EXISTING 3M SHARED USE PATH

FOR CONTINUATION REFER ABOVE

EXISTING SHARED USE PATH TO BE WIDENED TO 3M (SUBJECT TO DETAILED DESIGN)

EXISTING LEVEL DIFFERENCE

EXISTING LAMP POST

SIGN 956

CH. 0+850
CH. 0+900
CH. 0+950
CH. 1+000
CH. 1+050

HS03

HORNINGSEA ROAD

PROPOSED VERGE TO BE WIDENED TO 1.5M TO TIE IN WITH MILESTONE'S DESIGN

TIE-IN TO MILESTONE DESIGN

FOR CONTINUATION REFER TO DRG. 8658-WSP-HS-XX-DR-CV-100003

0 1:500 25 metres

HIGHWAY BOUNDARY — HIGHWAY BOUNDARY

12.9
0.4 | 3 | 6 | 2.5 | 1

EXISTING FENCE

VERGE | FOOTWAY | CARRIAGEWAY | FOOTWAY | VERGE

TYPICAL CROSS SECTION HS03: CHAINAGE 925
SCALE 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

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P01	10/10/2022	RVA	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	11/07/2022	AP	FIRST ISSUE	RVA	AKM

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S2 - FOR INFORMATION

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
HORNINGSEA GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 02 OF 03

A1

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	11/07/2022	AS	RVA	AKM	A1

WSP PROJECT NO.
70088658

DRAWING No.
8658-WSP-HS-XX-DR-CV-100002

REV.
P02

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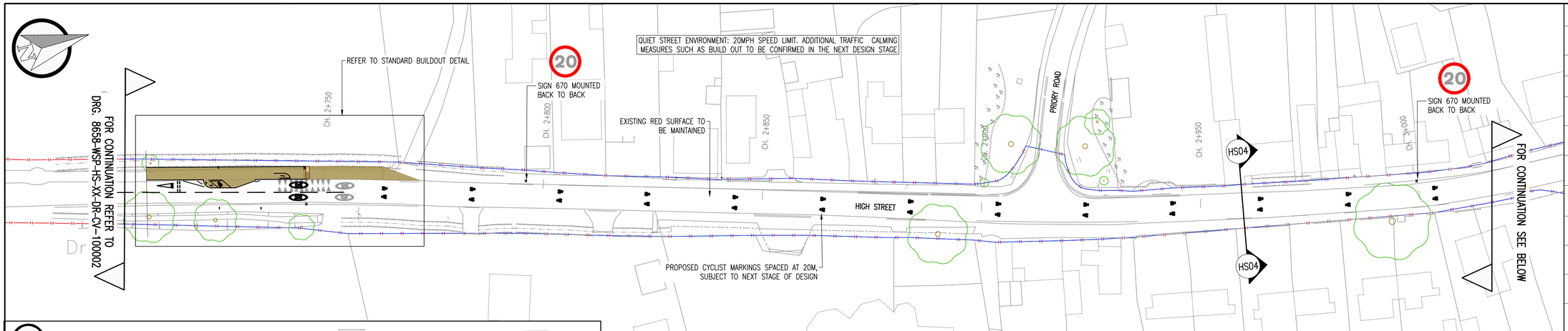
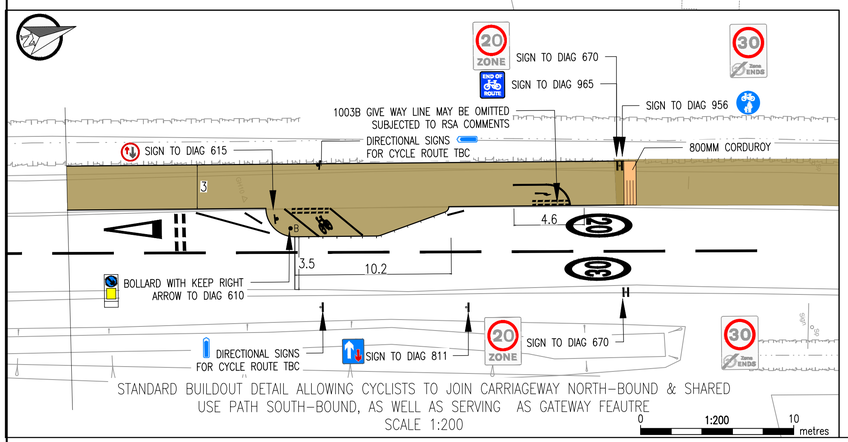
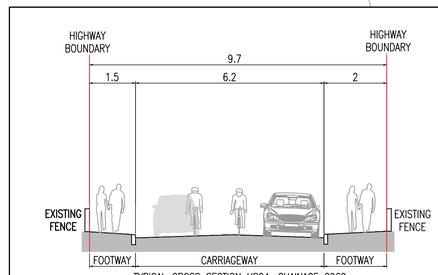
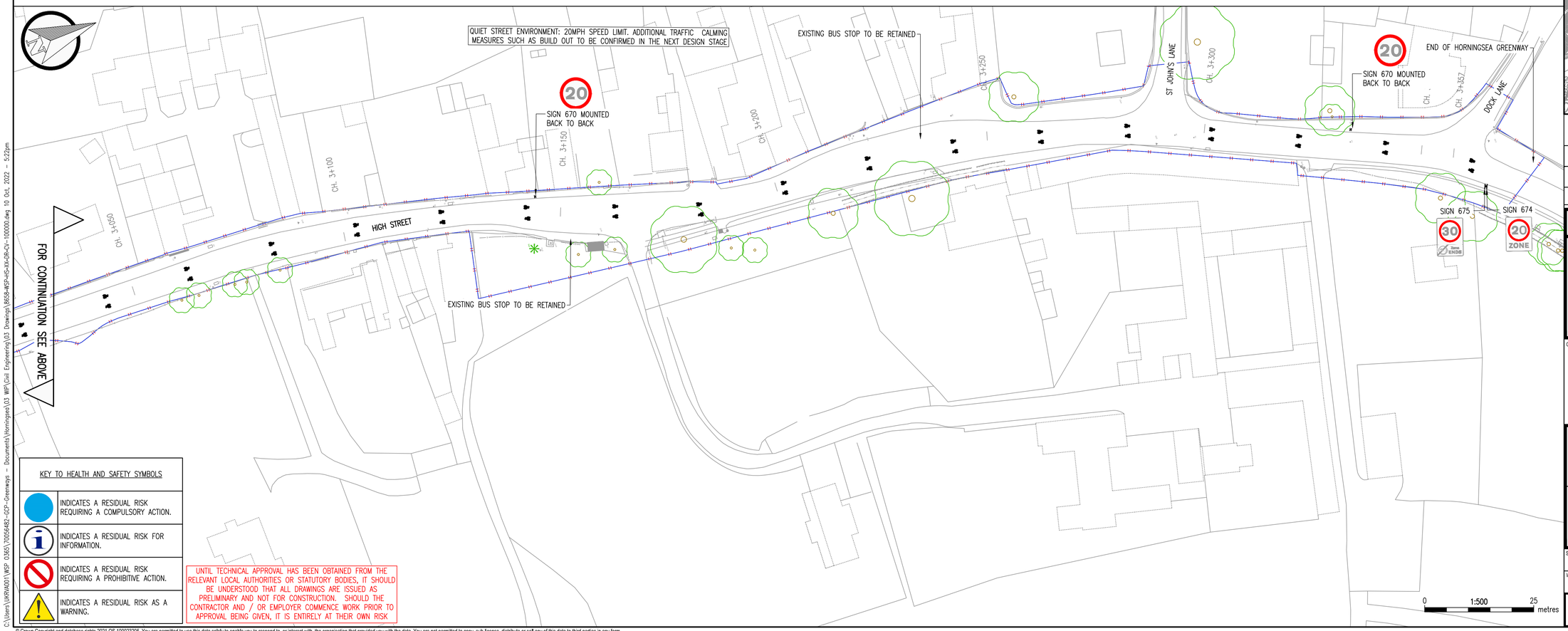




STANDARD BUILDOUT DETAIL ALLOWING CYCLISTS TO JOIN CARRIAGEWAY NORTH-BOUND & SHARED USE PATH SOUTH-BOUND, AS WELL AS SERVING AS GATEWAY FEAUTRE
SCALE 1:200



TYPICAL CROSS SECTION HS04: CHAINAGE 2960
SCALE 1:100



KEY

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	PROPOSED RED TACTILE PAVING
	PROPOSED CORDUROY
	PROPOSED CARRIAGEWAY RESURFACING
	PROPOSED RED ASPHALT SURFACING
	PROPOSED VERGE
	PROPOSED SHARED USE PATH
	PROPOSED NEW PARKING SPACES
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
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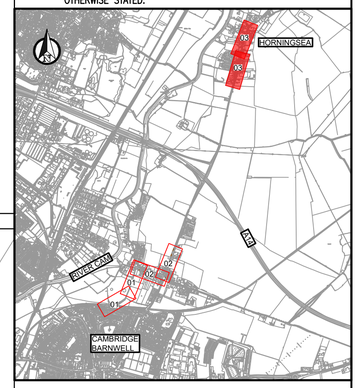

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P01	11/07/2022	AP	FIRST ISSUE	RVA	AKM

DRAWING STATUS: S2 - FOR INFORMATION

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CLIENT: GREATER CAMBRIDGE PARTNERSHIP

PROJECT: HORNINGSEA GREENWAY

TITLE: GENERAL ARRANGEMENT SHEET 03 OF 03

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	11/07/2022	AS	RVA	AKM	A1

WSP PROJECT NO.: 70088658

DRAWING No.: 8658-WSP-HS-XX-DR-CV-100003 REV.: P02

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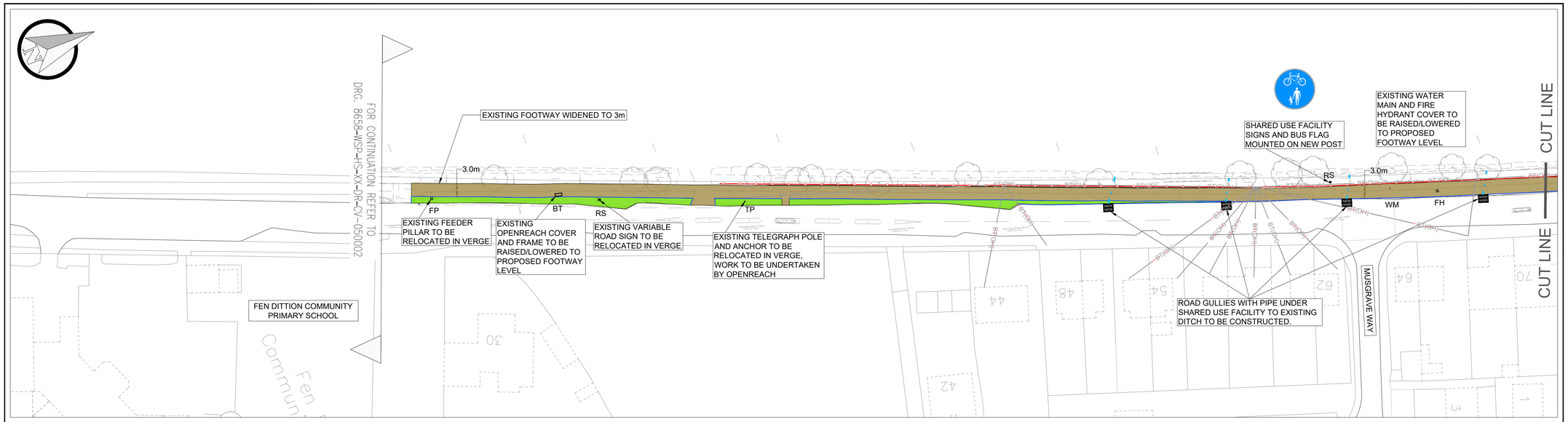

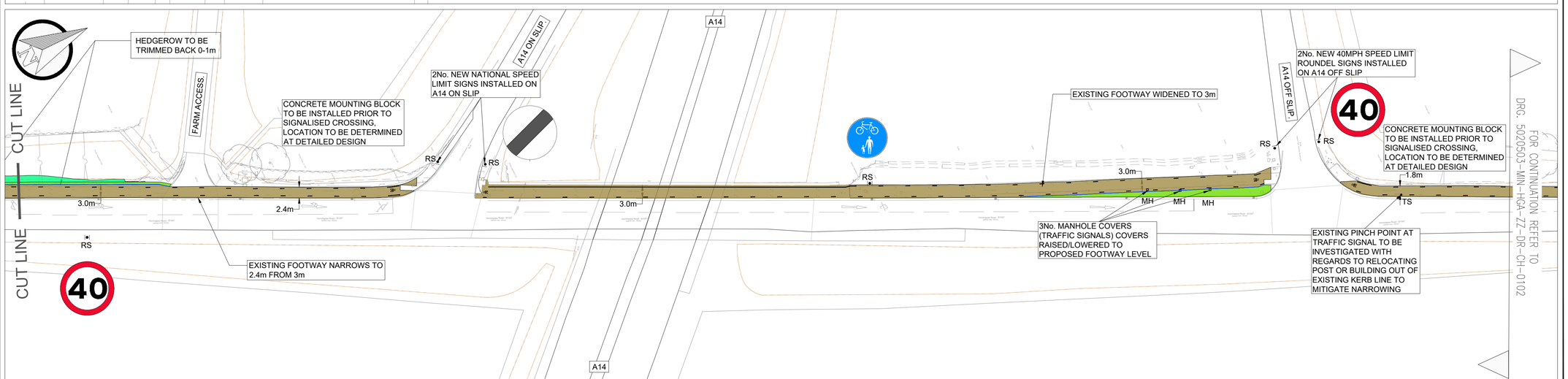

NOTES

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2. SITE VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION.
3. REPORT ALL DISCREPANCIES TO THE DRAWING ORIGINATOR IMMEDIATELY.
4. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT DOCUMENTS AND DRAWINGS.
5. SHARED USE FACILITY MARKINGS TO BE REPLACED LIKE FOR LIKE BETWEEN FEN DITTON AND HORNINGSEA OUTSIDE STREET LIGHTING EXTENTS, WITH SOLAR STUDS REPLACED
6. FOR LOCATION REFERENCE, REFER TO DRAWING 8658-WSP-HS-XX-DR-CV-050000

KEY

- SHARED USE FOOTWAY
- VERGE
- VERGE TIE-IN TO EXISTING GROUND LEVEL
- NEW KERBLINE
- EXISTING MATURE TREE CUT DOWN, STUMP GROUNDED DOWN TO PROPOSED VERGE LEVEL
- PROPOSED KNEE HIGH WOODEN POST AND RAIL FENCE
- BTOH — EXISTING OPENREACH OVERHEAD APPARATUS
- UKOH — EXISTING UKPN OVERHEAD APPARATUS
- FP FEEDER PILLAR
- RS ROAD SIGN
- TP TELEGRAPH POLE
- BT OPENREACH COVER
- FH FIRE HYDRANT COVER
- WM WATER MAIN COVER
- TS TRAFFIC SIGNAL POLE
- MH MANHOLE COVER
- SV SLUICE VALVE COVER
- WO WASH OUT COVER

Rev	Date	Description	Drn	Chk'd	App
P03	14/11/22	AMEMDNMENT FOR PUBLIC CONSULTATION	NT	ADB	ADB
P02	30/09/22	AMEMDNMENT AFTER PRELIM DESIGN UPDATES	NT	ADB	ADB

Revisions

Client

GREATER CAMBRIDGE PARTNERSHIP

Drawing Originator

MILESTONE INFRASTRUCTURE

A part of MGroupServices

Woodlands Court, Burnham Road, Beaconsfield , Buckinghamshire, HP9 2SF

Drawing Status

DETAILED DESIGN

Project Name

5020503
HORNINGSEA GREENWAYS

Title

GENERAL ARRAGEMENT DRAWING (SHEET 3 OF 5)

Sheet Size	Scale	Drawn by	Checked by	Approved by
A1	1:500	NT	ADB	ADB
		Drawn Date 28/04/22	Checked Date 28/04/22	Approved Date 28/04/22

Drawing Number	Status	Rev
5020503/MIN/HGA/ZZ/DR/CH/0101	S2	P03

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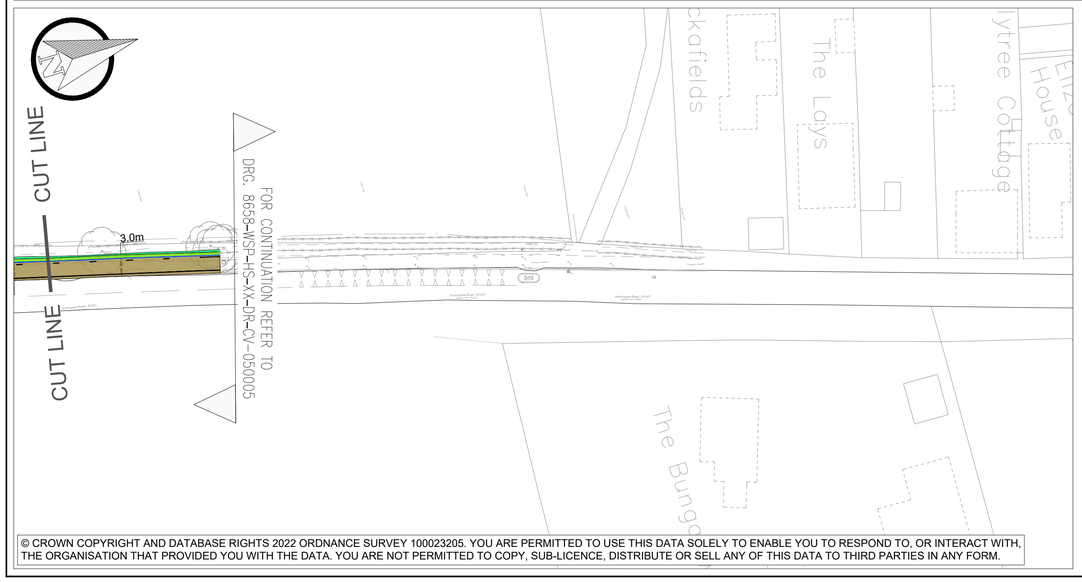

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6. FOR LOCATION REFERENCE, REFER TO DRAWING 8658-WSP-HS-XX-DR-CV-050000

KEY

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P03	14/11/22	AMEMDNMENT FOR PUBLIC CONSULTATION	NT	ADB	ADB#
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Revisions

Client

GREATER CAMBRIDGE PARTNERSHIP

Drawing Originator

MILESTONE INFRASTRUCTURE
A part of MGroupServices

Woodlands Court, Burnham Road, Beaconsfield , Buckinghamshire, HP9 2SF

Drawing Status

DETAILED DESIGN

Project Name

5020503
HORNINGSEA GREENWAYS

Title

GENERAL ARRANGEMENT DRAWING (SHEET 4 OF 5)

Sheet Size	Scale	Drawn by	Checked by	Approved by
A1	1:500	NT	ADB	ADB
		Drawn Date 28/04/22	Checked Date 28/04/22	Approved Date 28/04/22

Drawing Number	Status	Rev
5020503/MIN/HGA/ZZ/DR/CH/0102	S2	P03

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Appendix B

TEE – PA – AMCB TABLES

Economic Efficiency of the Transport System (TEE) - Comberton Greenway

Non-business: Commuting	MODES		ROAD	COACH	RAIL	OTHER
User benefits	TOTAL		Private Cars and LGVs	Passengers	Passengers	
Travel time	13,272		13,272			0
Vehicle operating costs	0					
User charges	0					
During Construction & Maintenance	0					
NET NON-BUSINESS BENEFITS: COMMUTING	13,272	*(1a)*	13,272	0	0	0

Non-business: Other	MODES		ROAD	COACH	RAIL	OTHER
User benefits	TOTAL		Private Cars and LGVs	Passengers	Passengers	
Travel time	32,519		32,519			0
Vehicle operating costs	0					
User charges	0					
During Construction & Maintenance	0					
NET NON-BUSINESS BENEFITS: OTHER	32,519	*(1b)*	32,519	0	0	0

Business				Business Cars				
User benefits			Goods Vehicles	& LGVs	Passengers	Freight	Passengers	
Travel time	6,279			6,279				
Vehicle operating costs	0							
User charges	0							
During Construction & Maintenance	0							
Subtotal	6,279	*(2)*	0	6,279	0	0	0	0

					Freight	Passengers	
Private sector provider impacts							
Revenue	0						
Operating costs	0						
Investment costs	0						
Grant/subsidy	0						
Subtotal	0	*(3)*		0	0	0	0
Other business impacts							
Developer contributions		*(4)*					
NET BUSINESS IMPACT	6,279	*(5) = (2) + (3) + (4)*					

TOTAL		
Present Value of Transport Economic Efficiency Benefits (TEE)	52,070	*(6) = (1a) + (1b) + (5)*

Notes: Benefits appear as positive numbers, while costs appear as negative numbers.
All entries are discounted present values, in 2010 prices and values

Public Accounts (PA) Table - Comberton Greenway

Local Government Funding	ALL MODES TOTAL		ROAD INFRASTRUCTURE	BUS and COACH	RAIL	OTHER
Revenue	0					
Operating Costs	-1,109		-1,109			
Investment Costs	0					
Contributions	0					
Grant/Subsidy Payments	0					
NET IMPACT	-1,109	*(7)*				

Central Government Funding: Transport						
Revenue	0					
Operating costs	0					
Investment Costs	2,140,379					2,140,379
Developer and Other	0					
Grant/Subsidy Payments	0					
NET IMPACT	2,140,379	*(8)*				

Central Government Funding: Non-Transport						
Indirect Tax Revenues	14,469	*(9)*				14,469

TOTALS		
Broad Transport Budget	2,139,270	*(10) = (7) + (8)*
Wider Public Finances	14,469	*(11) = (9)*

Notes: Costs appear as positive numbers, while revenues and 'Developer and Other Contributions' appear as negative numbers.
All entries are discounted present values in 2010 prices and values.

Analysis of Monetised Costs and Benefits

Noise	408	*(12)*
Local Air Quality	1,157	*(13)*
Greenhouse Gases	12,808	*(14)*
Journey Quality	1,733,861	*(15)*
Physical Activity	2,445,527	*(16)*
Accidents	794,201	*(17)*
Economic Efficiency: Consumer Users (Commuting)	13,272	*(1a)*
Economic Efficiency: Consumer Users (Other)	32,519	*(1b)*
Economic Efficiency: Business Users and Providers	6,279	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	- 14,469	*- (11) - sign changed from PA*
Present Value of Benefits (see notes) (PVB)	5,025,561	*(16) + (17) + (1a) + (1b) + (5) -*
Broad Transport Budget	2,139,270	*(10)*
Present Value of Costs (see notes) (PVC)	2,139,270	*(PVC) = (10)*

OVERALL IMPACTS		
Net Present Value (NPV)	2,886,291	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	2.3	BCR=PVB/PVC

Note : This table includes costs and benefits which are regularly or occasionally presented in monetised form in transport appraisals, together with some where monetisation is in prospect. There may also be other significant costs and benefits, some of which cannot be presented in monetised form. Where this is the case, the analysis presented above does NOT provide a good measure of value for money and should not be used as the sole basis for decisions.

Appendix C

APPRAISAL SUMMARY TABLE

Appraisal Summary Table

Date produced:	27	1	2023

Contact:	
Name	Thomas Fitzpatrick
Organisation	GCP
Role	Promoter/Official

Name of scheme:	Horningsea Greenways
Description of scheme:	Horningsea Greenway is one the twelve Greater Cambridge Greenways that aim to make journeys easier, cheaper, healthier, greener and pleasant into and out of Cambridge as well as to enjoy the countryside for leisure purposes. Horningsea Greenway provides improvements to walking and cycling facilities between Horningsea and Fen Ditton.

Impacts		Summary of key impacts	Assessment					
			Quantitative			Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	The scheme will reduce journey times for both existing cyclists and new cyclists by providing new safer, more direct segregated cycling infrastructure. The scheme is expected to facilitate some mode shift from car to cycling and therefore will benefit the local highway network in terms of reduced congestion.	Value of journey time changes(£)			-	6,279	
			Net journey time changes (£)					
			0 to 2min	2 to 5min	> 5min			
	Reliability impact on Business users	Through providing a continuous improved walking and cycling route from Horningsea through Fen Ditton and onwards into Cambridge City Centre using other active travel routes, the Horningsea Greenway scheme will improve reliability for those travelling by active modes along the corridor.	-			Slight Beneficial		
	Regeneration	Scheme regeneration impacts are likely to be very small and have not been considered at this stage and therefore a qualitative assessment is not provided.	-			Not Assessed		
	Wider Impacts	Wider impacts have not been assessed at this stage of the scheme assessment. Improved cycling connectivity will provide better access to the labour market and jobs, but the scale of improvement is relatively small. Ttherefore a qualitative score has not been provided	-			Not Assessed		
Environmental	Noise	The scheme is expected to lead to a slight reduction in overall noise levels in the area as it would encourage a modal shift from car to cycling.	-			-	408	
	Air Quality	The scheme is expected to have a beneficial impact to air quality as it would encourage a modal shift from car to cycling.	-			-	1,157	
	Greenhouse gases	The scheme is expected to have a beneficial impact to greenhouse gas emissions as the scheme would encourage a modal shift from car to cycling.	Change in non-traded carbon over 60y (CO2e)			-	12,808	
			Change in traded carbon over 60y (CO2e)					
	Landscape	The scheme would have beneficial effects on the landscape pattern and neutral effects on landcover, the tranquillity, and cultural elements of the landscape. A strategic focus on landscape enhancement through new planting could result in slight benefits. Overall, impacts will be neutral.	-			Neutral		
		The scheme is anticipated to have a neutral effect on the layout, density and mix, scale, appearance, human interaction, culture, and land use of the townscape.	-			Neutral		
	Historic Environment	There will be direct impacts on the Fen Ditton Conservation Area and Horningsea Conservation Area arising from new signage, traffic calming measures and resurfacing works. It is anticipated that there will be a slight negative impact. Neutral impact is anticipated on the significance of the Grade II listed buildings within Fen Ditton Conservation Area, although changes to the settings. The proposal to remove the highway between the Grade II listed War Memorial and the Church is anticipated to result in a slight positive impact. Neutral impact on the significance of Grade II* listed buildings in the Fen Ditton Conservation Area and the Grade II listed buildings within the Horningsea Conservation Area. Impacts on the survival, condition, and complexity of the designated heritage assets, including listed buildings will be neutral. Impacts to the context will be neutral to slight impact. There will be a change to the context of Fen Ditton Conservation Area and Horningsea Conservation Area likely to result in a slight adverse impact. Impacts on the period of the designated heritage assets is considered neutral. The impact to non-designated heritage assets and buried heritage assets has not been determined at this stage. Overall, the summary assessment score is neutral to slight adverse / beneficial.	-			Neutral / Slight Adverse / Beneficial		

Appraisal Summary Table

Date produced:	27	1	2023

Contact:	
Name	Thomas Fitzpatrick
Organisation	GCP
Role	Promoter/Official

Name of scheme:	Horningsea Greenways
Description of scheme:	Horningsea Greenway is one the twelve Greater Cambridge Greenways that aim to make journeys easier, cheaper, healthier, greener and pleasant into and out of Cambridge as well as to enjoy the countryside for leisure purposes. Horningsea Greenway provides improvements to walking and cycling facilities between Horningsea and Fen Ditton.

Impacts		Summary of key impacts	Assessment			
			Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
	Biodiversity	Impacts on the Eversden and Wimpole Wood Special Area of Conservation (SAC), and on the barbastelle bats that use the woods and are the principal reason for its European designation, will be neutral. Impact Fendland SAC designated for Molinia meadows on calcareous, pesty or clayey-silt-laden soils and Cladium mariscus and species of the Caricion davalliane is considered as neutral. There are five Local Nature Reserve (LNR) within 2km of the Proposed Scheme, consisting of grassland and scrub habitats with importance for birds and invertebrates. Impact to these LNR is considered neutral. Slight adverse impact is anticipated for the Ditton Meadows County Wildlife Site (CiWS), as a result of pollution risk from the Proposed Scheme. There are many hedgerows within the Proposed Scheme, with the majority acting as boundaries rather than crossing the Scheme. Impact to these hedgerows are considered neutral. A slight impact will impact protected species such as bats, Water vole (Arvicola amphibius), and Otter (Lutra lutra). Impact is considered neutral for the following species Amphibians (Great Crested Newt Triturus cristatus). birds, Barn owl Tyto alba, Reptiles (common and widespread species), Amphibians (Other amphibians), Hedgehog (Erinaceus europaeus) and Brown hare (Lepus europeaus). Overall, the summary assessment score is neutral to slight adverse.		Neutral / Slight Adverse		
	Water Environment	Surface water and groundwater features are located with 500m of the Proposed Scheme. River Cam and tributaries is channelled within the study area and has been assessed as magnitude level of slight beneficial, as runoff quality may increase due to a modal shift to green modes of transport and overall is considered insignificant adverse impact. A small area is within Flood Zone 2 and 3, but this are does not include any proposed works so unlikely to impact floodplain storage. There are numerous land drains and ditches in the area, flooding risk is considered as insignificant. With standard mitigation, any risks of chemical contamination of ground or surface waterbodies is not considered to be significant and therefore overall, the summary assessment score is neutral – slight adverse.	-	Neutral / Slight Adverse		
Social	Commuting and Other users	The scheme will establish an improved cycle connection between Horningsea-Fen Ditton and onwards into Cambridge City Centre using other active travel routes. The scheme doesn't have much impact on journey time reduction although safer infrastructure are been proposed. The scheme is expected to facilitate some mode shift from car to cycling and therefore will benefit the local highway network in terms of reduced congestion.	**Value of journey time changes(£)** **Net journey time changes (£)** 0 to 2min / 2 to 5min / > 5min	-	45,791	
	Reliability impact on Commuting and Other users	Through providing a continuous walking and cycling route from Fen Ditton to Horningsea, the Horningsea Greenway scheme will improve reliability for those travelling by active modes along the corridor.	-	Slight Beneficial		
	Physical activity	The improvement to active mode facilities will encourage more cycling and pedestrian travel.	-	-	2,445,527	
	Journey quality	The improvements to the cycling and walking infrastructure along the route will improve the pleasantness of surroundings for users.	-	-	1,733,861	
	Accidents	The scheme is anticipated to result in a reduction in traffic movements as people are encouraged to use active modes. Users of motorised modes who shift mode to active modes will result in fewer vehicles and the number of highway accidents.	-	-	794,201	
	Security	The improved lighting provision along the route will increase the perception of safety for pedestrians and cyclists	-	Moderate Beneficial		
	Access to services	The expansion, and improvement, of cycling and pedestrian infrastructure provided by the Horningsea Greenway scheme will improve accessibility between Cambridge and Horningsea	-	Slight Beneficial		
	Affordability	Affordability will increase for cyclists who were previously bus or car users as the cost of travel will decrease as they will no longer pay fares or fuel and non-fuel vehicle operating costs.	-	Slight Beneficial		

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Impacts		Summary of key impacts	Assessment			
			Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
	Severance	Introduction of the Horningsea Greenway will provide improved cycling facility between Horningsea and Cambridge, reducing the severance currently created due to the lack of a direct route between these settlements.	-	Slight Beneficial		
	Option and non-use values	The proposed scheme does not introduce new travel options.	-	Neutral		
Public Accounts	Cost to Broad Transport Budget	Cost of funding is split between local (operating costs) and central government funding (investment costs).	-	-	2,139,270	
	Indirect Tax Revenues	The scheme is expected to have a negative impact on tax revenues through mode shift to cylcing from car resulting in a small reduction in car kilometres is associated with a reduction in fuel duty.	-	-	-14,469	

Appendix D

ENVIRONMENT TAG WORKSHEETS

TAG Water Environment Impacts Worksheet

Description of study area/ summary of potential impacts	Key environmental resource	Features	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
Study area: Surface water and groundwater features located within c.500m of the Site and/or hydraulically connected to the Site have been considered. Potential Impacts: •Increase to surface water flood risk due to increased impermeable surface area. •Increased pollution risk to surface water features.	River Cam and tributaries	Water supply	Main river. 'Moderate' WFD status. Likely to support local water supplies.	Local	Low	Limited potential for substitution	Medium	Negligible	Insignificant
		Transport and dilution of waste products	Medium - Failed WFD chemical status for priority hazardous substances. Feature likely receives water treatment effluence.	Local	Low	Cannot be substituted	Medium	Slight Beneficial - runoff quality may increase due to a modal shift to green modes of transport.	Insignificant
		Biodiversity	Moderate' ecological WFD status. No known fish species or designations.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Aesthetics	Heavily modified	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Cultural Heritage	No known cultural assets	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Recreation	River Cam adjacent and upstream of the Ditton meadow near proposed site is known to be used for rowing and canal boats.	Local	Medium	Limited potential for substitution	Medium	Negligible	Insignificant
		Value to economy	The River Cam near the site is known to be frequently used by canal boats.	Local	Medium	Limited potential for substitution	Medium	Negligible	Insignificant
		Conveyance of flow and material	Flows in predominantly rural areas and under multiple clear span bridges within the area of the site. Towards the north of the Proposed Scheme, near Horningsea the River Cam flows through a weir and a lock.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
	Land Drains and ditches	Water supply	Ordinary watercourses, unlikely to be part of local water supplies.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Transport and dilution of waste products	Ordinary watercourses.	Local	Low	Limited potential for substitution	Low	Slight Beneficial - runoff quality may increase due to green modes of transport being more accessible.	Insignificant
		Biodiversity	Small watercourses, not monitored by WFD. No known fish species or designations.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Aesthetics	Straightened watercourses.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Cultural Heritage	No known cultural assets.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Recreation	No known recreation uses.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Value to economy	No known commercial uses.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Conveyance of flow and material	Flow in predominantly rural areas, along the boundaries of fields.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
Potential decrease in flood plain storage	Floodplain	Conveyance of flood flows	The vast majority of the Proposed Scheme is located in Flood Zone 1. A small area is within Flood Zone 2 and 3, but this area does not include any proposed works so unlikely to impact floodplain storage.	Regional	Low	Limited potential for substitution	Medium	Negligible	Insignificant
		Biodiversity	Located in an area with a 'Moderate' ecological WFD status. No known fish species or designations.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Aesthetics	Site is mostly located in a rural area.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
* Increased pollution risk to Groundwater * Modifications to groundwater conditions (locally) including alterations to groundwater level and flow * Reduction of groundwater recharge (locally) to superficial and bedrock aquifers due to increased hard surface areas	Groundwater (superficial aquifers)	Water supply (groundwater level and flow)	Not located near a groundwater source protection or within a drinking water safeguard zone (groundwater). It is unclear at this stage if private (licensed and unlicensed) abstractions exist in proximity to the Proposed Scheme targeting superficial aquifers (Alluvium and River Terrace Deposits)	Local	Low	Limited potential for substitution	Low	Slight (Adverse) - localised impacts expected where changes in groundwater level and flow may occur as a result of alternation to groundwater recharge	Insignificant
		Groundwater quantity and quality	Located within a Nitrate Vulnerable Zone. Superficial deposits designated Secondary A Aquifers - provide limited / local supply.	Local	Low	Cannot be substituted	Low	Slight (Adverse) - localised impacts due to scheme development activities i.e. resurfacing	Insignificant
	Groundwater (bedrock aquifers)	Water supply (groundwater level and flow)	Not located near a groundwater source protection or within a drinking water safeguard zone (groundwater). It is unclear at this stage if private (licensed and unlicensed) abstractions exist in proximity to the Proposed Scheme targeting principal bedrock aquifer (West Melbury Marly Chalk Formation).	Regional	Medium	Limited potential for substitution	High	Negligible - no significant impact expected on water supply, groundwater level and flow	Insignificant
		Groundwater quantity and quality	High and High & Medium groundwater vulnerability zones designated along length of the Proposed Scheme attributed to the West Melbury Marly Chalk Formation. Soluble rock risk identified (assigned to Chalk). Cam and Ely Ouse Chalk Groundwater Waterbody (ID GB40501G400500) overall Poor WFD status.	Regional	Medium	Cannot be substituted	High	Slight (Adverse) - Chalk exposed at surface. Localised impacts on groundwater recharge due to increased impermeable areas. Localised impacts on groundwater quality due to increased sedimentation risk as a result of proposed development activities i.e. resurfacing	Insignificant
	Groundwater (superficial and bedrock aquifers)	Transport and dilution of pollutants	At this stage no records of formal infiltration based drainage have been provided. Informal infiltration may occur on highway ditches that are assumed to be unlined.	Local	Low	Cannot be substituted	Low	Slight Beneficial - runoff quality may increase due to a modal shift to green modes of transport.	Insignificant
		Value to economy	No known commercial uses.	Local	Low	Cannot be substituted	Low	Negligible	Insignificant
		Biodiversity including GWDTE (Groundwater Dependent Terrestrial Ecosystem)	Provides baseflow to rivers	Local	Medium	Cannot be substituted	Medium	Negligible - no known GWDTEs or direct impact to major watercourses expected	Insignificant

Reference Sources

OS Mapping, MAGIC GIS Portal, British Geological Survey, Environment Agency's online maps for flood risk and Environment Agency's Catchment Data Explorer.

Summary Assessment Score

Neutral - Slight Adverse

Qualitative Comments

Review of the EA's Flood Map for Planning (Rivers and Sea) indicates that the Site is predominantly located in Flood Zone 1. Review of the EA's Flood Risk from Surface Water map indicates that there are small areas at risk to surface water flooding to the south of the Proposed Scheme, near Ditton Meadows and to the north of the Proposed Scheme within Horningsea. The River Cam is classified as a Main River.

Localised impacts (specifically groundwater quality) to groundwater receptors i.e. abstractions, superficial and bedrock aquifers due to increased sedimentation risk / discharge during construction activities. Currently, there is limited data relating to the presence of private (licensed and unlicensed) water supplies and depth to groundwater table. Bedrock aquifer (West Melbury Marly Chalk Formation) is exposed at surface and will be intercepted by the Proposed Scheme. Increased impermeable surface area may result in localised impacts on reduced recharge to aquifers, although impacts are not expected to be significant. At this stage it is assumed that no intrusive works, likely to extend below the groundwater table (superficial and bedrock geologies), are anticipated.

TAG Historic Environment Impacts Worksheet

	Step 2				Step 4
Feature	**Description**	**Scale it matters**	**Significance**	**Rarity**	**Impact**
Form	**Designated heritage assets (possibly physically affected by the Proposed Scheme)** in the 50m study area 1. Fen Ditton Conservation Area 2. Horningsea Conservation Area **Designated heritage assets (possible setting impact)** in the 50m study area 3. 4 Grade II* listed buildings within the Fen Ditton Conservation Area 4. 16 Grade II listed buildings within the Fen Ditton Conservation Area 5. 15 Grade II listed buildings within the Horningsea Conservation Area **Potential Known and Unknown Non-designated Archaeological Remains** 6. The potential, and therefore the form of archaeological remains, is unknown at this time	1-5. The protection of listed buildings and Conservation Areas is a national concern (Planning (Listed Buildings and Conservation Areas) Act 1990). 6. The form of currently unknown buried archaeological remains are of indeterminate importance. However, archaeological remains could be of local to national importance.	1,2. The Conservation Areas are of High significance. 3. The Grade II* listed buildings are of High significance. 4,5. The Grade II listed buildings are of Medium significance. 6. The significance of the form of currently unknown buried archaeological remains could be of Low to High significance.	1,2. There are nearly 10,000 Conservation Areas in England. Although not rare, they are identified by the local authority as having a definite architectural quality or historic interest to merit designation. 3. Nationally, 5.8% of listed buildings are Grade II*, making them particularly important buildings. 4,5. Nationally, 92% of listed buildings are Grade II, making them less rare but still of national importance. 6. The form of currently unknown buried archaeological remains are of indeterminate rarity. However, the form of archaeological remains could be common locally to rare internationally.	The Proposed Scheme aims to encourage sustainable travel in and out of Cambridge for cyclists, pedestrians and equestrians. It comprises of twelve Greenway routes including the Horningsea Greenway route. The route follows existing quieter streets, off-road paths falling within the rural setting and busier roads and footpaths of the urban setting. The changes relate to modifications of the public realm comprising proposed concrete cycleways, tree removal, planting areas, signage, road widening works, relining works and re-surfacing works, parking areas and traffic control measures. Within the Fen Ditton Conservation Area, it is proposed to enhance the existing road infrastructure by adding traffic calming measures (20MPH speed limit signs) along with the additional street parking areas for both motorists and cyclists. Within the Horningsea Conservation Area, it is proposed to enhance the existing road infrastructure by adding traffic calming measures (20MPH speed limit signs). **Designated heritage assets (possibly physically affected by the Proposed Scheme)** 1,2. There will be direct impacts on the Fen Ditton Conservation Area and Horningsea Conservation Area arising from new signage, traffic calming measures and resurfacing works. It is anticipated that there will be a slight negative impact to the form of the Fen Ditton Conservation Area and the Horningsea Conservation Area. **Designated heritage assets (possible setting impact)** 4. The nature of the proposals means there is likely to be a neutral impact on the significance of Grade II listed buildings within the Fen Ditton Conservation Area, through changes to the settings. The proposal to remove the highway between the Grade II listed War Memorial and the Church is anticipated to result in a slight positive impact. 3,5. As currently designed the proposals would have a neutral impact on the significance of Grade II* listed buildings in the Fen Ditton Conservation Area and the Grade II listed buildings within the Horningsea Conservation Area, through changes to the settings. **Potential Archaeological Remains (possible physical and setting impact)** 6. Impacts on the form of unknown archaeology is unknown at this time.
Survival	1,2. The Conservation Areas are likely to have a good level of survival. 3-5. The listed buildings are likely to have a good level of survival. 6. The survival of any unknown archaeological remains is unknown at this time	1-5 The survival of designated heritage assets matter on a national scale. 6. The survival of currently unknown buried archaeological remains matters on an indeterminate scale but could range from a local to international scale.	1-5. The significance of the survival of designated elements of the historic environment is high. 6. The significance of survival of currently unknown buried remains is unknown at this time.	1-5. The survival of the designated elements of the historic environment are common locally but rare nationally. 6. The rarity of the survival of currently unknown buried archaeological remains is indeterminate at this stage, but could be from common locally to rare internationally.	1-5. It is anticipated that there will be a neutral impact on the survival of these designated heritage assets or their relationship with their setting. 6. Impacts on the survival of potential archaeological remains is unknown at this time.
Condition	1,2 The condition of the Conservation Areas is unknown. 3-5. The condition of the listed buildings is unknown. 6. The condition of currently unknown buried archaeological remains is indeterminate at this stage but could range from poor to good.	1-5. The condition of designated heritage assets matters on a national scale. 6. The scale at which the condition of currently unknown buried archaeological remains matter is currently indeterminate, but could be of a local to international importance.	1-5. The significance of the condition of the designated heritage assets is expected to vary from low to high due to the number and nature of designated historic environment resources. 6. The significance of the condition of currently unknown buried archaeological remains is indeterminate at this time.	1-5. The rarity of the condition of the designated heritage assets varies from common locally to rare nationally. 6. The rarity of the condition of currently unknown buried archaeological remains is indeterminate, but could range from common locally to rare internationally.	1-5. Considering the nature and scale of the Proposed Scheme it is anticipated that there will be a neutral impact upon the condition of these designated heritage assets. 6. Impacts on the condition of potential archaeological remains is unknown at this time.
Complexity	1,2. The complexity of the Conservation Areas is unknown. 3-5. The complexity of the listed buildings is unknown. 6. The complexity of any potential archaeological remains is unknown at this time.	1-5. The scale at which the complexity of designated heritage assets matters is considered to be national. 6. The scale at which the complexity of currently unknown buried archaeological remains matter is indeterminate, but could be from local to international.	1-5. The significance of the complexity of the designated elements of the historic environment is low to high. 6. The significance of the complexity of currently unknown buried archaeological remains is indeterminate at this time.	1-5. The rarity of the complexity of designated heritage assets is common locally and rare nationally. 6. The rarity of the context of currently unknown buried archaeological remains is indeterminate but could be from common locally to rare internationally.	1-5. The Proposed Scheme is not anticipated to impact the complexity of the designated heritage assets. The impact is therefore neutral. 6. Impacts on the complexity of potential remains is unknown at this time.
Context	1. Rural (within Fen Ditton village) 2. Rual (within Horningsea village) 3-6 Rural and Urban	1-5. The context of designated heritage assets matters on a local to national scale. 6. The context of currently unknown buried archaeological remains is indeterminate.	1-5. The significance of the context of the designated heritage assets is low to high. 6. The significance of the context of currently unknown buried archaeology is indeterminate at this time.	1-5. The rarity of the context of the designated heritage assets is common locally but rare nationally. 6. The rarity of the context of currently unknown buried archaeological remains is indeterminate at this time but could be from common locally to rare internationally.	1,2. There will be a change to the context of Fen Ditton Conservation Area and Horningsea Conservation Area likely to result in a slight adverse impact. 1-5. The small-scale nature of the proposals means there is likely to be a neutral impact to the context of these designated heritage assets. 6. Impacts on the context of potential archaeology is unknown at this time
Period	1,2. Post-Medieval 3. Later Medieval and Post-Medieval 4. Post-Medieval 5. Later Medieval and Post-Medieval 6. Data relating to potential archaeological remains is unavailable at this time	1-5. The period of the designated heritage assets is considered to matter on a regional to national scale. 6. The scale at which the periods represented by currently unknown buried archaeological remains matter are indeterminate at this stage.	1-5. The period of the heritage assets does not necessarily affect their heritage significance. 6. The significance of the periods represented by currently unknown buried archaeological remains is unknown at this time.	1-5. The rarity of the periods represented by the designated heritage assets is common to townscapes and villages nationally. 6. The rarity of the period of currently unknown buried archaeological remains is indeterminate at this stage but could be from common locally to rare internationally.	1-6. The Proposed Scheme will have a neutral impact on the period of the heritage assets.

Reference Sources

National Heritage List for England - List of statutorily designated heritage assets.
Local Planning Authority website - Conservation Area data.
A site walkover was not undertaken.

Step 5 - Summary Assessment Score

Slight Adverse Effect

Qualitative Comments

There are 4 Grade II* listed buildings, 31 Grade II listed buildings and two Conservation Areas within the 50m study area.
The Proposed Scheme passes through the Fen Ditton Conservation Area and Horningsea Conservation Area. There will be a direct slight adverse impact on the two Conservation Areas resulting from small-scale changes.
The Proposed Scheme also presents opportunities for the enhancement of heritage assets through interpretation (e.g. trails and appropriate boards along the route). This could be explored as part of the design stage.
The Proposed Scheme, as currently designed, would have a neutral effect on the listed buildings within 50m of the proposed route. The proposed removal of the highway between the Grade II listed War Memorial and the churchyard in Fen Ditton would improve the immediate setting of the asset.
An assessment of non-designated heritage assets has not been completed at this stage. The Proposed Scheme has the potential to result in the partial or complete loss of buried heritage assets in areas where ground disturbance is proposed outside of the existing highway, principally relating to the construction of new footways, widening of current paths and the removal and planting of trees.
Within agricultural fields, any archaeological remains present will be found immediately below the topsoil.
The potential to impact upon buried archaeological remains would be dependent upon the nature of any ground disturbance proposed.

TAG Landscape Impacts Worksheet

	Step 2	Step 3				Step 4
Features	**Description**	**Scale it matters**	**Rarity**	**Importance**	**Substitutability**	**Impact**
Pattern	The pattern of the landscape within the wider 1km Study Area is largely of low-lying, broad and flat arable farmland forming part of the floodplain for the River Cam. Arable farmland offers a broad-scale landscape of large rectilinear fields bound by drainage ditches, intermittent roadside trees and gappy hedgerows. Smaller pastoral fields, for marshland grazing, adjacent to the River Cam are bound by trees. Settlement in the north consists of small historic villages with a strong linear form. Hedges, boundary trees and shelterbelts in and around the villages creates a distinctive localised vegetation pattern and more enclosed character than the open arable farmland. To the south west of the study area is the City of Cambridge with a mixture of urban built form.	The pattern of the landscape is typical of the local area.	The landscape pattern is common at all levels.	The landscape pattern is of medium importance at the local level.	Loss of roadside and footpath vegetation can be substituted. Loss of mature trees could be replaced in the medium to long term.	**Slight beneficial** The Proposed Scheme is similar to the existing baseline pattern of the landscape, following existing routes and field boundaries. There will likely be a minor impact on vegetation and trees to accommodate the Proposed Scheme where widening sections of existing shared footpath and cycle routes is proposed. However, there will be the opportunity for strengthening existing hedgerows and providing additional tree planting. Overall, the Proposed Scheme will improve existing shared footpath and cycle routes and there will be a broadly imperceptible change to the landscape patten.
Tranquillity	Large open arable fields with pockets of pastoral grazing fields along the river, interspersed villages and rural roads provide a medium level of tranquillity. The A14 dual carriageway, which runs east - west through the study area reduces tranquillity in surrounding localised areas. Cambridge City Airport is to the south of the study area, it is a regional airport for corporate and private use and flying instruction with no public scheduled flights. This with the built form and road network from the outskirts of Cambridge in the south of the study area also reduces the tranquillity.	Tranquillity in the Study Area matters at the local level.	Available levels of tranquillity in the Study Area are locally common.	Levels of tranquillity within the Study Area are of medium importance at the local level.	Tranquillity cannot be substituted.	**Neutral** The Proposed Scheme is likely to reduce traffic on local roads by encouraging vehicle users to cycle along the Greenway instead of driving. The potential reduction in traffic, could result in a slight beneficial effect on local tranquillity. However, the increased presence of movement from users of the Proposed Scheme will be visible within and around the study area. Screening vegetation planting such as hedgerows and cyclist speed reduction measures such as seating areas, surface changes and pinch points would reduce top speeds of cyclists.
Cultural	There are no nationally designated landscape sites such as National Parks or Areas of Outstanding Natural Beauty within the 1km Study Area. However, the Proposed Scheme and study area is within Green Belt land. Anglesey Abbey Grade II* Registered Park and Garden is approximately 3km to the west of the Proposed Scheme. Villages along the route of the Proposed Scheme are locally designated as Conservation Areas (Horningsea and Fen Ditton) and include numerous Listed Buildings. The historic layout of villages follows the routes of roads and the historic field boundaries and patterns remain. The expansion of villages has led to more dense housing and a contrast in architectural style with the historic core of the villages.	The Conservation Areas, settlement layout and field pattern matter at the local level. The Anglesey Abbey grade II* Registered Park and Garden matters at a national scale but is outside of the Study Area. The Green Belt matters at a planning policy level.	Cultural links found in the Study Area are common at local and regional level. Conservation Areas are locally noteworthy but not rare nationally.	Cultural landscapes in the study area are important at a site, local and regional scale.	Cultural landscapes cannot be substituted.	**Neutral** The Proposed Scheme would follow existing shared footpath and cycle routes and roads and would pass through Horningsea and Fen Ditton Conservation Areas. There should be careful consideration to the colour of surfacing material through the two conservation areas to ensure the shade does not impact on the appearance of the culturally rich townscape. Degradation to existing field boundaries and layout surrounding the Proposed Scheme is unlikely.
Landcover	Landcover surrounding the 1km study area is a mixture of village settlements and agricultural land comprised of medium to large, rectilinear arable fields with smaller pastoral fields close to villages and adjacent to the River Cam. The River Cam flows south to north, west of the Proposed Scheme, smaller fields of grazing marshland in the floodplain are enclosed with hedgerows and boundary trees. Woodland cover is low, however there are shelterbelts around settlements, along the River Cam and leading up to and along major roads (A14).	Landcover within the study area matters at the local level.	Landcover within the study area is locally common.	Landcover in the study area is of moderate importance at a local level.	Vegetation along field margins and roadsides across the study area are replaceable. Woodland and mature tree cover would be replaceable in the medium to long term.	**Neutral** As the Proposed Scheme follows existing shared footpath and cycle routes, lanes and roads, the loss associated with the Proposed Scheme to the existing landcover would generally be limited to some vegetation cover along Wadloes Path. There would be a slight adverse effect at a localised level along Wadloes Path. However, mitigation planting along the path and Proposed Scheme as a whole means there will be a nominal and broadly imperceptible impact on the local land cover.
Summary of character	Overall, the landscape character within the Study Area is that of a relatively flat and open rural landscape with medium to large, rectilinear arable fields and smaller pastoral fields around settlement edges and along the River Cam. Scattered linear villages along local roads are screened by groups of trees, hedgerows and shelterbelts. The A14, which runs through the centre of the Study Area, and Cambridge City Airport south of the study area limits localised levels of tranquillity. There will be some vegetation clearance along Wadloes Path to accommodate the Proposed Scheme. Throughout the rest of the study area, vegetation clearance would be minimal and there is an opportunity for hedgerow and tree planting to restore some of the characteristics of the landscape. Changes to views would be minimal and not out of context with the baseline. Numerous residential receptors are adjacent to the Proposed Scheme. However, the changes proposed are typical of a road environment and are similar to the baseline.	Overall the landscape character matters at the local level.	Overall the landscape character of the Study Area is nationally, regionally, and locally common.	Overall the landscape character of the Study Area is of low importance at a national level. At local level, and regional level in the case of Green Belt land, the landscape character is of moderate importance.	Overall the landscape character across the Study Area is replaceable in the medium to long term.	**Neutral** The Proposed Scheme will be notable during the construction phase but would be short term and temporary in effect. The minor vegetation losses associated with the Proposed Scheme will not be significant when considered in the context of the overall character of the area and there is an opportunity to introduce additional planting and restore/ enhance fragmented hedgerows along the route of the Proposed Scheme. During operation, changes to the overall landscape character would be largely imperceptible as the Proposed Scheme follows existing landscape patterns and routes with the potential to increase tranquillity. To prevent cyclists reaching high speeds near settlements, suggested speed reduction measures should be embedded in the design. To limit effects on Horningsea and Fen Ditton Conservation areas, surfacing materials should be chosen to compliment the historic character of the two conservation areas. Visual effects can be mitigated with good quality design to a level that is not considered to result in the potential for significant adverse effects. The Proposed Scheme is not significantly different to the baseline views and will represent only a slight change to those experienced by close residential receptors.

Reference Sources

National Character Area Profile 46. The Fens (NCA 46) and 88. Bedfordshire and Cambridgeshire Claylands (NCA 88) – Prepared by Natural England
Greater Cambridge Landscape Character Assessment (2021) - Prepared by Chris Blandford Associates
Extrium England Noise and Air Quality Viewer (2019) Available at: http://www.extrium.co.uk/noiseviewer.html
Ordnance Survey Mapping - 1:25,000
Google Maps Satellite Imagery
MAGIC Maps

Step 5 - Summary Assessment Score

Neutral

Qualitative Comments

Although the Proposed Scheme would be notable during construction, this would be short-term and temporary in effect. The existing adjacent landscape consists of broadly open agricultural land bound by drainage ditches, hedgerows and intermittent roadside trees. The minor vegetation losses associated with the Proposed Scheme will not be significant when considered in the context of the overall character of the area. There is an opportunity for mitigation and additional planting, with which most of the visual effects can be mitigated to a level which is not considered to result in the potential for significant effects within a period of 15 years. As the Proposed Scheme is not significantly different to the baseline views and will represent only a slight change to those experienced by site users currently, the impact of the Proposed Scheme is therefore considered to be Neutral.

TAG Townscape Impacts Worksheet

	Step 2	Step 3					Step 4
Features	**Description**	**Scale it matters**	**Rarity**	**Importance**	**Substitutability**	**Changes in Without-scheme case**	**Impact**
Layout	The townscape of north-east Cambridge falls within the south and west portion of the 1km study area. It includes the residential areas of Milton, Barnwell and part of Chesterton, as well as Cambridge Business Park, Cambridge City Airport and Milton Country Park. The study area also includes the undeveloped floodplains of the River Cam, notably Stourbridge Common and Ditton Meadows and the primarily residential villages of Fen Ditton and Horningsea. The townscape has a small to medium grain of small and medium plot sizes, increasing is size within Cambridge Business Park. The townscape generally following a linear main road layout in Fen Ditton and Horningsea and a 1960s suburban layout in Barnwell.	The layout of the townscape matters on a local scale.	The townscape layout is typical.	The townscape layout is of medium to high importance at a local scale attributed to the two local designations of conservation areas in Fen Ditton and Horningsea.	The built townscape layout is substitutable however development of large areas of open space is not readily reversible.	Changes to the layout and grain without the Proposed Scheme are unlikely.	**Neutral Effect** The Proposed Scheme will integrate into the existing pattern of the townscape, following existing roads. There will be no impact on plot sizes, open spaces or the road layout associated with the Proposed Scheme. Overall, the Proposed Scheme will be a broadly imperceptible change to the townscape pattern.
Density and mix	The townscape is generally of low density including a mix of large detached residential houses in private plots and semi-detached residential properties. Cambridge Business Park occupies a mix of commercial uses in large buildings on large plots. Large areas of open green space are interspersed within the townscape and particularly towards the north on the urban fringe which give rise to small and medium sized agricultural fields.	The low density matters on a local scale.	The low density buildings is common locally and regionally.	The low density is of local importance.	Loss of low density built form is not readily reversible.	Changes to the density without the Proposed Scheme are unlikely.	**Neutral Effect** The introduction of the Horningsea Greenway would not impact the density and mix of the townscape and as such would have no impact on the density and mix of the wider townscape character.
Scale	Residential properties are small scale although some large properties are present. They are typically two to three storeys and either detached or semi-detached. Business Park buildings are large in scale, occupying large areas but remain 2-3 storeys in height.	The scale of buildings matters locally.	The scale of the buildings is common locally.	The small scale of buildings is of medium importance locally.	Loss of townscape scale is of low substitutability.	Changes to the scale of the townscape without the Proposed Scheme are unlikely.	**Neutral Effect** The introduction of the Proposed Scheme would not impact the scale of the Site and surrounding area.
Appearance	The townscape includes a mixture of architectural styles and periods with the dominant material being brick which is reflective of the gradual mix of urban expansion since the late 1800s. The townscape accommodates a tidy and spacious appearance with brick boundaries in the villages of Fen Ditton and Horningsea while to the south in Barnwell are wide tree lined streets with grass verges and fence or hedgerow boundaries. Howard Road in Barnwell adopts a tarmac road and separate subtly burgundy tarmac footway/cycleway on the northern side separated by a wide tree-lined grass verge. High Street and Horningsea Road in Fen Ditton are also tarmac roads with narrow footpaths either side, gray in colour. Horningsea Road within the village of Horningsea adopts a red/burgundy colour to the tarmac surface.	The townscape appearance matters on a local scale.	Townscape appearance is relatively common locally.	The appearance to the east is important locally.	The mixture of architectural styles is substitutable over time however the historic features and range is not readily substitutable.	Changes to the appearance of the townscape are unlikely.	**Neutral to Slight Adverse Effect** The Proposed Scheme will not change the appearance of built form within the existing townscape. The key change will be the use of red surfacing for the cycle lane on High Street in Fen Ditton. While this change is not large enough to affect the wider townscape appearance, a bright red would be at odds with the historic character and negatively local impact views resulting in a slight adverse effect.
Human Interaction	The townscape being predominantly residential has low human interaction with some interactions including shops, a public house, and bus stops on the village high streets. A shared cycle and pedestrian footway along PRoW 85/1 following the route of the Proposed Scheme provides some further human interaction.	The levels of human interaction matter on a local scale.	The levels of human interaction are common locally.	Provision of footways/cycleways are of high importance locally. Low levels of human activity are important to the quiet character.	Human interaction has a high potential for substitution.	Levels of human activity along High Street and Horningsea Road may increase as a result of the Proposed Scheme.	**Neutral Effect** The existing human activity including pedestrians and cyclists will likely be increased along High Street and Horningsea Road by the Proposed Scheme. However this will be along an already busy route and will likely be used as a thoroughfare rather than for human interaction with other townscape features.
Cultural	The townscape comprises numerous period buildings and sympathetic architecture that positively contribute to the cultural value of the townscape. They are locally designated by Conservation Areas. The cultural contribution is situated in the villages of Fen Ditton and Horningsea. The relatively modern architecture (post 1960s) of Barnwell is more notable in scale within the area but as they are generally set back from the roads and hidden from view they do not feature strongly within the visual townscape envelope.	The cultural contribution is important locally.	The cultural contribution is common locally.	The cultural contribution is of high importance locally.	The cultural contribution is not readily substitutable.	Changes to the cultural contribution of the townscape are low without the Proposed Scheme.	**Neutral Effect** Given that no features of cultural value would be altered as a result of the Proposed Scheme, the cultural contribution of the townscape will not change.
Landuse	The Proposed Scheme is situated within urban fringe, occupied by residential properties and some business park buildings. Agricultural fields punctuate the built up areas within the Study Area but are particularly abundant to the northern urban fringe between and around the villages of Fen Ditton and Horningsea. The open space is designated as Green Belt. The urban areas are occupied by footways and carriageways.	The land use matters locally. Green Belt open space matter regionally.	The land use is common locally.	The combination of land use is important locally. Open space within the Green Belt is important regionally.	Change of use of buildings is relatively easily reversed however this form of change is uncommon. Open space is irreplaceable. Land use of roads and cycleways is readily substitutable.	Changes to the land use of the site are unlikely without the Proposed Scheme.	**Neutral Effect** The change of land use would be in character with the existing.
Summary of Character	The townscape is of low scale residential urban fringe with villages at Fen Ditton and Horningsea. The road layout follows the main roads with tributary side streets. The area features buildings two villages that contribute to the cultural value and provide an attractive appearance. There is a quiet character off the main roads, particularly to the north where housing gives rise to agricultural fields protected under Green Belt. The low level of commercial buildings outside of Cambridge Business Park within the area has resulted in low levels of human interaction that create a generally quiet character.	Overall the townscape character in Fen Ditton and Horningsea matters locally where the townscape is designated locally by Conservation Areas. The open character to the north matters regionally and is protected as Green Belt.	Overall the townscape is relatively common.	Overall the townscape in the villages is important locally and the open nature of the townscape to the north is important regionally.	Overall the site and surrounding area is generally substitutable with the low density and areas of open space being not readily substitutable.	Overall, changes to the Site and surrounding area without the Proposed Scheme are unlikely.	**Neutral Effect** The Proposed Scheme will be notable at construction but would be short term and temporary in effect. Construction related activity is not out of character with a built-up area. During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. However the impact of red surfacing should be carefully considered in the designated locality of Fen Ditton Conservation Area to ensure the shade does not impact on the appearance of the culturally rich townscape. A bright red would result in a slight adverse effect. Overall, the changes are minor and do not impact wider townscape character and offer only minor changes to localised visual receptors.

Reference Sources

National Character Area Profile 88. Bedfordshire and Cambridgeshire Claylands (NCA 88) – Prepared by Natural England
Greater Cambridge Landscape Character Assessment (2021) - Prepared by Chris Blandford Associates
Fen Ditton Conservation Area Appraisal (2005) and Horningsea Conservation Area Appraisal (2005) - Prepared by South Cambridgeshire District Council
Ordnance Survey Mapping - 1:25,000
Google Maps Satellite Imagery

Step 5 - Summary Assessment Score

Neutral

Qualitative Comments

The Proposed Scheme will be notable at construction but would be short term and temporary in effect. Construction related activity is not out of character with a built-up area.
During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. However the impact of red surfacing should be carefully considered in the designated locality of Fen Ditton Conservation Area to ensure the shade does not impact on the appearance of the culturally rich townscape. A bright red would result in a slight adverse effect. Overall, the changes are minor and do not impact wider townscape character and offer only minor changes to localised visual receptors.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
Area	**Description of feature/ attribute**	**Scale (at which**	**Importance (of attribute)**	**Trend (in relation to target)**	**Biodiversity and**	**Magnitude of impact**	**Assessment Score**
Eversden and Wimpole Woods Special Area of Conservation (SAC)	Ancient coppice woodland (Eversden Wood) and high forest woods likely to be of more recent origin (Wimpole Woods). Designated for Annex II species that are a primary reason for selection of this site: - Barbastelle *Barbastella barbastellus*	**International**	**High -** Primary species of importance is barbastelle, a species of bat. A colony is associated with trees in Wimpole Woods. The colony uses trees as a summer maternity roost and the wider area for foraging. Flight paths such as hedgerows and other parts of woodland may be used when bats forage outside the SAC.	**Unknown** - The population trend of the colony is unknown as is the extent and availability of offsite habitat. The following document has been published that includes specific restoration targets for the qualifying features of the SAC: *European Site Conservation Objectives: Supplementary advice on conserving and restoring site features (Natural England 2019).*	**Very high -** Internationally important site with limited potential for substitution.	**Neutral** - The Proposed Scheme will not impose any direct or indirect impact on the SAC. The Proposed Scheme is 14km north east of the SAC which is out side the Core Sustenance Zone (CSZ; a measure of the area on which the bat colony depends for feeding) of the SAC and it is considered unlikely that barbastelle roost on Site. Additionally whilst some individual trees may be lost for the Proposed Scheme, no full hedgerows or lines of trees will be lost, and so commuting and foraging habitat will not be impacted.	**Neutral**
Fenland Special Area of Conservation (SAC)	The Fenland SAC is a network of three wetland sites comprising Woodwalton Fen, Wicken Fen and Chippenham Fen. These consist of habitats including fens and marshes with areas of deciduous woodland small areas of arable land and inland water bodies including drainage ditches. The Proposed Scheme is 8.5km from the nearest of the three SAC wetland sites, Wicken Fen. The SAC has Annex I habitats which are the primary reason for the sites designation: - 6410 *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*); and -7210 Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* The SAC also has Annex II species present but these are not the primary reason for designation: -1149 Spined loach *Cobitis taenia;* -1166 Great crested newt *Triturus cristatus*	**International**	**High -** Habitats that are a primary reason for designation include *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) and Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. The Fenland holds one of the most extensive examples of the tall herb-rich East Anglian type of M24 *Molinia caerulea – Cirsium dissectum* fen-meadow. It is important for the conservation of the geographical and ecological range of the habitat type, as this type of fen-meadow is rare and ecologically	**Varying** - The trend for the target features which are the reason for the SAC's designation vary at each of the three wetland sites. However at Wicken Fen, which is the closest of the three sites, all features are in favourable condition.	**Very high -** Internationally important site with limited potential for substitution.	**Neutral** - The Proposed Scheme will not impact the Fenland SAC as it is 8.5km away and not ecologically or hydrologically connected to it. Furthermore, the Proposed Scheme is considered to be of a low impact in an already urban landscape.	**Neutral**
Local Nature Reserves (LNR)	There are five LNR's within 2km of the Proposed Scheme. These comprise: -Barnwell LNR; grassland -Barnwell II LNR; -Coldhams Common LNR; -Bramblefields LNR; and -Logan's Meadow LNR These sites consist of grassland habitats with scrub and are important for birds and invertebrates.	**National**	**Medium-** Various LNR around Cambridge consisting of grassland and scrub habitats with importance for birds and invertebrates.	**Unknown** - A trend in relation to the target feature is not known.	**High -** Statutory Designated Sites	**Neutral -** The Proposed Scheme will not impact the LNR's as the closest site is 0.9km east of the Proposed Scheme and not connected hydrologically or through wildlife corridors. Furthermore, the Proposed Scheme is considered to be of a low impact in an already urban landscape.	**Neutral**
Ditton Meadows County Wildlife Site (CiWS)	The CiWS lies within the flood plain of the River Cam. A central drain qualifies as species rich linear water body and also, for NVC S6 Greater Pond-sedge swamp. Coldham's Brook which is within the CiWS qualifies as unmodified chalk stream.	**Local**	**Low-** Non-statutory designated site	**Unknown** - A trend in relation to the target feature is not known.	**Low -** Non-Statutory Designated Sites	**Neutral -** The Proposed Scheme is 0.06km east of the CiWS, and directly connected hydrologically and ecologically. There is potential for the Proposed Scheme to result in pollution of the CiWS, and pollution control measures will need to be in place. With pollution control impacts to the CiWS will be neutral.	**Neutral**
Non-Statutory Designated Sites	There are six County Wildlife Sites (CWS) and 11 further CiWS as well as one Protected Road Verge within 2km of the Proposed Scheme.	**Local**	**Low-** Non-statutory designated site	**Unknown** - A trend in relation to the target feature is not known.	**Low -** Non-Statutory Designated Sites	**Neutral -** The Proposed Scheme is not expected to impact any of these non-statutory designated sites, as there is a lack of hydrological links, or wildlife corridors connecting the Proposed Scheme to the non-statutory designated sites. Furthermore the Proposed Scheme is considered to be of low impact in an already urban landscape.	**Neutral**
Hedgerows (including potential Important hedgerows)	There are many hedgerows within the Proposed Scheme. Further surveys would need to be undertaken to determine if any of the hedgerows are considered 'Important Hedgerows' under the Hedgerows Regulations 1997.	**Local**	**High -** Review of satellite imagery and information in the ecological constraints report by Milestone (2022) has identified a number of hedgerows within the Proposed Scheme. Hedgerows are an important landscape feature and provide habitat connectivity and high value to a range of wildlife.	**Declining** - The lengths of managed hedgerow decreased by 6.1% in the UK between 1998 and 2007. Abundance and distribution of hedgerow trees is declining, as recognised by the Countryside Survey 2000. Old and mature hedgerows are uncommon in Cambridge. Hedgerows are listed as a Priority Habitat within Cambridge.	**Medium** - A Local value habitat with limited potential for substitution.	**Neutral -** The hedgerows act as boundaries rather than being crossed by the Proposed Scheme. It is considered unlikely that they will be impacted by the Proposed Scheme.	**Neutral**
Bats	Habitats present within the footprint of the Proposed Scheme, include, hedgerows, mature trees and scrub. These provide suitable habitat for foraging, commuting and roosting bats. A biological records search has identified nine bat species within 2km of the Proposed Scheme including brown long-eared bat *Plecotus auratus*, common pipistrelle *Pipistrellus pipistrellus*, Daubenton's bat *Myotis daubentonii*, Nathusius' pipistrelle *Pipistrellus nathusii*, noctule bat *Nyctalus noctule*, serotine *Eptesicus serotinus*, soprano pipistrelle *Pipistrellus pygmaeus*, Natterer's bat *Myotis nattereri* and leislers bat *Nyctalus leisleri*. Further survey is required to determine whether roosting bats are present within suitable roosting habitat within and adjacent to the Proposed Scheme.	**National**	**Medium -** hedgerows intersecting the Proposed Scheme may be used by commuting and foraging bats. Trees could be suitable for roosting bats.	**Varying** - Species dependant- Some bat species have decreased in England and some have increased.	**High** - All bats are protected under the Conservation of Habitat and Species Regulations 2017.	**Minor Negative-** Some individual trees may be lost to the Proposed Scheme and a Ground Level Tree Assessment will be required to assess whether they are suitable for roosting bats. The Proposed Scheme is not anticipated to impact any hedgerows, however lighting has been proposed between two lines of trees. This will need to be designed sensitively to bats to avoid disturbance to foraging and commuting bats.	**Slight Adverse**
Badgers *Meles meles*	Badgers are offered protection under the Protection of Badgers Act 1992. Hedgerows, scrub and grassland provide suitable habitat for foraging badgers, and suitable locations for sett construction. A biological records search identified that the closest record of badger was 1.29km south west of the Proposed Scheme.	**Local**	**Low -** suitable habitat is present within the footprint of the Proposed Scheme based on satellite imagery. A badger survey of the Proposed Scheme has not yet been undertaken.	**Unknown** - The county trend for this species is not known within Cambridgeshire, however nationally badgers have shown a significant increase in numbers (c.88% since the 1980s).	**Low** - badger are a species of medium biodiversity value on a national and local level.	**Minor Negative-** A badger survey has not been undertaken for the Proposed Scheme, and further surveys have been recommended to identify whether there are any badgers within suitable sett building habitat.	**Slight Adverse**
Water vole *Arvicola amphibius*	Water voles are protected under Schedule 5 of the Wildlife and Countryside Act (1981) and the Conservation of Habitats and Species Regulations (2017). Open Source maps indicates that there is one drainage ditch which runs adjacent to a southern section of the Proposed Scheme. A biological records search identified that the closest water vole recording was just 0.03km south of the Proposed Scheme. It is therefore likely that water vole could be present within the footprint of the Proposed Scheme.	**Regional**	**Low** - One drainage ditch runs adjacent to the Proposed Scheme and it is unknown whether they provide suitable habitat for water vole.	**Declining** - According to the National Water Vole Database and Mapping Project (McGuire and Whitfield, 2017).	**High -** Water vole is a species of high biodiversity value.	**Minor Negative -** the Proposed Scheme has the potential to impact the terrestrial banks of the ditch. A survey will be undertaken, and a mitigation strategy for the Proposed Scheme based on the findings of these surveys will be required.	**Slight Adverse**
Otter *Lutra lutra*	Otters are protected under Schedule 5 of the Wildlife and Countryside Act (1981) and the Conservation of Habitats and Species Regulations (2017). Open Source maps indicate that there one drainage ditch which runs adjacent to a southern section of the Proposed Scheme. A biological records search identified that the closest otter recording was 0.14km west of the Proposed Scheme. At this stage a survey has not been undertaken and it is unknown whether it provides suitable habitat for otter.	**Regional**	**Low** - One drainage ditch runs adjacent to the Proposed Scheme and it is unknown whether they provide suitable habitat for otter.	**Increasing** - According to research by the Wildlife Trust and the Cambridgeshire Mammal Group in 2022 otter populations are increasing nationally and have been increasing in Cambridgeshire since 1990.	**High** - Otter is a species of high biodiversity value.	**Minor Negative** - the Proposed Scheme has the potential to impact the banks of the ditch with unknown potential for otter. A survey will be undertaken, and a mitigation strategy for the Proposed Scheme based on the findings of these surveys will be required.	**Slight Adverse**
Birds	Habitats present, such as scrub, hedgerows, trees, arable crops and grassland are suitable for use by common and widespread nesting birds. All wild birds, and their nests whilst in use, are protected under the Wildlife and Countryside Act (1981). A biological records search identified 44 bird species recorded within 2km of the Proposed Scheme.	**Local**	**Low -** impacts to breeding birds are anticipated to be minimal due to the limited habitat loss required to facilitate the Proposed Scheme.	**Varying** - Species dependent - some bird species are in significant decline nationally and locally within Cambridgeshire.	**Low -** The Proposed Scheme is likely to support a diverse range of breeding and wintering bird species of local importance.	**Neutral -** Following the implementation of suitable precautionary measures during construction works, the Proposed Scheme would result in negligible impacts to breeding birds because of negligible habitat loss anticipated. There would be no operational impacts on birds.	**Neutral**
Barn owl *Tyto alba*	Barn owl are a Schedule 1 species under the Wildlife and Countryside Act (1981) and protected from disturbance during nesting. Further survey is required to determine whether trees within and adjacent to the Proposed Scheme are suitable for nesting barn owl.	**Regional**	**High -** Barn owl is a Schedule 1 species. Further survey is required to determine whether any trees lost to the Proposed Scheme are suitable for nesting barn owl.	**Increasing-** The '*State of the UK Barn Owl population - 2021*' report suggests an overall rise in nesting occupancy of known barn owl nest locations across the UK. Cambridgeshire has a significant local population.	**Medium** - Barn owl are of medium biodiversity value on a National and Local level.	**Neutral -** It is anticipated that minimal trees will be removed and further survey will determine whether barn owls are present. Should they be found to be present mitigation will be focused on avoidance strategies. No collision risk to barn owls once the Proposed Scheme is operational as the Proposed Scheme will be designed to support non-motorised users only.	**Neutral**
Reptiles (common and widespread species)	Native widespread reptile species (adder *Vipera berus*, common lizard *zootoca vivipara*, grass snake *Natrix helvetica* and slow worm *Anguis fragilis*) are protected from killing and injury under Schedule 5 of the Wildlife and Countryside Act (1981). Reptiles, such as grass snake, slow worm and common lizard, may be present in low numbers in suitable habitat such as grassland, hedgerow margins and scrub. There is no suitable habitat for adder within the footprint of the Proposed Scheme. A biological records search identified common lizard and grass snake within 2km of the Proposed Scheme.	**Local**	**Low** - reptiles are likely to be present in low numbers in habitats adjacent to the Proposed Scheme. With minimal habitat to be removed for the Proposed Scheme, it is unlikely to impact reptiles at more than a local level.	**Varying -** Species dependent - numbers of grass snake and slow worm are in general decline nationally, but fairly common in Cambridgeshire.	**Medium** - reptiles are a species of medium biodiversity value on a national and local level.	**Neutral -** minimal habitat is due to be removed for the Proposed Scheme. Through the implementation of precautionary works during the construction phase, the Proposed Scheme would have only negligible impacts on reptiles. The potential killing/ injury of any reptiles on Site will be avoided.	**Neutral**
Amphibians (Great Crested Newt *Triturus cristatus)*	Great crested newts (GCN) are protected under the following legislation: - Annexes II and IV of the Habitats Directive - Conservation of Habitats and Species Regulations (Schedule 2) - Wildlife and Countryside Act (1981) (Schedule 5). Great crested newts are also listed as SPI in accordance with Section 41 of the NERC Act 2006. There are two ponds within 250m of the Proposed Scheme. It is unknown whether these ponds are suitable for great crested newts. There is suitable terrestrial habitat for great crested newts within the footprint of the Proposed Scheme and a biological records search has identified great crested newts within 2km of the Proposed Scheme.	**Local**	**Medium** - two ponds within 250m of the Proposed Scheme which may be suitable for breeding great crested newt.	**Declining -** GCN population has declined over much of European range (Froglife 2001), however they are widespread across England and Wales. Significant proportion of national population within Cambridgeshire and Peterborough, with the largest UK (possibly largest European) population near Peterborough.	**High** - GCN are of high biodiversity value on a local and national level.	**Neutral -** minimal habitat is due to be removed for the Proposed Scheme. Impacts should be neutral on completion of the Proposed Scheme, but there is a low level of risk through the construction phase, and therefore precautionary works should be undertaken under a Non-Licensed Method Statement (NLMS). However harm to great crested newts is considered highly unlikely according to the Natural England Rapid Risk Assessment Tool for great crested newts and with the NLMS in place impacts will be neutral.	**Neutral**
Amphibians (Other amphibians)	There is likely suitable terrestrial habitat on Site for other common amphibian species additionally to GCN including the common toad, which is a SPI in accordance with Section 41 of the NERC Act 2006. There are two ponds within 250m of the Proposed Scheme. There is suitable terrestrial habitat on Site within 250m of these ponds. Additionally, ponds are not separated from the Site by a major barrier such as a dual carriageway or major water course. Potential terrestrial habitat includes hedgerows, tree lines and grassland. A biological records search has identified toads within 2km of the Proposed Scheme.	**Local**	**Low -** amphibians are likely to be present in low numbers in habitats adjacent to the Site. With minimal habitat to be removed for the Proposed Scheme, it is unlikely to effect amphibians at more than a local level.	**Varying -** Species dependent	**Low -** Amphibians (with exception of great crested newts) are of low biodiversity value.	**Neutral -** minimal habitat is due to be removed for the Proposed Scheme. Following the implementation of precautionary works during the construction phase, potential impacts of the Proposed Scheme on amphibians would be negligible.	**Neutral**
Hedgehog (*Erinaceus europaeus*)	Habitats within the footprint of the Proposed Scheme include hedgerows and scrub which offer valuable habitat to hedgehogs. This species is a SPI.	**Local**	**Low** - Minimal habitat will be lost.	**Declining -** According to the State of Britain's Hedgehogs 2022 report by the Peoples Trust For Endangered Animals and the British Hedgehog Preservation Society, Hedgehogs are declining nationally.	**Low** - Hedgehog are a species of low biodiversity value on a national and local level.	**Neutral -** The Proposed Scheme comprises a narrow, linear site which will impact small areas of scrub. The hedgerows within the footprint of the Proposed Scheme act as boundaries and would not be removed or crossed.	**Neutral**
Brown hare *Lepus europeaus*	Habitats within the footprint of the Proposed Scheme include open arable farmland and fields, which offer valuable habitat to brown hare. This species is a SPI.	**Local**	**Low** - brown hare are relatively widespread within the UK.	**Declining -** brown hare have been in decline for the last 100 years, by 80% according to the Hare Preservation Trust, 2022. The species is however common and widespread in Cambridgeshire (Cambridgeshire Mammal Group, 2016).	**Low** - brown hare are a species of low biodiversity value on a national and local level.	**Neutral -** The Proposed Scheme comprises a narrow, linear site which would impact negligible areas of potentially suitable arable and grassland habitat.	**Neutral**

Reference Sources

Cambridgeshire And Peterborough Environmental Records Centre (CPERC) 2023 Horningsea Biological Records Search
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Summary Assessment Score

Slight Adverse

Qualitative Comments

Overall the Assessment Score is "slight adverse" due to potential impacts affecting bats, badgers, otter, water vole and great crested newts, largely due to small areas of habitat removed to facilitate the Proposed Scheme, and potential impacts on watercourses. Mitigation proposals should be developed which may include the following mitigation and enhancement measures:
-Pollution control measures;
-Precautionary works and a NLMS for great crested newts;
-Wildlife planting, to include areas with wildflowers;
- Woodland understory planting to improve species richness and condition of retained woodlands;
- Log piles and hibernacula for wildlife, in particular reptiles, this would be of particular value in the rural areas of the Site including within hedgerow margins and woodland;
- Bird and bat boxes;
- Invertebrate hotels.

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