Cambridge and Peterborough JPSF

GREATER CAMBRIDGE GREENWAYS - BOTTISHAM GREENWAY

Outline Business Case

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CONFIDENTIAL

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1.1 OVERVIEW

1.1.1. The Bottisham Greenway scheme will offer improved active mode connectivity. The Greenway will include upgrades to shared-use paths and a short section of new off-road shared path on a 10.7km long route between Bottisham Lode Road, and Midsummer Common / Riverside in Cambridge city centre. The scheme will also include traffic calming measures to create a quiet street environment and new and improved signage.

1.1.2. This Strategic Case for the Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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. GCP was formed following the deal being made and is the local delivery body, responsible for overseeing the delivery of the City Deal and the promotion of local economic growth and development. 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 Bottisham 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,

shops and transport hubs. 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 the village of Bottisham, Fen Ditton are of Cambridge and the city centre. The scheme will also reduce community severance by improving transport links between the places where people live, work and shop, thus encouraging more walking and cycling trips.

1.4 SCHEME BACKGROUND

1.4.1. The Bottisham 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. Additionally, the scheme also contributes to making local journeys, such as school and nursery runs safer and easier.

1.4.2. As shown in Figure 1-1 Bottisham Greenway provides improvements to walking and cycling facilities between the village of Bottisham and Cambridge city centre (Midsummer Common). The Greenway will offer connections to the Swaffhams and Horningsea Greenways and the Chisholm Trail.

1.4.3. 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.

1.4.4. The Bottisham Greenway has undergone several consultations with the stakeholders since 2016 and was approved by the GCP Executive Board in June 2020.

Figure 1-1: Bottisham Greenway

Source: GCP

1.5 POLICY CONTEXT

1.5.1. This section provides the policy context within which the development of the Bottisham 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.

NATIONAL POLICY

1.5.2. The alignment of the Bottisham 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	Bottisham 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 Bottisham 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 walking infrastructure between Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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 routes are designed to be inclusive of different stakeholder groups as outlined in both the CWIS and LTN 1/20. Delivery of the Bottisham 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 Bottisham Greenway will help to further the sustainable development goals of the NPFF 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 Bottisham Greenway will help to achieve the objectives of the TIS by providing an alternative to car travel, 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.

REGIONAL POLICY

1.5.4. The alignment of the Bottisham Greenway with regional policy is shown in 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	Bottisham 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 Bottisham 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 Bottisham Greenway will directly contribute to the furthering of this strategic aim to 'improve local and rural connectivity.' The Bottisham 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 Bottisham 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 Bottisham 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.
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 Bottisham Greenways 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 Bottisham Greenway scheme will encourage mode shift to sustainable modes of transport by providing active travel infrastructure.

LOCAL POLICY

1.5.5. This section addresses local policies and the alignment of the Bottisham 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 Bottisham Greenway will provide connections for the residents of new homes 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 Bottisham 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.

East Cambridgeshire Local Plan (2015)

1.5.9. The East Cambridgeshire Local Plan is part of the Development Plan for the District, setting out the vision, objectives, spatial strategy and planning policies of the district to deliver planned growth for the district to 2031. The strategic vision includes the provision of 'better cycling and walking facilities and links including segregated cycle routes along key routes linking towns and villages.'

1.5.10. The Bottisham Greenway will provide upgraded cycling walking facilities and connections for local residents and provide an opportunity for encouraging the use of active modes.

First Proposals: Emerging Greater Cambridge Local Plan (2021)

1.5.11. 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.

1.5.12. Delivery of the Bottisham 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. They will also contribute to a reduction in greenhouse gas emissions through reducing the demand on the road network and thereby levels of congestion.

Active Travel Strategy for Cambridgeshire Consultation Draft (2022)

1.5.13. The Active Travel Strategy for Cambridgeshire, currently at consultation stage, 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.

1.5.14. 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

1.5.15. Delivery of the Bottisham Greenway contributes to three 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 programme 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

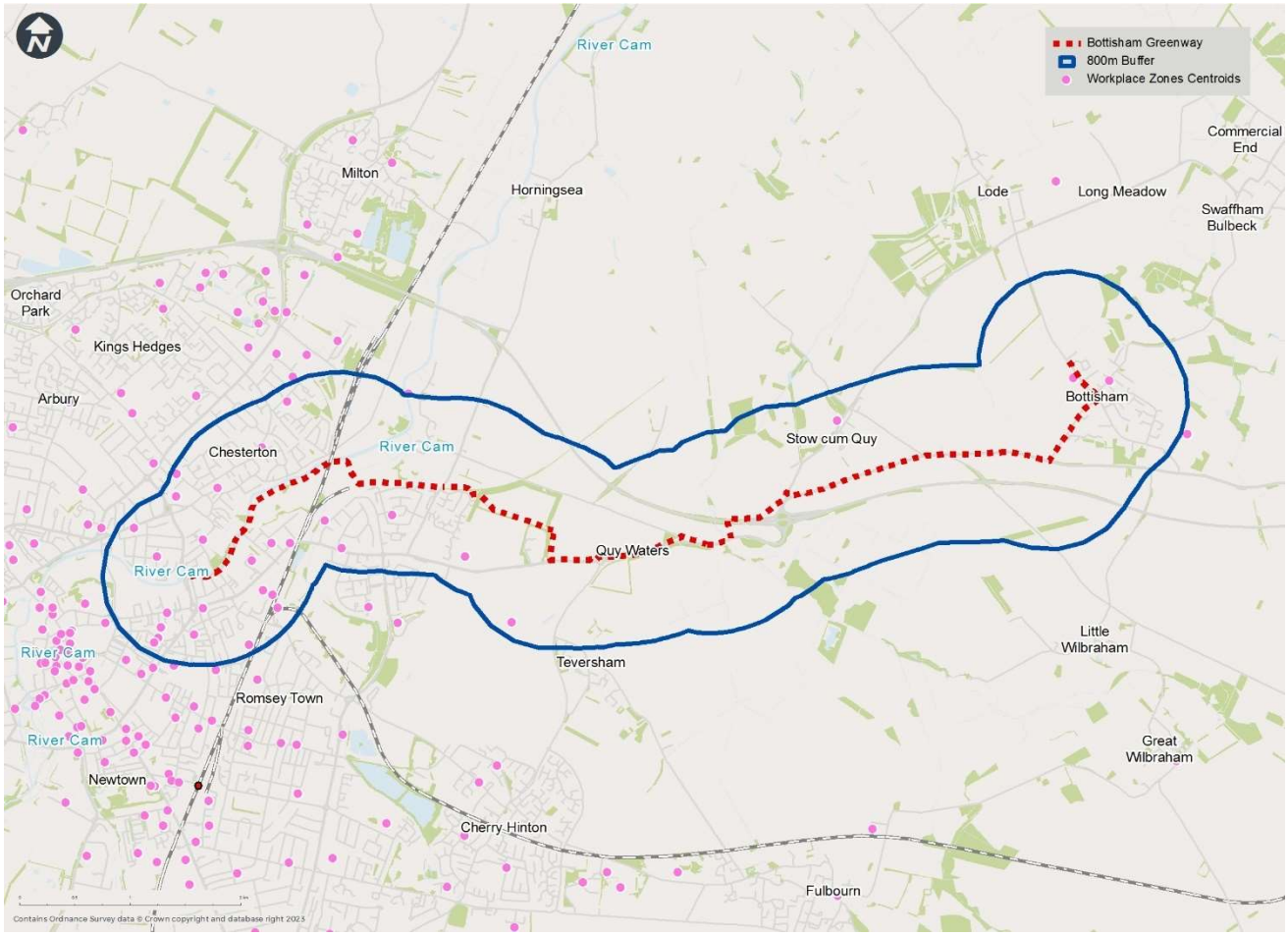
ECONOMIC CONTEXT

1.6.1. Bottisham is a village in East Cambridgeshire district situated approximately 7 miles east of Cambridge and 6 miles west of Newmarket. The population in Bottisham in 2015 was around 2290[1] which was projected to grow over the next 20 years. Due to this growth, new housing development are proposed on 'infill' sites within the village alongside a new proposed housing allocation on the edge of Bottisham, off Bell Road. It is estimated that around 99 new dwellings would be required in Bottisham until 2031.

1.6.2. Most of the local employment in Bottisham are provided by the existing business park at Tunbridge Court on Tunbridge Lane while the other local employment areas in the village include schools, retail outlets and health facilities, as shown by the workplace zone centroids in Figure 1-2. However, the local opportunities for employment in Bottisham and its neighbouring areas are limited compared to other larger settlements in the district.

[1] Local Plan April 2015 - front cover and inside front cover_0.pdf (eastcambs.gov.uk)

Figure 1-2: Workplace zone centroids in the study area

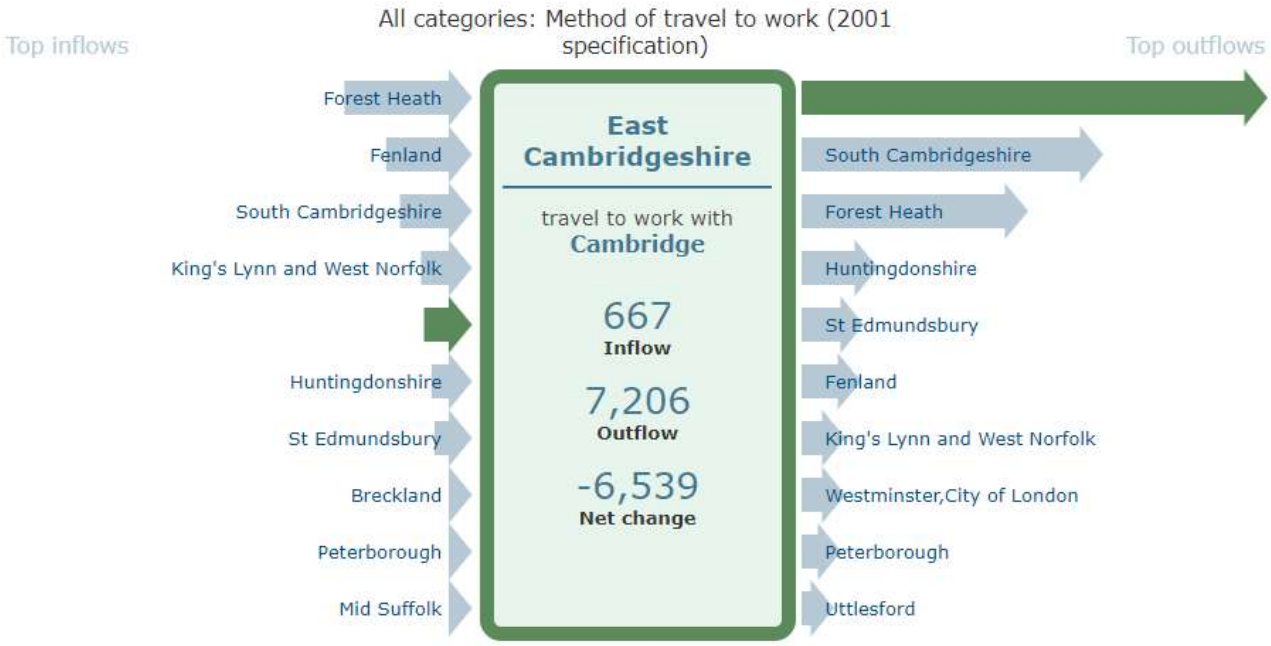


1.6.3. Cambridge is a renowned leading centre for research and innovation and is home to one of the fastest growing economies in Europe. The city embodies the key foundations of the National Industrial Strategy for the UK to become the world's most innovative economy and has built a reputation as an attractive location to invest and expand businesses, bringing businesses to Cambridge, with the birth of 5,130 new businesses in 2019.[2] As such, the 'Cambridge Phenomenon' is a term that describes the thriving high-tech and biotech industries. The 'Cambridge Phenomenon' and the rapid business growth associated with it has created a large number of jobs in the Greater Cambridge area.

1.6.4. Due to its proximity to Cambridge, many of the residents in east Cambridgeshire including Bottisham commute to the Cambridge for employment opportunities as is evident from the Nomis data in Figure 1-3.

[2] https://cambridgeshireinsight.org.uk/economy/

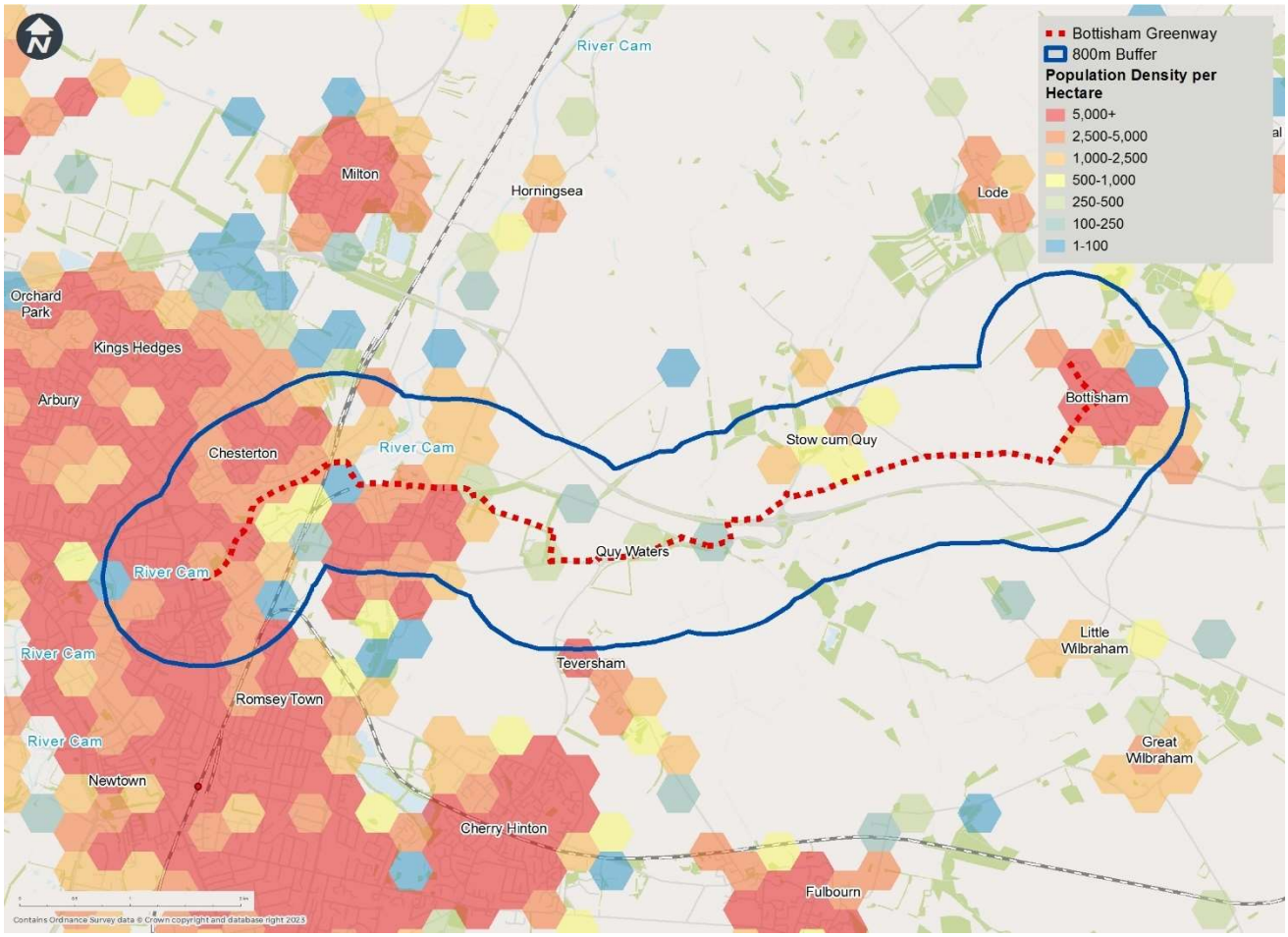
Figure 1-3: Origin and destination for commuting trips



1.6.5. The scheme corridor is an important radial NCN corridor into Cambridge city from the east. In addition to linking high density settlement in Bottisham with Cambridge city, the scheme corridor passes through a number of other settlements in east of Cambridge including high density areas in Barnwell, Stourbridge Common, Chesterton and Midsummer Common as shown in Figure 1-4.

1.6.6. Due to the large number of people travelling from the urban fringes to the employment centres in Cambridge, a direct sustainable travel link from these settlements to Cambridge is required.

Figure 1-4: Population density



1.6.7. A number of allocation sites containing around 4260 new dwellings[3] along with commercial and residential developments in Stow cum Quy are proposed which lie within the direct influence area of the scheme corridor. Additionally, a portion of the planned North East Cambridge site containing 3900 dwellings also lie within the influence area of the corridor.

1.6.8. Substantial development is allocated along A1303 Newmarket Road, including an 'Eastern Quarter'[4] at Cambridge East in combination with 1,300 dwellings being built-out and occupied at Marleigh.

1.6.9. Due to the previously mentioned 'Cambridge Phenomenon', a large number of commuting trips to Cambridge would be generated from these developments along with a significantly large number of shorter trips for daily needs within the local communities.

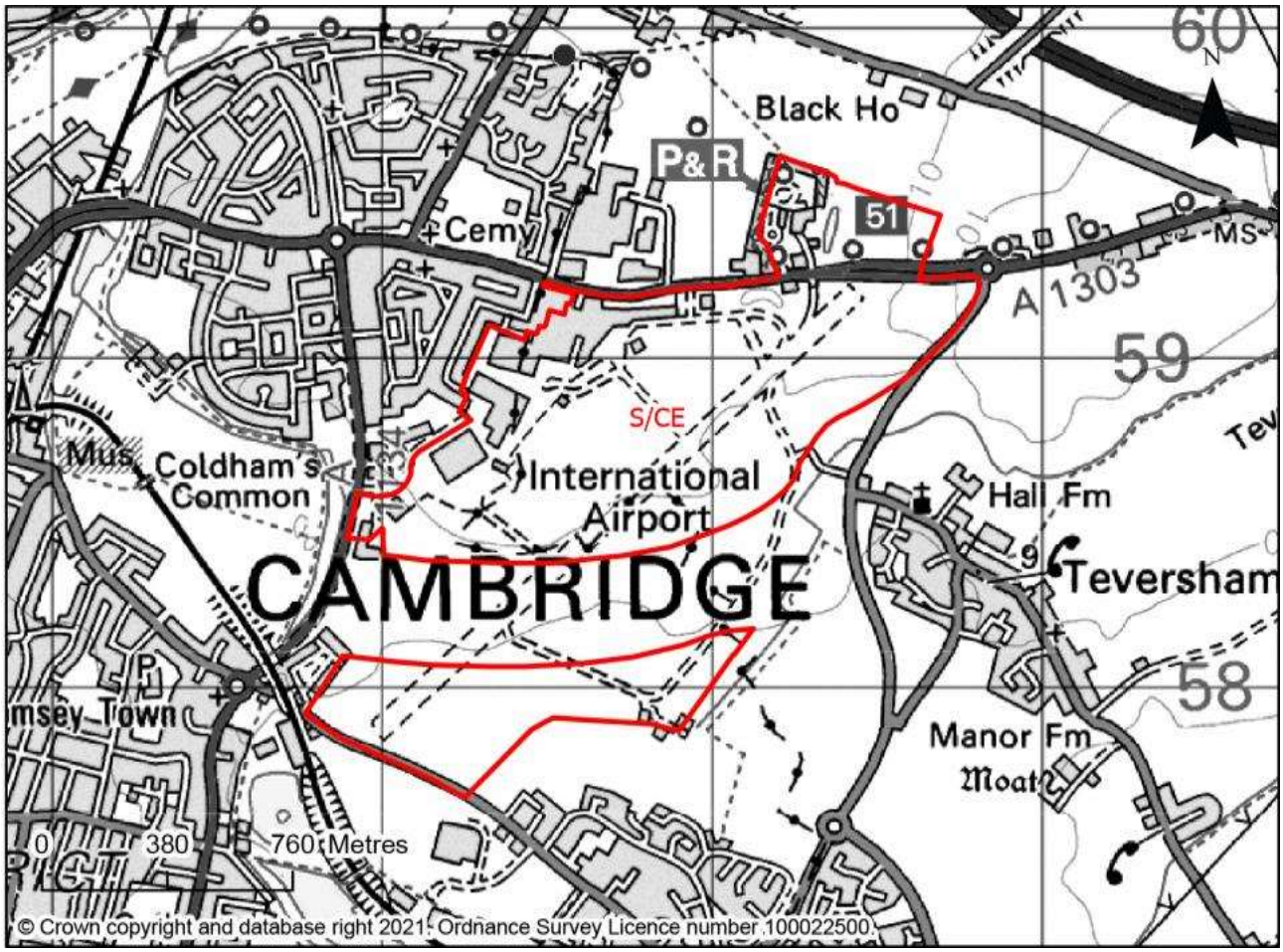
1.6.10. In East Cambridgeshire, the population size has increased by 4.6% from around 84,200 in 2011 to 88,100 in 2021 as compared to the 6.6% overall increase in England. Strategic Housing Market

[3] Greater Cambridge Local Plan: First Proposals, November 2021 (3csharedservices.org)
[4] The Joint Greater Cambridge Local Plan covering Cambridge and South Cambridgeshire, currently in development, is anticipated to allocate land for a major new 'Eastern Quarter' for Cambridge

Assessment (SHMA) identifies a need for 11,500 dwellings in East Cambridgeshire between 2011 and 2031 along with a minimum requirement of 9,200 new jobs in the district between 2011 and 2031 or approximately 460 per annum.

1.6.11. The Cambridge and South Cambridgeshire Local Plans identify a combined need for 33,500 homes and 44,000 jobs over a period of 13 years between 2018 and 2031. Cambridge East, shown in Figure 1-5, is identified as a strategic development site in both the Local Plans which will redevelop the Airport site to provide new homes and jobs. The Cambridge East site also includes potential development land north of Newmarket Road covering the existing Park and Ride site.

Figure 1-5: Map showing boundary of proposed Cambridge East allocation



1.6.12. The Joint Greater Cambridge Local Plan covering Cambridge and South Cambridgeshire, currently in development, is anticipated to allocate land[5] for a major new eastern quarter for Cambridge, enabling development of the airport site which was safeguarded for longer term development in the 2018 adopted Local Plans:

[5] Greater Cambridge Local Plan - First Proposals

- For approximately 7,000 homes, including affordable homes, and 9,000 jobs on the 'safeguarded land' identified in the 2018 Local Plans at Cambridge Airport. It is anticipated that around 2,900 homes will be delivered by 2041.
- Development is also reliant on the successful implementation of a Trip Budget approach, to ensure that the level of vehicle trips is limited to an appropriate level for the surrounding road network.

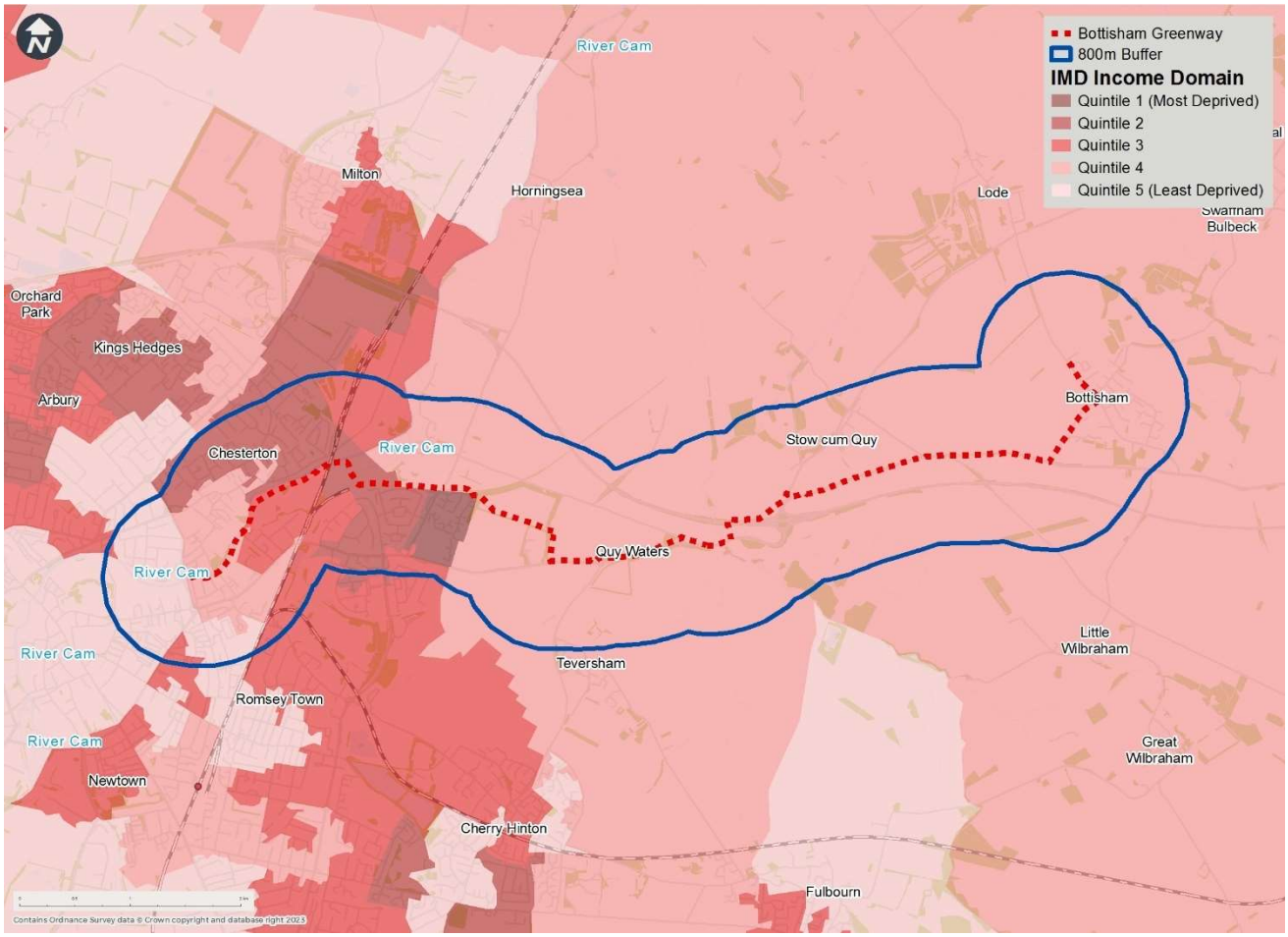
1.6.13. To deliver sustainable and well-connected new communities, high quality and attractive active travel and public transport infrastructure needs to be available from the first day. Attractive active travel infrastructure needs to be made available to support the sustainable delivery of these new communities as well as enable existing local residents to switch to sustainable modes of travel to local and city-wide destinations.

SOCIAL CONTEXT

1.6.14. Despite the success of the Cambridge economy, there are parts of the city which are more deprived than others. The Index of Multiple Deprivation provides an understanding of the comparative health of an area based on income, employment, health and barriers to housing provision. Whilst levels of deprivation are comparatively low, some areas of Cambridge are more disadvantaged than others.

1.6.15. Figure 1-6 demonstrates that the east of Cambridge is comparatively more deprived in terms of the indices of multiple deprivation than other areas of Cambridge.

Figure 1-6: Index of multiple deprivation



1.6.16. Figure 1-7 presents Mosaic data (collected by Experian), a cross-channel consumer classification system which segments the population into 15 groups based on their consumer behaviour.

Figure 1-7 Mosaic Groups

1.6.17. The western end of Bottisham Greenway is dominated by ‘City Prosperity’ and ‘Rental Hubs’. ‘City Prosperity’ are high status positions who can afford expensive homes and like to enjoy their wealth. Rental Hubs are educated young people in their 20-30s who appreciate good access to jobs and entertainment.

1.6.18. Moving east along Newmarket Road, there is a mix of ‘Urban Cohesion’, ‘Municipal Tenants’, ‘Family Basics’ and ‘Aspiring Homemakers’ in and around Barnwell. ‘Urban cohesion’ are settled, older urban residents who have tended to buy their own homes and enjoy the local community. ‘Municipal Tenants’, ‘Family Basics’ and Aspiring Homemakers are low-income households and younger households settling into homes that fit their budget. Among them, ‘Aspiring Homemakers’ particularly require access to school.

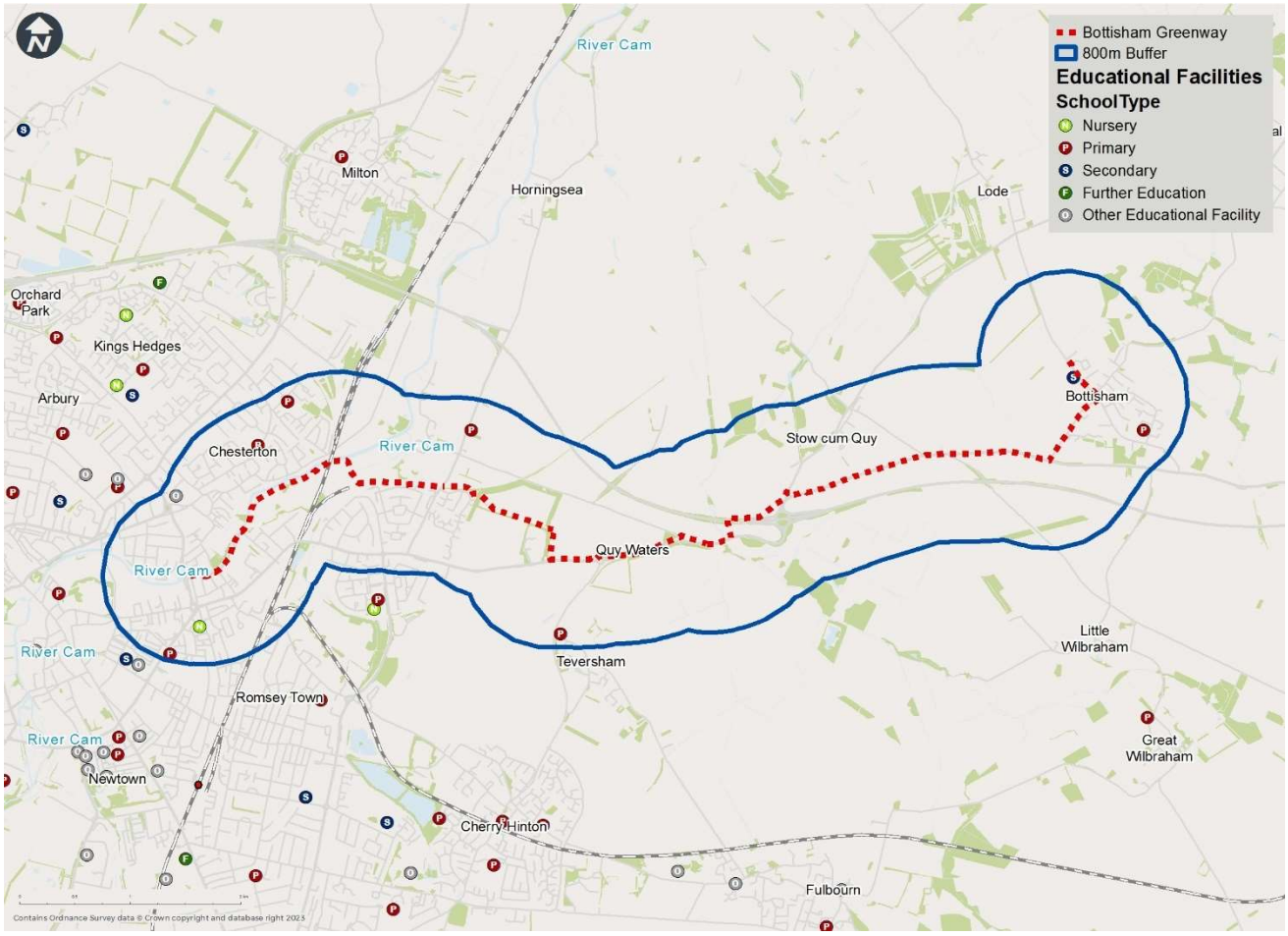
1.6.19. Further east, the mosaic presents clusters of ‘Country Living’ and ‘Rural Reality’ population segments in the scheme area near Quy Waters, Stow cum Quy, and Bottisham. ‘Country Living’ populations are well-off homeowners who live in the countryside often beyond easy commuting reach of major towns and cities while ‘Rural Reality’ consist of low income and middle-income households.

1.6.20. Due to the income disparities among the households in the scheme influence area, households with lower disposable incomes are more reliant on affordable modes of transport services such as public transport, walking and cycling to access jobs and local services. As such, limited affordable

alternative transport options create challenges such as inequitable access to education and employment for these population segments.

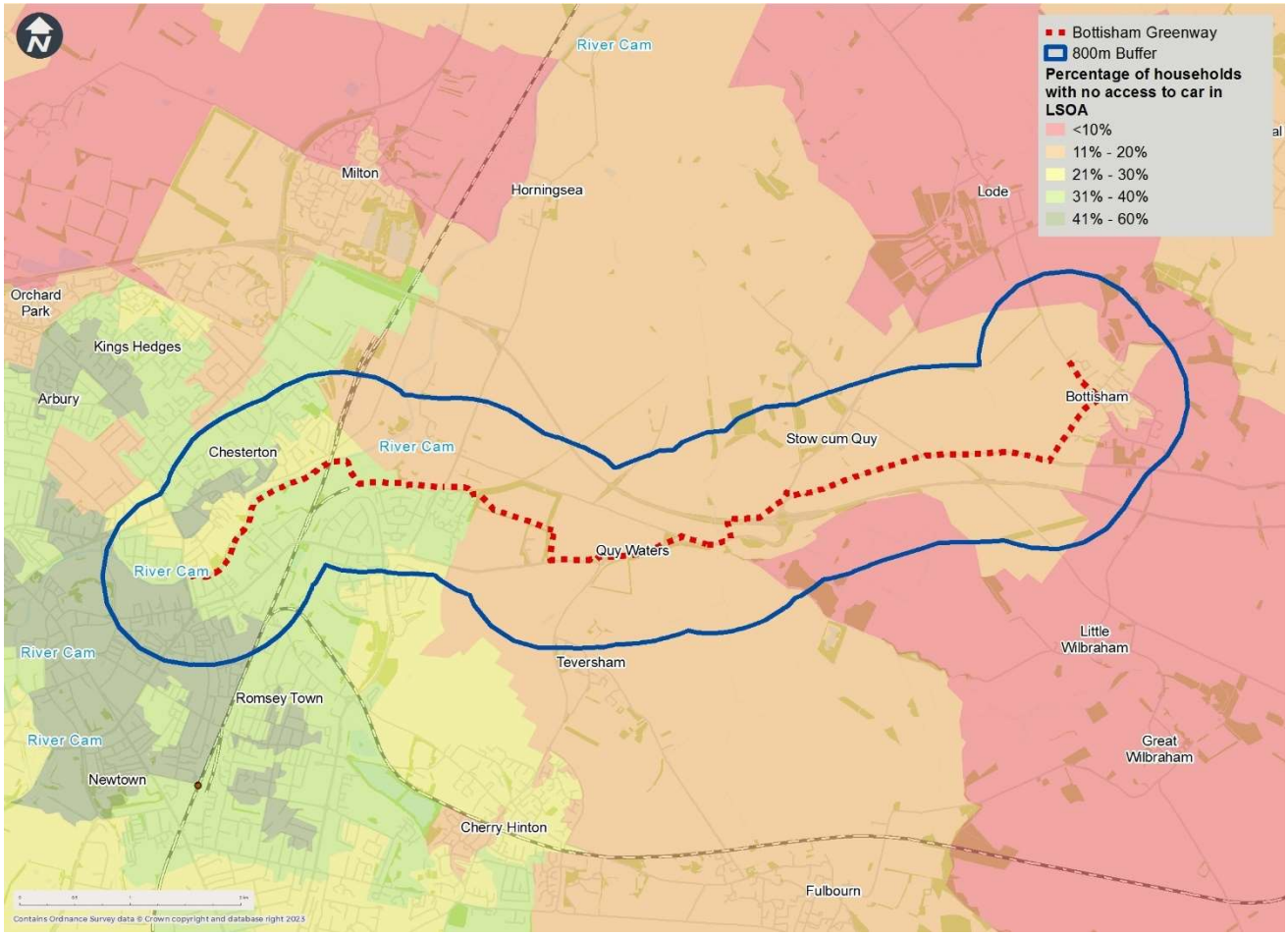
1.6.21. Access to inclusive, equitable and quality education is identified as one of the sustainable development goals of the City Deal. However, as seen in Figure 1-8 below there is very limited access to the educational facilities such as schools and colleges in the villages of Bottisham, Stow cum Quy and Quy Waters. Since most of the educational facilities are located within Cambridge city, a large number of students are required to travel towards Cambridge for the purpose of education which leads to a large number of trips along the A1303 and A1134 corridors.

Figure 1-8: Educational facilities



1.6.22. It is observed from Figure 1-9 that residents in rural areas outside Cambridge city have higher car ownership levels as compared to those living within the city which indicates the higher preference of car travel among the rural households leading to comparatively large number car trips in the area. Large number of car trips in an area lead to a significant increase in carbon emissions in the area as compared to active travel which negatively affects the health of the residents in those areas. Without any intervention, increase in population would lead to increased levels of car journeys which would have serious negative impacts on the health of the residents.

Figure 1-9: Car ownership levels



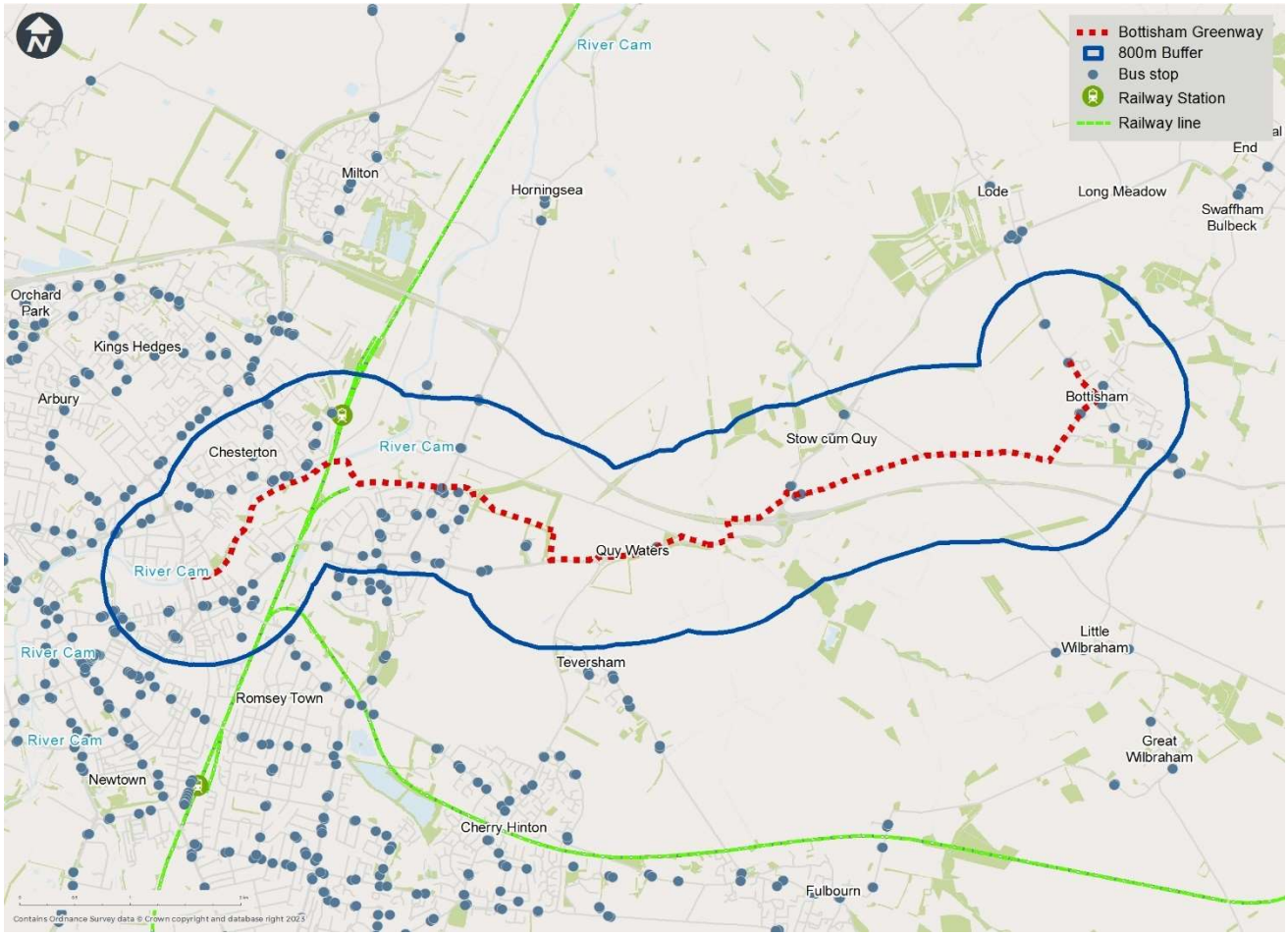
1.6.23. There is a need for inclusive transport enhancements through the delivery of active and sustainable infrastructure enhancements along this key radial corridor towards Cambridge. It will provide access to key employment, education and community facilities, improve health, help overcome transport related barriers for the lower income communities and level-up access to the wide range of opportunities across the city.

TRANSPORT CONTEXT

1.6.24. As discussed earlier, the proposed developments would significantly increase the volume of traffic along the A1303 and A1134 corridors within the study area. In addition, the population of Cambridge is expected to grow in the coming years leading to an increased demand along the corridors. The transport network in the area is required to accommodate that growth.

1.6.25. The bus stops are mostly located towards Cambridge with only a few stops accessible to the village communities as shown in Figure 1-10. Due to the lack of public transport connectivity, the residents in these villages have limited transport options available except car for travelling to Cambridge. 2011 census data shows that around 80% commuters in East Cambridgeshire used car for commuting which has led to a high volume of car traffic in the road network within the study area.

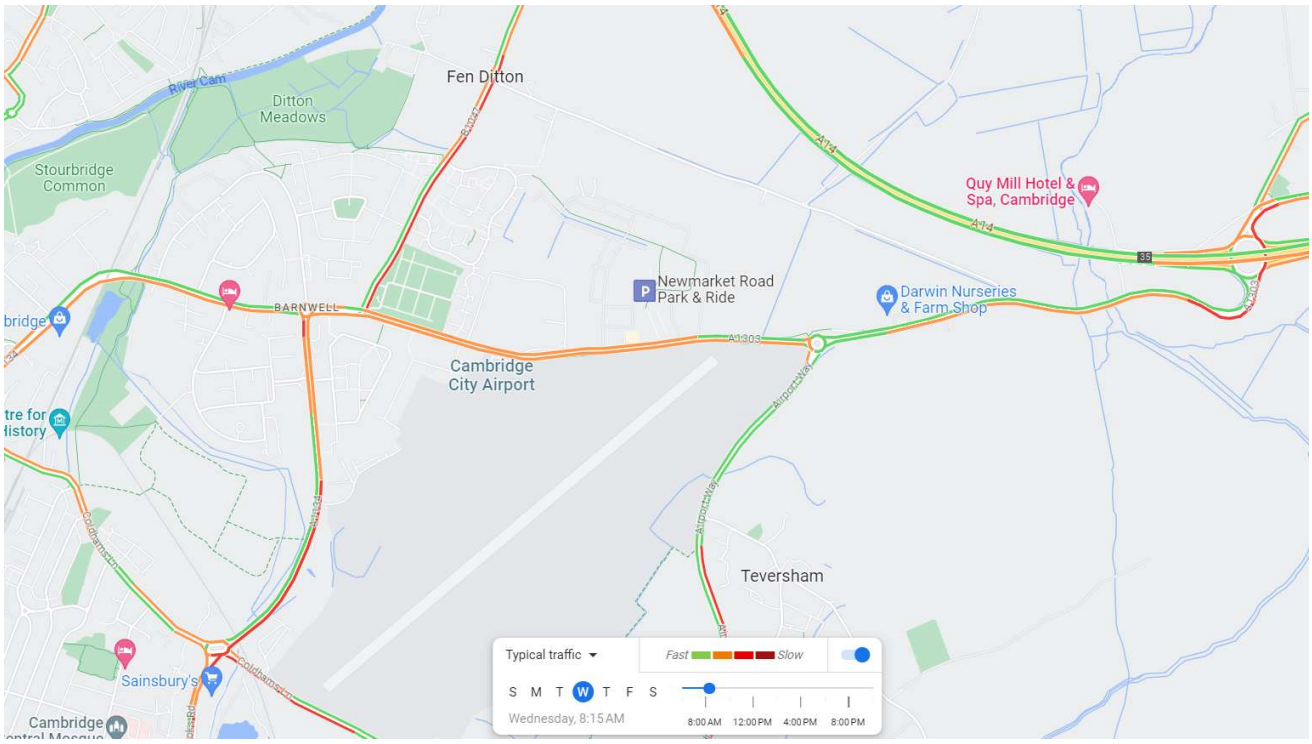
Figure 1-10: Public transport connectivity



1.6.26. It is also evident from the Figure 1-11, that around 20,000 to 50,000 vehicles cross a section of A1303 corridor near Quy Waters along the scheme corridor per day on an average. This leads to congestion on the A1303 corridor especially near Quy interchange and Barnwell as shown in Figure 1-12. A1303 is the primary link connecting Bottisham and Cambridge city and congestion along this corridor leads to loss in working hours and loss in productivity of the commuters. The development envisaged and population growth would further increase the traffic in these corridors and potentially lead to significant economic loss in the region.

Figure 1-11: Traffic volume

Figure 1-12: Congestion along the A1303 corridor



1.6.27. Congestion was identified in the City Deal as a key barrier to growth. If unchecked, the existing traffic level would significantly increase in the future which would limit the capacity of additional traffic in the area thereby, leading to reduced future development possibilities in the area.

1.6.28. Hence, a significant portion of car traffic is required to be shifted to active modes to reduce the congestion and traffic levels in the area in addition to improving the environment of the corridor.

Demand and Support for Active Mode Infrastructure

1.6.29. The Walking and Cycling Index[6] 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.

1.6.30. 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[7] 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.

[6] https://www.sustrans.org.uk/media/10484/greater-cambridge-walking-and-cycling-index-2021.pdf
[7] 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.

1.6.31. 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.

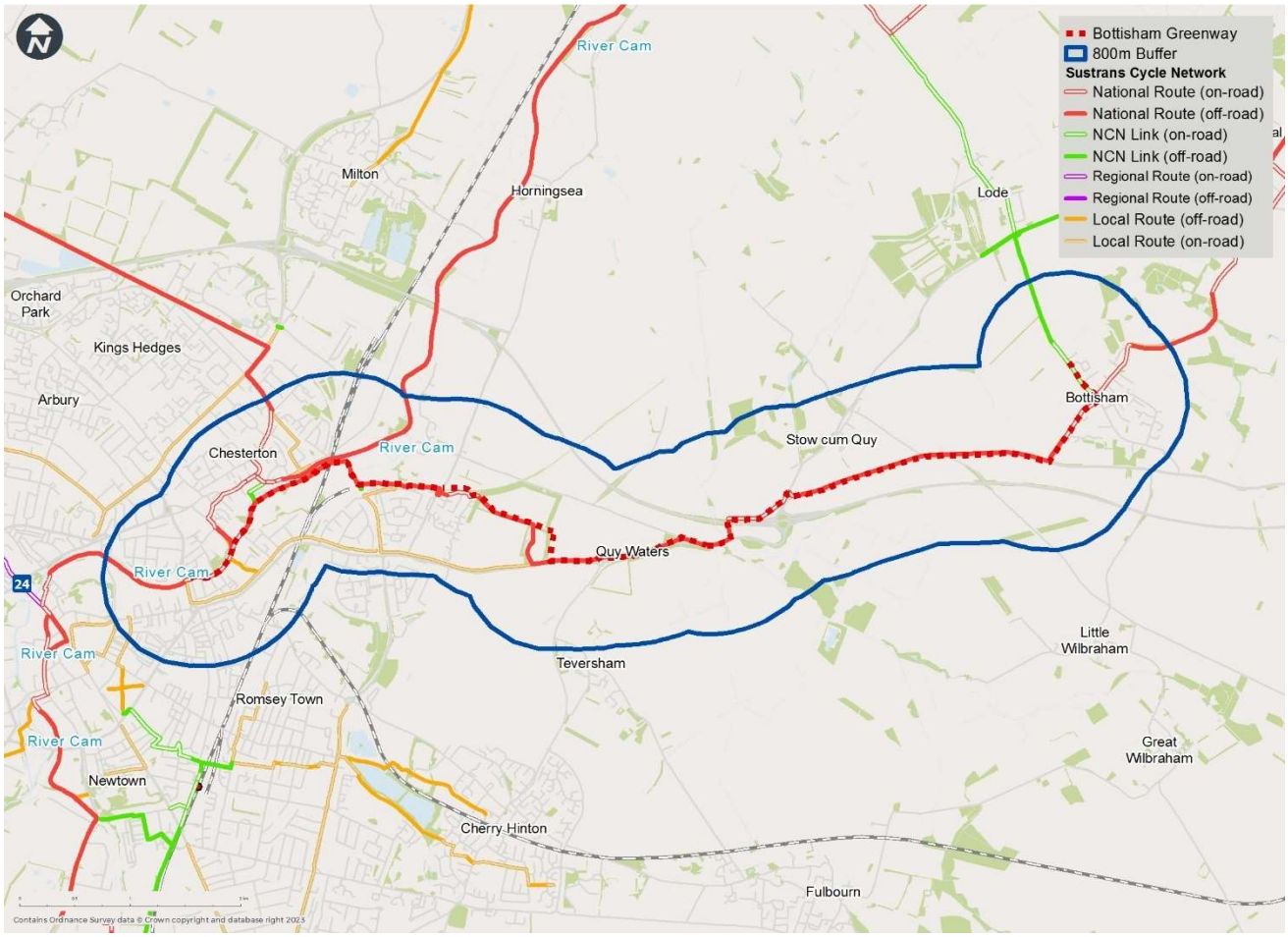
1.6.32. Barriers to cycling in Greater Cambridge are identified to be more pronounced for some user groups. Safety including road safety and personal safety is recognised as the single largest barrier to cycling. 50% of men cycle at least once a week as opposed to only 40% of women. While 49% of non-disabled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

1.6.33. 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.

1.6.34. 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.

1.6.35. The scheme corridor lies along the existing NCN51 corridor as shown in Figure 1-13 parallel to the A1303 and A1134 links and provides active travel connectivity between the communities on the corridor.

Figure 1-13: Location of existing cycle routes



1.6.36. Since the scheme corridor follows the existing NCN51 corridor, it would provide an attractive alternative for leisure trips on the popular Sustrans network by connecting to several routes in both the eastern and western end of the corridor. In addition, the scheme corridor provides connectivity to a number of popular leisure destinations including Ditton Meadows, Stourbridge Common and Midsummer Common in addition to a pleasant off-road route along River Cam.

1.6.37. The Chisholm Trail is a walking and cycling route which aims to provide a mostly traffic-free link between Cambridge North and Cambridge stations and communities in between.

1.6.38. Chisholm Trail's Phase One opened in December 2021, connecting Cambridge North to Coldham's Lane. Abbey and Chesterton have been linked with a new bridge over the River Cam, there is a wide underpass beneath Newmarket Road and an upgraded riverside jetty link. Access has been improved to the green spaces at Ditton Meadows, Stourbridge Common and Coldham's Common, as well as work, school, shopping and leisure destinations.

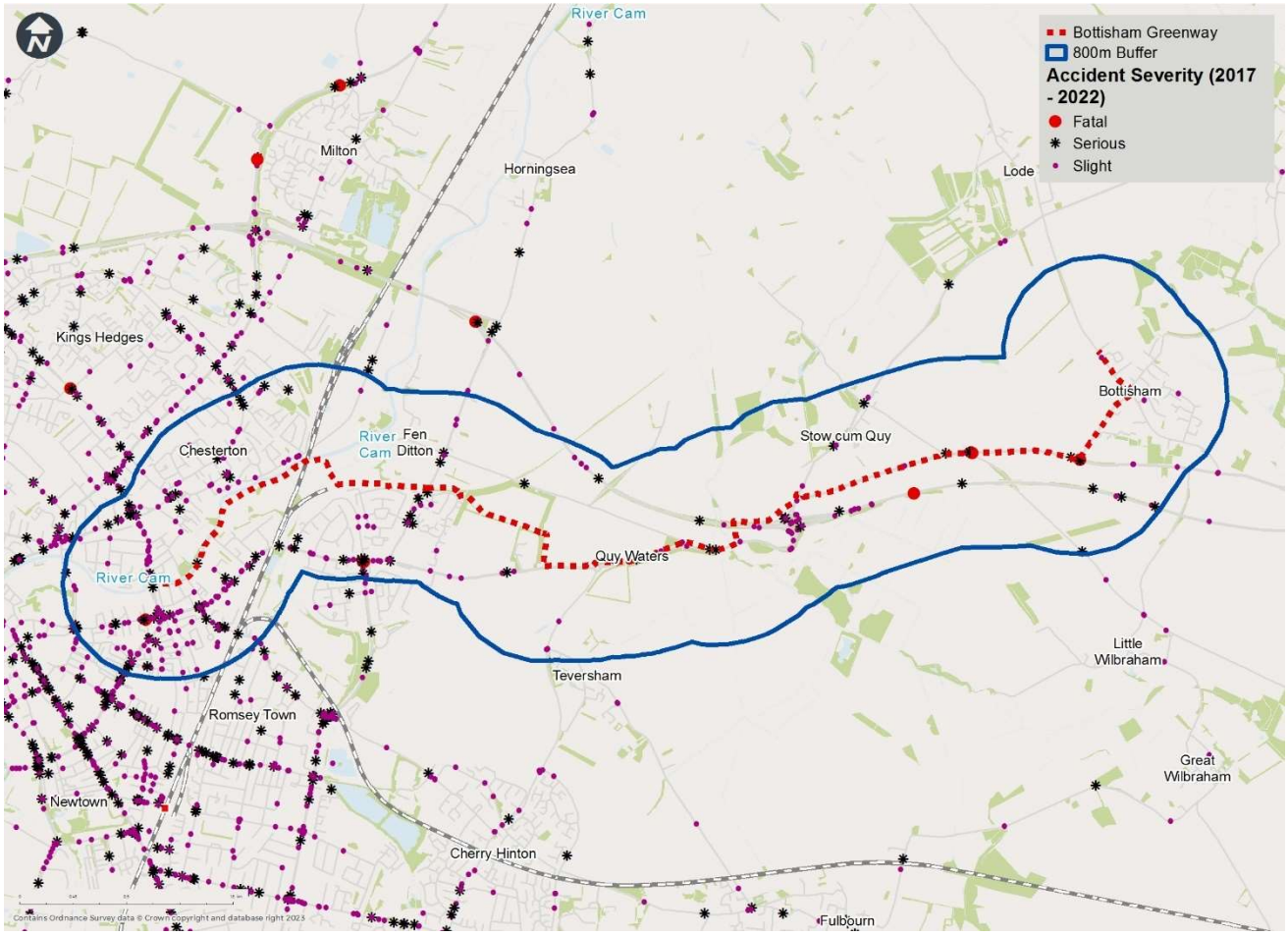
1.6.39. The scheme corridor also connects Anglesey Abbey and Bottisham Park located north of the village, providing an excellent leisure destination in the English countryside. Presence of a designated Conservation Area along the Bottisham High Street, containing a number of 16th and 17th century buildings, also increases the attractiveness of the scheme corridor.

1.6.40. However, there are certain deficiencies in the existing corridor which discourages active travel:

- Most of the corridor is shared use which along with increased traffic levels create an unsafe and unpleasant environment for active travellers.
- Additionally, the existing path in the highway verge linking with Wilbraham Road is very narrow which prevents active travellers from using the stretch.
- The restricted width of the section near Howard Road / Fison Road area and Newmarket Road Park & Site along with alignment issues also discourage active travel.
- Lack of adequate pavement quality in some of the sections within the corridor also make it unfavourable for active travel.

1.6.41. Figure 1-14 shows that many fatal and serious accidents occurred in the study area especially at the intersection of Church Road, A1303 Newmarket Road and A14 (A14 J35) between 2017 and 2022. A significant number of these accidents were categorised as serious. Since many walk and cycle trips exist in the area (Refer Table 2-5 in the Economic Case), the number of accidents involving pedestrians and cyclists is likely to increase with an increase in traffic due to the lack of safe active travel infrastructure.

Figure 1-14: Accidents by severity



1.6.42. Implementation of the Bottisham Greenway scheme will encourage some mode shift away from motorised forms of transport resulting in a reduction in levels of traffic on the A1303 and A1134 reducing the 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.

1.6.43. Construction of the Bottisham 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

1.6.44. Noise has a large impact on both the physical and mental health of those living and working near major road links such as the A1134 and A1303. 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.

Air Quality

1.6.45. The western end of the proposed scheme runs through an Air Quality Management Area (AQMA). Introduced in 2004, the AQMA encompasses the inner ring road and all of the city within it.

1.6.46. 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 Bottisham Greenway will improve air quality locally by providing a cycling and walking infrastructure that encourages mode shift away from car travel.

Historic Environment

1.6.47. There are designated Conservation Areas[8] in Cambridge along the Cam River and in Bottisham which the local councils have a duty to protect. The scheme corridor passes through these Conservation Areas, along with a number of sites containing Tree Preservation Area especially near the river.

1.6.48. 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 Bottisham Greenway.

[8] https://www.scambs.gov.uk/planning/search-by-map/

1.7 IMPACT OF NOT CHANGING

1.7.1. Without delivery of the Bottisham Greenway scheme, the car will remain the dominant mode of transport for commuting even for short 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 economic growth and the planned travel needs of new housing developments and employment will also be adversely impacted.

1.7.2. Without the delivery of the Bottisham 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 Bottisham 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

1.8.1. The strategic need for the Bottisham Greenway is set out in Table 1-3.

Table 1-3 – Strategic Need for the Bottisham 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 A1134 and 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 Bottisham Greenway links to the Horningsea and Swaffham Greenways at Fen Ditton and Stow cum Quy respectively. Additionally, active mode provision continues towards north and south 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 Bottisham Greenway indicates that an uplift to existing cycle demand of 25% and pedestrian demand of 10% is anticipated.
Connecting the city with sustainable	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

transport modes	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 Bottisham Greenway will provide a key element of this sustainable transport plan providing an improved cycling and walking corridors connecting the city with Bottisham. The Greenway will provide significant improved cycling connectivity. By providing a more direct sustainable transport connection between Bottisham and Cambridge, the Bottisham Greenway will encourage more walking and cycling trips. At a strategic level the Bottisham 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 Bottisham 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. Bottisham 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 Bottisham 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 Bottisham 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 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.

1.8.17. The scheme corridor is an important radial NCN corridor (51) into Cambridge city from the east and will provide improved inclusive access to jobs and training in the city centre. The Bottisham Greenway also connects with the Chisholm Trail which will provide direct access to the business and science parks in north Cambridge and Addenbrooke's Hospital and the Biomedical Campus southern portions of Cambridge.

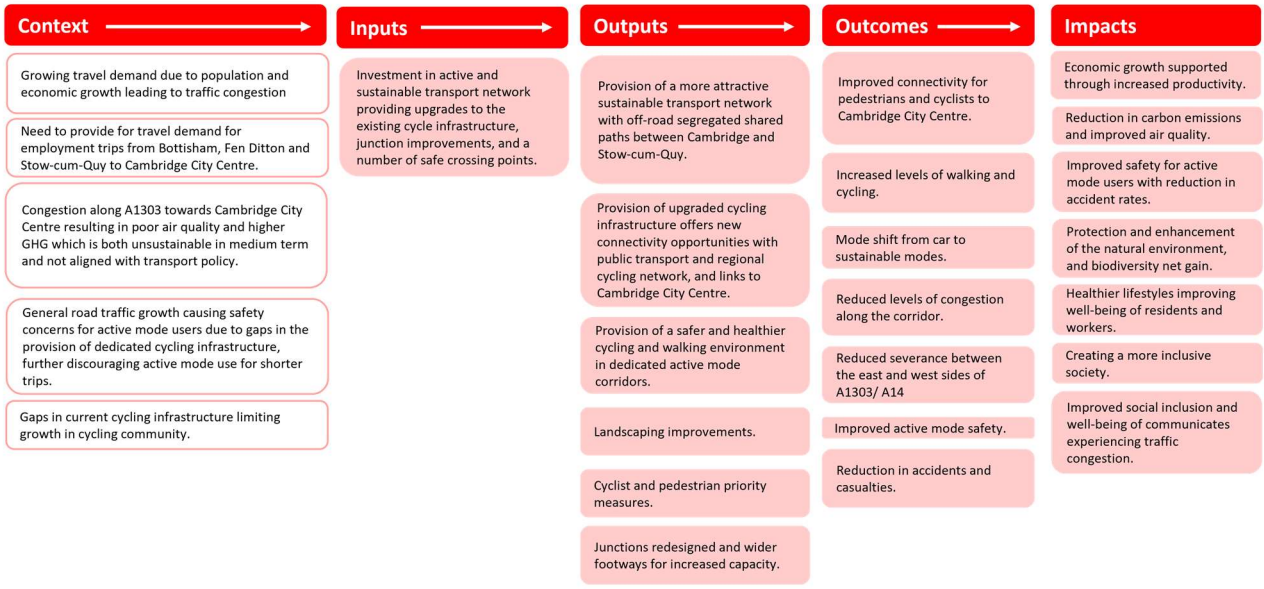
1.8.18. The proposed scheme would enable a direct sustainable travel link from Bottisham, Fen Ditton and Stock cum Quy to Cambridge which is a major employment centre for the South and East Cambridgeshire districts. Additionally, the Greenway would also provide attractive active travel opportunities for leisure trips.

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 Bottisham Greenway. The exercise to map these factors and the opportunities has resulted in the identification of the objectives and planned impacts of the Bottisham Greenway project. This logic map is shown in Figure 1-15**.**

Figure 1-15 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 £1bn 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 East Cambridge, supported by the implementation of the Bottisham Greenway.

1.10.2. Delivery of the Bottisham 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 Bottisham Greenway SMART strategic and operational objectives that are aligned with the overall Greenways Programme together with measures of success.

Table 1-4 – Bottisham 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	Reduced journey time for cycling

	opportunities by active modes through a reduction in journey times and increase ease of interchange with public transport modes	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

1.11 SCOPE

1.11.1. The route starts in Bottisham and proceeds along the A1303 to the A14 underpass, which will have better lighting. The Greenway then goes past Stow-cum-Quy, where it converges with the Swaffhams Greenway, and continues along High Ditch Road past the Wing housing development to Fen Ditton. At this point it joins the Horningsea Greenway and then passes through a new underpass at Ditton Lane. Bottisham Greenway will continue along Ditton Fields, intersecting with the Chisholm Trail at the Abbey-Chesterton Bridge. It will proceed through Stourbridge Common along Riverside to Midsummer Common. In all places there will be improved safety measures, and the path will be separate from road traffic.

1.11.2. The Bottisham Greenway will include the following types of route sections.

A. Quiet Street

1.11.3. A quiet street is a section of on-carriageway cycle route where vehicle speeds are limited to 20mph. White painted signage would be added to the carriageway where appropriate. Where there is no existing footpath, signage may be used to warn motorists that this is a multiuse route.

B. Shared use path

1.11.4. A shared use path would typically include a 3-metre-wide sealed track. Where the path runs beside the carriageway, a green verge will separate the path from the road where possible.

1.12 COMPLEMENTARY SCHEMES

1.12.1. There are several complementary schemes which will support the development of the Bottisham 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 Bottisham 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 encourage active travel and improve air quality as well as provide high quality public spaces.

1.12.3. The scheme provides sustainable travel options to people living in a number of villages including Bottisham, Quy Waters and Stow cum Quy along with residents in the eastern edge of Cambridge such as Fen Ditton and Barnwell as an alternative to car travel on the A1303 and A1134 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 1-16**).

Figure 1-16 - Cambridge City Access Strategy Measures

Source: Greater Cambridge Partnership

1.12.6. The Bottisham 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.

GCP Corridor Schemes

1.12.7. As the delivery body for the Greater Cambridge City Deal, GCP is delivering a comprehensive package of sustainable transport initiatives, working with local authority partners to create a world-class network that can meet the needs of the area now and into the future.

1.12.8. Each of the four GCP corridor schemes creates vital links with key employment hubs across the city: from Waterbeach to the north; improving access from the east; providing links to Babraham Research Campus and Granta Park to the southeast; and extending westward toward Cambourne via Bourn Airfield. The corridors are:

- Cambourne to Cambridge;

- Waterbeach to Cambridge;
- Cambridge South East; and
- Cambridge Eastern Access.

1.12.9. The development of infrastructure is well underway, offering better public transport and active travel routes along the four corridors identified as essential to link growing communities to the north, southeast, east and west. For the Bottisham Greenway scheme to succeed in preventing further growth in vehicular traffic, a city-wide approach to providing attractive alternatives to car use will be required. Hence the extent of the scheme's success depends on the successful implementation of all four of the corridor schemes.

Horningsea Greenway

1.12.10. The Horningsea Greenway scheme will provide improved active mode connectivity between north-east Cambridge to the village of Horningsea. 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. The Greenway would also provide onward active mode connectivity towards Midsummer Common in the city centre.

1.12.11. In addition, the Horningsea Greenway route and associated walking and cycling improvements provide an excellent off-road alternative to the A1303.

Swaffhams Greenway

1.12.12. The Swaffhams 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 encourage active travel and improve air quality as well as provide high quality public spaces. The Swaffhams Greenway will enable the achievement of Cambridge City Access objectives in the Swaffhams travel corridor and provide an alternative active travel corridor for car travel on the B1102 and A14 onwards into Cambridge on linked active mode routes.

Chisholm Trail

1.12.13. The Chisholm Trail is a new walking and cycling route, creating a mostly off-road and traffic-free route between Cambridge Station and Cambridge North Station. It will link to Addenbrooke's Hospital and the Biomedical Campus in the south, and the businesses and science parks in the north. In all, the full trail provides a 26km route from Trumpington and Addenbrooke's to St Ives. The central section from Cambridge Station to Cambridge North Station is a 3.5km route and interacts with Cambridge Eastern Access (CEA) Phase A.

1.12.14. The first phase of the Chisholm Trail is complete and will result in an increase in the number of pedestrians and cyclists accessing the Bottisham Greenway. The Greenway will enable car users to transfer to active travel and make use of the Chisholm Trail.

Newmarket Road Scheme

1.12.15. The Newmarket Road scheme provides Phase A1 of the CEA programme. The scheme includes transformational and ambitious active travel and public transport measures along Newmarket Road aimed a enabling a modal shift from private car to sustainable and active modes and supporting sustainable growth. It provides improvements to walking, cycling and public transport through the extension and enhancement of current cycle lanes, bus lanes and footways, as well as the introduction of direct and controlled crossings at junctions.

Newmarket Road Park and Ride Relocation and Expansion

1.12.16. The relocation of the existing P&R site provides the second part of Phase A of the CEA programme. The current site, located on the A1303 Newmarket Road approximately 500m to the west of the Airport Way junction, forms one of five existing P&R sites located on key radial routes into Cambridge to intercept movements from the north, south, east and west of the city respectively.

1.12.17. GCP seeks to expand provision of the Newmarket Road P&R site from 895 parking spaces to around 1,750 and relocate it, allowing it to potentially accommodate additional bus services to support the 'Making Connections' public transport strategy.

Marleigh

1.12.18. The Marleigh development site was granted outline planning consent in November 2016 for up to 1,300 homes, a primary school, food store, community facilities, open spaces, landscaping and associated infrastructure and other development.

1.12.19. The Marleigh development proposals include significant enhancements to the section of NCN 51 that runs through the site – some of which have already been delivered.

1.12.20. The improvements include:

- Upgrade of NCN 51 through the site (segregated 3m wide cycle path and 2m wide footpath through the residential area);
- Road narrowing (to 2.7m wide) where NCN 51 crosses the development spine roads;
- A 4.0m wide connection between NCN 51 and Newmarket Road Park & Ride;
- Upgrade of NCN 51 (Jubilee way) to the northwest of the Phase 1b site to a 5.0m wide segregated path (3.0m wide cycle path 2.0m wide footpath) and a separate Bridleway; and
- Upgrade of NCN 51 shared path to 4m wide east of the residential area.

1.12.21. Bottisham Greenway ties in with the proposed CEA scheme on Newmarket Road and it continues along the new four metre shared use path to join up with the route through the Marleigh Development.

1.13 STRATEGIC IMPACTS

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

1.13.2. The Bottisham 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 the Bottisham Greenway will help reinforce Cambridge's competitive knowledge-based economy. It will provide employees in the Bottisham

corridor, 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 Bottisham Greenway as an alternative transport corridor.

Social Impacts

1.13.6. The Bottisham 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 Bottisham 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 Bottisham 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.

1.13.8. There are also Green Infrastructure and Natural Capital impacts. The Bottisham 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 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.

Benefit	Description
	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 Bottisham corridor.

1.14 OPTION DEVELOPMENT

Overview

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

Option Assessment

1.14.2. 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 Bottisham 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 Bottisham, Horningsea and Swaffham consultations due to the proximity of the villages and the interconnectedness of the routes.

2019 Consultation

1.14.3. A multi-channel approach was taken during the Bottisham consultation, and the public were asked their preferences regarding the individual elements of the proposed greenway route.

1.14.4. In summary, the consultation results showed that the majority of the respondents supported 'The Wing Development to Airport Way Option B: Direct from the Wing development towards Airport Way roundabout' and 'Crossing Ditton Lane Option C: New underpass beneath Ditton Lane linking existing paths. Other elements of the scheme 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 below.

1.14.6. 149 respondents answered the question about how far they agreed with the individual elements of the proposed Bottisham Greenway Route.

1.14.7. Most respondents supported all of the following elements of the proposed Greenway route:

- Element 5: 'Lighting, surfacing and visibility improvements to A14 underpass' (85%)
- Element 3: 'High Ditch Road junction crossing' (73%)
- Element 4: 'Bridge over Quy Water/Underpass path junction with Newmarket Road' (72%)
- Element 7: 'Bell Road shared use path improvements' (64%)
- Element 6: 'Dunsley Corner – crossing of Albert Road' (55%)

1.14.8. 2 elements had multiple options available.

1.14.9. For the element 1: 'Crossing Ditton Lane' Options:

- Most respondents supported 'Option C: New underpass beneath Ditton Lane linking existing paths' (60%)
- Half of respondents supported 'Option B: Altered shared use path alignment with landscaping' (50%)
- Under two fifths supported 'Option A: Use the existing signalised crossing and continue path across junction' (36%) and under two fifths opposed it (33%)

1.14.10. For the element 2: 'The Wing Development to Airport Way' Options:

- Most respondents supported 'Option B: Direct from the Wing development towards Airport Way roundabout' (61%)
- Just over two fifths supported 'Option A: Parallel to the eastern access road' (42%)

GCP Board Approval

1.14.11. 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.

1.14.12. 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.

Public Engagement Survey 2023

1.14.13. The public engagement on the preliminary technical design was undertaken between 27th February and 24th March 2023. The following design proposals were consulted for the 8 sections of Bottisham Greenway:

1. Riverside

- Cycle symbol road markings at regular intervals with red asphalt carriageway surfacing for cyclists
- Formalised parking bays
- New buffer zone next to the parking bays to provide a safe space for cyclists to pass parked vehicles

2. Stoubridge Common

- Widening of the existing shared use path to three metres
- New and improved lighting

3. Ditton Meadows

- Widening of existing shared use path to three metres
- New and improved lighting

4. Ditton Lane / Fison Road Junction

- A new parallel crossing to improve safety for pedestrians and cyclists
- Junction improvements to prioritise cyclists

5A. Marleigh Development

- Route ties in with the proposed CEA scheme on Newmarket Road
- Continues along the new four metre shared use path to join up with the route through the Marleigh Development

5B. High Ditch Road Junction

- Improvements to the existing crossing including a realignment of the existing shared use path at High Ditch Road to improve visibility
- The existing 50mph speed limit proposed to be extended north of the junction to include the uncontrolled crossing

6A. A14 Underpass

- New and improved lighting and vegetation clearance in front of underpass to provide better sight lines and enhance visibility
- Northern approach ramp to be extended into the underpass to reduce its gradient and address drainage issues
- Southern approach to be realigned so that it is straighter and more direct

6B. Quy Mill Hotel Access Road

- Surface levels to be adjusted so that pedestrians and cyclists are level with the carriageway
- Wider section to consist of a on carriageway three-metre-wide shared path alongside the Quy Mill Hotel access road

7A. Albert Road Junction

- Realignment of the carriageway at Newmarket Road a smoother transition and improve visibility
- A new three-metre-wide informal crossing
- Junction improvements to prioritise cyclists

7B. Newmarket Road

- Improvements to the existing shared-use path, including widening to three metres, where possible
- A new three-metre-wide informal crossing

8A. Bell Road

- Widening of the existing shared path to three metres, where possible, up to the existing farm access
- New footway build out to provide a safe transition for cyclists to join the carriageway

8B. The Bell Road / Lode Road Junction

- New raised tables to slow down vehicles
- A new shared use area with block paving
- New signage to highlight pedestrian and cyclist priority

Engagement Summary

1.14.14. In total, 47 survey responses were received during the engagement process.

1.14.15. Overall, the feedback received was generally supportive of the proposals for Bottisham and recognised the need for improvements, with several suggestions raised to consider as the design progresses.

1.14.16. Personal safety was raised as a concern for Section 6 (A14 Underpass). Feedback highlighted the need for additional lighting, improved sight lines and increased visibility. Respondents noted that the Greenway's alignment would encourage more pedestrians and cyclists to use this route and should feel safe in doing so. Drainage issues that lead to ponding and overgrown vegetation were also key concerns raised within this section that should look to be addressed within the proposals.

1.14.17. Feedback regarding surfacing was varied. The red surfacing was questioned by some respondents. Some respondents stated that it would likely negatively impact the character of the area. However, some respondents were in favour of the red surfacing.

1.14.18. General maintenance concerns were raised, including comments relating to poor quality road surfacing and overgrown vegetation encroaching onto footways and cycleways, forcing cyclists onto the carriageway and creating pinch points on footways.

1.14.19. In terms of signage, feedback requested tri-signage to include equine users, and more general comments to indicate pedestrian/cyclist priority. Other comments relating to signage included removing any unnecessary signage to reduce clutter on footways etc.

1.14.20. Concerns for the inclusion of horse riders was also prevalent across the feedback received and was highlighted as a key concern for the entirety of the route. Comments included the lack of inclusion for equestrians, suggestions to sections of the shared-use paths to accommodate equestrian users and ensure their safety if using these routes.

Way forward

1.14.21. The development of the scheme and how it will move forward is to be determined by GCP and CCC following a review of the engagement feedback. The results will be presented to the Executive Board Committee in June 2023. Following this, a decision will be made on how to proceed with detailed design and construction. A separate 'You said, we did' document will be published later, providing an update on how the scheme is to be progressed, and the design changes as a result of the feedback received.

1.14.22. If the decision is taken to proceed, construction would be due to commence in late 2023, with the whole scheme anticipated to be completed in 2025.

Constraints

1.14.23. 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.

1.14.24. These will be addressed through the ongoing development of the scheme and engagement with stakeholders and the feedback received from the February-March 2023 consultation. A review of the consultation feedback is being undertaken.

Next Steps

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

- Environmental surveys
- Landowner Discussions
- Landowner Negotiations
- Detailed design

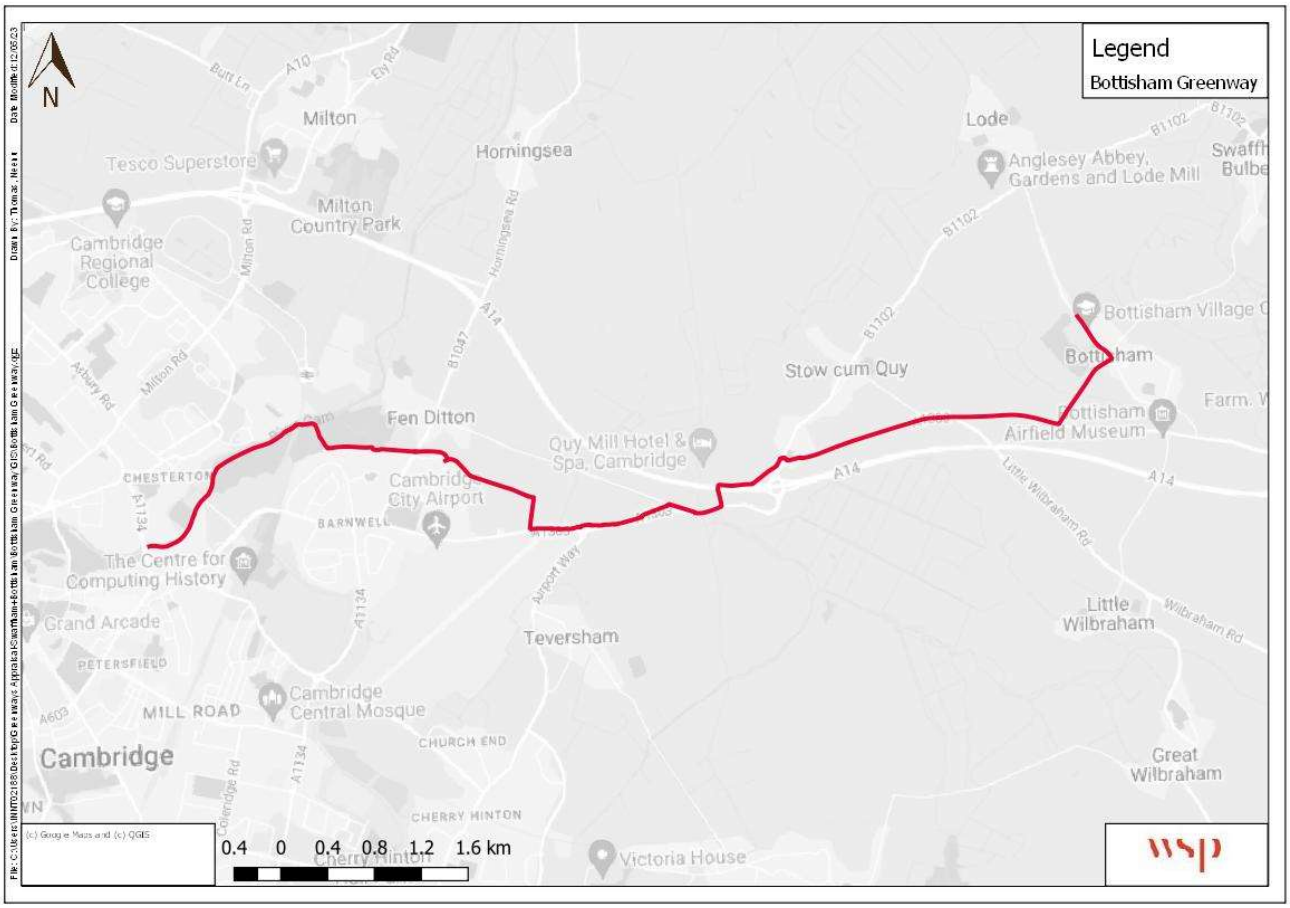
2 ECONOMIC CASE

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 Bottisham Greenway will be an improved walking and cycling route between Bottisham and Cambridge. The Greenway improvements are proposed from Riverside, along the River Cam, passing through the Marleigh Development joining the A1303 at the Newmarket Road P&R junction, continuing along the A14 underpass to A1303 Newmarket Road and ending on Lode Road in Bottisham. Along the length of its route 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 shows the Bottisham Greenway Scheme corridor.

Figure 2-1 – Bottisham Greenway Scheme



Source: Greater Cambridge Partnership[9]

Table 2-1 – Summary of Scheme Elements

Element	Infrastructure
Walking & Cycling	▪ Quiet Roads – speed limits reduced to 20mph ▪ 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 and Markings – Greenway specific wayfinding marker posts placed at regular intervals and at junctions ▪ Resurfacing
Public Realm	▪ Lighting – solar studs to be provided 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.

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

2.2 APPROACH TO ECONOMIC APPRAISAL

2.2.1. The appraisal has been undertaken in alignment with the principles of 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 has been largely undertaken in line with the following guidance:

- 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 2025. 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 Bottisham 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 given as an 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 compared 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 in Table 2-2 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 over-estimated, 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.

2.2.10. The sections are set out in Table 2-3. The total scheme was split into seven AMAT sections. These sections have been split to reflect the different type of cycling infrastructure provision along the Greenway network. Count data for these sections enabled an assessment to be made of the directional movement of cyclists and pedestrians.

Table 2-3 – Summary of AMAT Sections

Section	Description	Length of Route	Existing Infrastructure	Proposed Infrastructure
1	Riverside to Stourbridge Common	0.73km	No cycling provision	Quiet street environment
2	Stourbridge Common to Ditton Lane/Fison Road Junction	2.28km	Shared use path	3m widened shared use path
3	Dismantled Railway line through Marleigh Development to A1303 New Market Road Airport Roundabout	1.94km	Shared use path	Section 3 funded by Marleigh Development and Cambridge Eastern access, hence not considered in Economic Appraisal
4	Newmarket Road Roundabout to near Quy Water	1.26km	Shared use path	3m widened shared use path
5	Near Quy Water to near Quy Interchange	0.50km	No cycling provision	Quiet street environment
6	Near Quy Interchange- Newmarket Road to Bell Road up to Howlett Way	3.29km	Shared use path	3m widened shared use path
7	Howlett Way- Pound Close	0.71km	No cycling provision	Quiet street environment

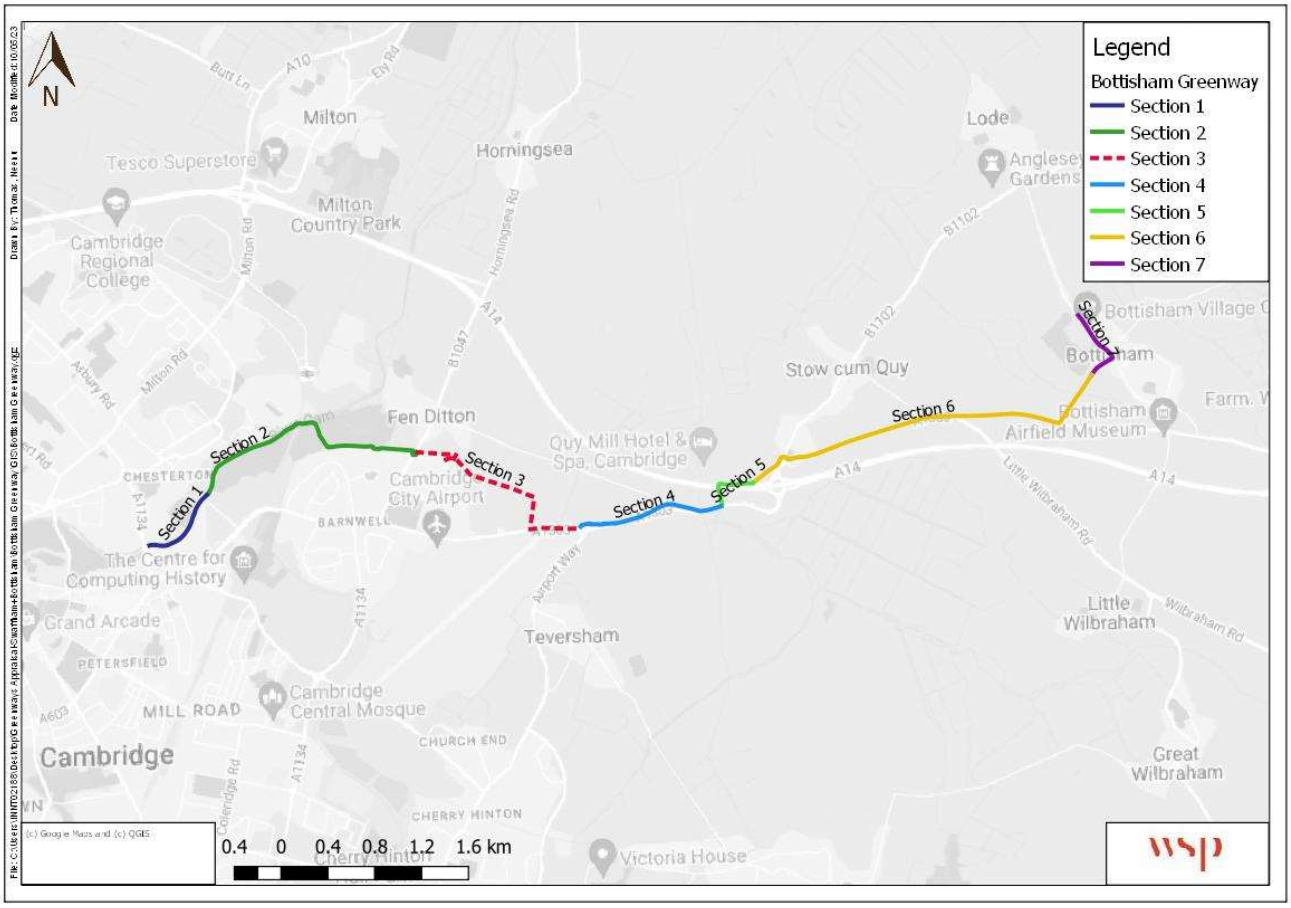
2.2.11. Section 3 is not considered in this economic appraisal as the majority of this section up to the Newmarket Road Park & Ride is a part of the Marleigh Development and the section of A1303 up to the Airport Roundabout is being funded by the Cambridge Eastern Access programme.

2.2.12. The Marleigh Development section includes the following, which are already constructed and in use.

- Upgrade of NCN 51 through the site - segregated 3m wide cycle path and 2m wide footpath through the residential area
- 4m wide connection between NCN 51 and Newmarket Road Park & Ride
- Upgrade of NCN 51 to the northeast of the Phase 1b site to a 5m wide segregated path – 3m wide cycle path, 2m wide footpath and a separate Bridleway
- Upgrade of NCN 51 shared path to 4m wide east of the residential area.

2.2.13. The AMAT sections are shown in Figure 2-2 below.

Figure 2-2 - AMAT Sections

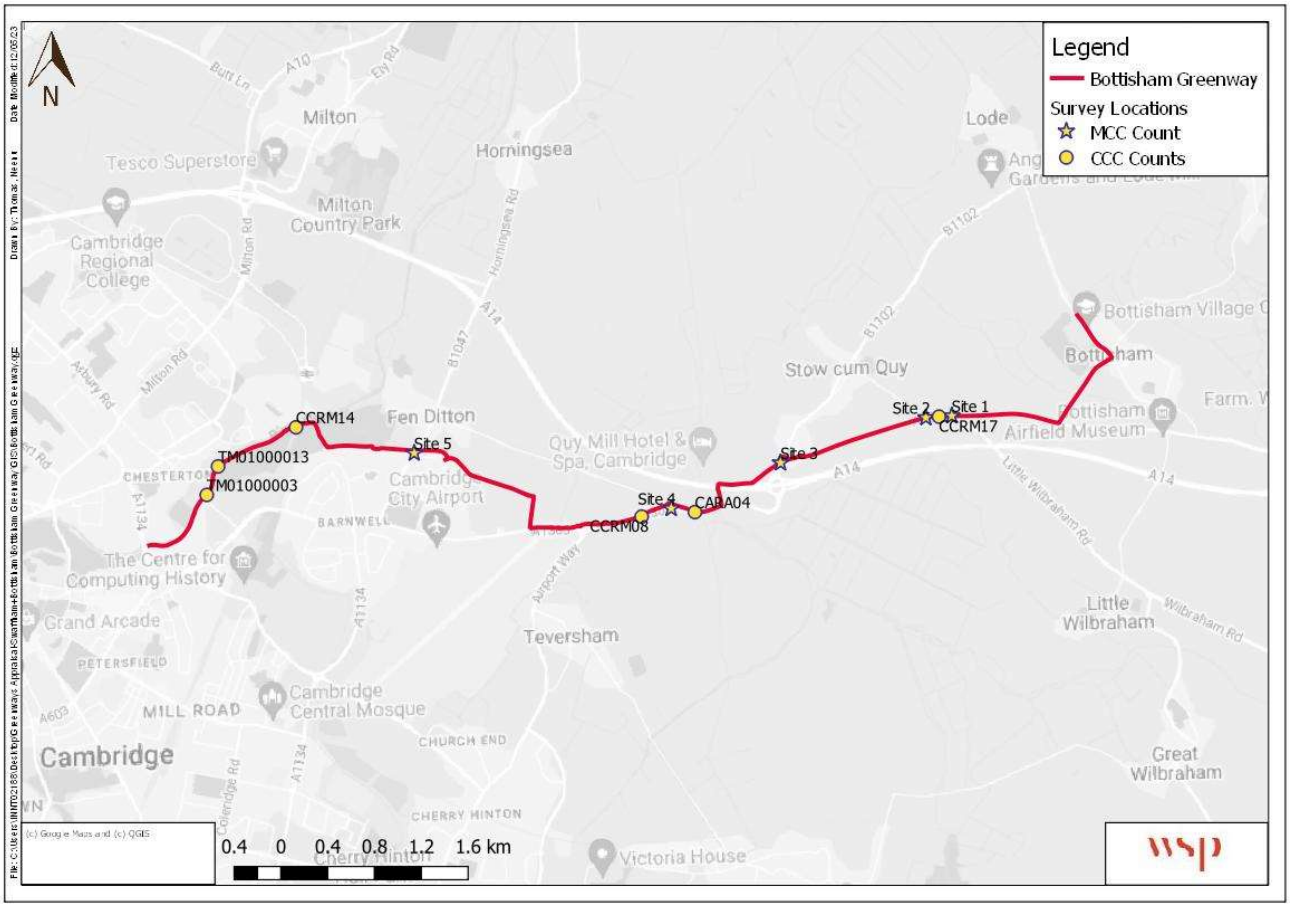


2.2.14. The following sections discuss the approach to using the AMAT toolkit in this submission.

Existing Demand

2.2.15. The AMAT requires the existing and scheme induced demand to be included as an input. To establish the existing cycling demand along the route, Manual Classified Turning Counts (MCCs) were carried out along the route to assess walking and cycling demand and Cambridge Cycle Counts wherever available were also reviewed. For sections where no count data is available, the Propensity to Cycle Tool (PCT) methodology has been applied to estimate the cycling and pedestrian trips along the sections. The PCT is based on 2011 Census Journey to Work data, which provides the number of commuting individuals. The locations of the counts used are outlined Figure 2-3.

Figure 2-3 – Bottisham Greenway Count Data Locations



2.2.16. For AMAT sections 1 and 2 (along the River Cam) CCC Tag Master data (TM 01000003 and TM 01000013 respectively) from 2019 and 2023 were analysed to estimate the cycling trips while PCT Methodology has been deployed for estimating the walk trips. The Manual Classified Counts (MCCs) conducted in September 2022 by WSP, provided existing demand for Sections 4 and 6. The MCC was collected between 0700-1000 and 1500 to 1900, a total of 7 hours. For Section 4 (Newmarket Road Roundabout to near Quy Water), Cycle Route Monitoring (CCRM08) count data and Cambridge Radial (CARA04) count data provided by Cambridgeshire County Council were reviewed. An average of MCC Site 4, CARA04 and CCRM08 was used. CARA04 data was used to estimate the demands along Section 5. For Section 6 (Near Quy Interchange-Newmarket Road to Bell Road up to Howlett way), an average of MCC Site 1, MCC Site 2 and CCRM17 has been considered. PCT Methodology was used to estimate the cycling and walking trips for Section 7 (Bell Road-Lode Road section)

2.2.17. As AMAT assumes a 24-hour flow as input to calculate benefits, the MCCs (7-hour counts) and CCCs (12-hour counts) 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 annualisation factor of 305 days. Table 2-4 below outlines the existing cycling and walking demand analysed for each AMAT section.

Table 2-4 – Existing Cycling and Walking Demand (Daily Trips – 24 Hours)

Section	Description	Source	Cycling Demand	Walking Demand
1	Riverside to Stourbridge Common	TM 01000003 (Cycle) PCT (Ped)	1,707	487
2	Stourbridge Common to Ditton Lane/ Fison Road Junction	TM 01000013 (Cycle) PCT (Ped)	2,946	626
4	Newmarket road Roundabout to near Quy Water	Average of CCRM08, CARA04 and MCC Site 4	228	10
5	Near Quy Water to near Quy Interchange	CARA04	297	14
6	Near Quy Interchange-Newmarket Road to Bell Road upto Howlett way	Average MCC Site 1, MCC Site 2 and CCRM17	140	8
7	Howlett Way- Pound Close	PCT	77	209

**Section 3 not included in appraisal as it is funded by Marleigh Development (up to Newmarket P&R) and Cambridge Eastern Access (from A1303 Newmarket P&R junction to Airport Roundabout)*

2.2.18. Two-way flows were used as the existing demand flows at all sections. The counts indicate that cyclist demand is greatest along Riverside to Ditton Lane/Fison Road Junction and decreases towards the Newmarket Road and beyond to Bottisham.

Scheme Induced Demand

2.2.19. 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)[10], Cycle City Ambition Programme (2013-2018)[11], and Outcomes of the Cycling City and Town Programme (2017)[12], 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.

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

- Filwood Greenway (Bristol) – mixed strategic route including off road cycle track though green space.

2.2.20. 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).[13] Examples from this study include:

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

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

Table 2-5 - Forecasted Cycling and Pedestrian Demand

Section	Description	Source	Cycling demand	Pedestrian demand
1	Riverside to Stourbridge Common	TM 01000003 (Cycle) PCT (Ped)	2,134	536
2	Stourbridge Common to Ditton Lane/ Fison Road Junction	TM 01000013 (Cycle) PCT (Ped)	3,683	689
4	Newmarket road Roundabout to near Quy Water	Average of CCRM08, CARA04 and MCC Site 4	286	11
5	Near Quy Water to near Quy Interchange	CARA04	371	15
6	Near Quy Interchange- Newmarket Road to Bell Road upto Howlett way	Average MCC Site 1, MCC Site 2 and CCRM17	175	9
7	Howlett Way- Pound Close	PCT	96	230

**Section 3 not included in appraisal as it is funded by Marleigh Development (upto New Market P&R) and Eastern Cambridge Access (from A1303 Newmarket P&R junction to Airport Roundabout)*

Intervention

2.2.22. 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:

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

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

2.2.23. The AMAT toolkit classifications for existing and proposed infrastructure only capture a limited 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 footway, 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 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 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.

2.2.24. For sections 2, 4 and 6, there is a sufficiently well maintained off road shared use path with 2m to 2.5m width and with wide grass verge separation from the general traffic. To avoid overestimating the benefits of proposing the route as a 3m widened shared use path, the existing classification in AMAT has been considered as off-road segregated cycle path.

Table 2-6 – Summary of AMAT Sections

Section	Type of Infrastructure (Existing / Proposed)	AMAT Classification (Existing / Proposed)
1	No cycling provision/ Quiet Street	No provision/Shared Bus Lane
2	Shared Use Path/3m widened shared use path	Off Road Segregated /Off Road Segregated
4	Shared Use Path/3m widened shared use path	Off Road Segregated /Off Road Segregated
5	No cycling provision/ Quiet Street	No provision/Shared Bus Lane
6	Shared Use Path/3m widened shared use path	Off Road Segregated /Off Road Segregated
7	No cycling provision/ Quiet Street	No provision/Shared Bus Lane

**Section 3 not included in appraisal as it is funded by Marleigh Development (upto New Market P&R) and Eastern Cambridge Access (from A1303 Newmarket P&R junction to Airport Roundabout)*

Outputs

2.2.25. 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

2.2.26. Accident data was obtained along the Bottisham Greenway corridor for the period between 2018 and 2022. During this 5-year period, nine accidents involving cyclists and pedestrians occurred along the corridor, three of which were slight, five were serious and one fatal accident in terms of severity.

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

- Introducing 3m wide shared use path
- Quiet Street environment:
  - Reducing speed limits from 30mph to 20mph
  - Proposed cycle markings

2.2.28. 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 and pedestrians.

2.2.29. Following analysis of these collisions, one of the reported slight collisions was considered to have been avoidable with the proposal of quiet street environment where speed limits will be reduced from 30 mph to 20 mph, in place. This was then converted to 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 v1.18)	£1,833,608	£210,760	£21,483
Number of collisions involving cyclists	1	5	3
Number of cycle accidents that may have been prevented by the scheme (5 years)	0	0	1
Number of prevented cycle accidents per annum	0	0	0.2
Accident savings per annum (£, 2010)	0	0	£ 4,297

2.2.30. 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

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

- Reduced speed limits – the Bottisham Greenway includes traffic calming measures reducing speeds to 20mph
- Maintenance – a maintenance package is planned for the Bottisham 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.

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

SCHEME COSTS

2.2.33. It is estimated that the Bottisham Greenway scheme will cost in the region of £10.61m, based on direct construction works, design and other fees, risk contingency and inflation.

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

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

Table 2-8 – Cost Profile, Q42021 Prices

Cost	With Risk and Contingency	Without Risk and Contingency
Total Cost	£ 10,610,000	£ 6,939,000

Table 2-9 – Economic Appraisal Assumptions

Criteria	Assumption	Source
Opening year	2025	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 demand 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 daily demand	See Table 2-5 for a breakdown of demand 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 (50%) -2025/26 (50%)	WSP

2.3 APPRAISAL RESULTS

PRESENT VALUE OF BENEFITS

2.3.1. The table below shows a summary of the results of the appraisal for each element of the scheme by area of interventions.

Cycling and Pedestrian Provision

2.3.2. The Table 2-10 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 way finding signages.

Table 2-10 – Cycling and Pedestrian Monetised Benefits

Cycling and pedestrian provision	£s, 2010 PV over 20-year appraisal period
All Sections Combined	
Congestion	756,739
Infrastructure	4,669
Accident	128,067
Local air quality	17,333
Noise	8,467
Greenhouse gases	61,599
Reduced risk of premature death	8,549,493
Absenteeism	1,229,827
Journey ambience	272,249
Indirect taxation	-73,106

2.3.3. The largest benefit associated with the increased number of cyclists and pedestrians as a result of the scheme is the health benefit through increased physical activity including reduced risk of premature death. Absenteeism accounts for the second largest benefits impact followed by congestion 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 gas 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

2.3.4. 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)	£ 80,071

2.3.5. The scheme proposals, which include greater separation from general traffic for active modes, is estimated to result in a total saving of £0.08m as a result of fewer collisions involving cyclists and pedestrians 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

2.3.6. The cost assessment included direct construction costs, indirect construction costs, indirect non-construction costs, and inflation. Inflation was assumed of 3.24% for the period from 4Q 2022 to 4Q 2024, as well as an additional inflation contingency of 3% per annum over the construction period, due to current economic circumstances.

2.3.7. 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.

2.3.8. 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.

2.3.9. 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.

2.3.10. 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)	4,527,444

2.4 VALUE FOR MONEY ASSESSMENT

2.4.1. The core scenario benefits and costs described above produce a benefit to cost ratio (BCR) of 2.4:1, 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	8,467
Local air quality	17,333
Greenhouse gases	61,599
Journey quality	272,249
Physical activity	9,779,320
Accidents	208,138
Economic efficiency: commuters	192,882
Economic efficiency: other	472,600
Economic efficiency: business users and providers	91,257
Wider public finances (indirect tax)	- 73,106
Present Value of Benefits (PVB)	**11,030,740**
Present Value of Costs (PVC)	**4,527,444**
Net Present Value (NPV)	**6,503,296**
Benefit-Cost Ratio (BCR)	**2.4**

2.4.2. 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.

2.5 SENSITIVITY TESTS

2.5.1. 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 reduced to 12.5%
- Test 3: New to cycle demand increased to 30%
- Test 4: No pedestrian demand uplift
- Test 5: 46% optimism bias
- Test 6: Capital costs including risk / no optimism bias
- Test 7: 30-year appraisal
- Test 8: Accidents reduced by 50%
- Test 9: 40-year appraisal

2.5.2. Table 2-14 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	**11,030,740**	**4,527,444**	**6,503,296**	**2.4**
Test 1: New to cycle demand reduced to 20%	8,974,339	4,528,358	4,445,980	2.0
Test 2: New to cycle demand reduced to 12.5%	5,897,071	4,529,726	1,367,345	1.3
Test 3: New to cycle demand increased to 30%	13,079,506	4,526,533	8,552,972	2.9
Test 4: No pedestrian demand uplift	10,609,274	4,527,543	6,081,731	2.3
Test 5: 46% optimism bias	11,030,740	5,374,913	5,655,827	2.1
Test 6: Capital cost inc. risk / no optimism bias	11,030,740	5,629,296	5,401,444	2.0
Test 7: 30-year appraisal period	16,322,837	4,525,577	11,797,259	3.6
Test 8: Accidents reduced by 50%	10,990,704	4,527,444	6,463,260	2.4
Test 9: 40-year appraisal period	21,310,416	4,523,930	16,786,487	4.7

2.6 ENVIRONMENTAL IMPACTS

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.

NOISE

2.6.1. 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 £8,467(2010 PV).

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

AIR QUALITY

2.6.3. 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 £17,333 (2010 PV).

GREENHOUSE GASES

2.6.4. 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 £61,599 (2010 PV).

LANDSCAPE AND TOWNSCAPE

2.6.5. Overall, the landscape character within the 1km study area is in its majority that of an arable rural landscape with medium to large, regular shaped fields, hedgerow field boundaries, village settlements along country roads with scattered woodlands and small pastoral fields at the village

edges. Although the Proposed Scheme will be notable during construction, these would be short-term and temporary in effect. The existing adjacent landscape consists of agricultural land, as well as the village of Bottisham. The minor losses associated with the Proposed Scheme will not be significant when considered in the context of the overall character of the area. There is the opportunity for mitigation and additional planting and improvement to hedgerow, 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. 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 to Slight Beneficial.

2.6.6. The townscape is heavily dominated by period, well-crafted residential properties. Overall plots are medium and follow a regular layout. The townscape has few cultural heritage features and has medium levels of human interaction. The village of Bottisham is rural, with close proximity to the city of Cambridge. The proposed scheme will have an impact during construction, but this would be short term and temporary in effect. During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. Overall, the changes are minor and do not impact the wider townscape character and offer only minor changes to localised visual receptors. The impact of the Proposed Scheme is therefore considered to be Neutral.

HISTORIC ENVIRONMENT

2.6.7. Within the site boundary, there will be a negligible effect on the Riverside and Stourbridge Common Conservation Area and a negligible effect on the three Grade II listed assets (Milestones). Outside the site boundary and within the 50m study area, there would be a negligible effect on the Ferry Lane Conservation Area, neutral effect on the scheduled monument (pumping station), neutral effect on the Grade II* listed Parish Church of St Mary's and a negligible effect on the Grade II listed buildings (1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street). The scheme presents opportunities for the enhancement of heritage assets through interpretation (e.g., cycling and walking trails and appropriate traffic sign boards along the route).

A full baseline assessment of non-designated heritage assets was scoped out at this stage. The Bottisham Greenway has the potential to result in the partial or complete loss of buried heritage assets in areas where ground disturbance is proposed is outside of the existing highway, principally relating to the construction of shared pathways for pedestrians and cyclists tracks along green verge. Whilst the extent of survival and the potential for non-designated heritage assets along the route is unknown, based on the localised and superficial nature of the works there is unlikely to be a significant impact (as archaeological remains if present would survive at greater depths). Should the emerging design include deeper or more extensive areas of topsoil strip/excavation, further assessment may be required.

BIODIVERSITY

2.6.8. In the absence of mitigation, the scheme is likely to result in a Large Adverse impact on biodiversity, due to potential effects to water vole, Wilbraham Fens Site of Special Scientific Interest (SSSI) and Logan's Meadow Local Nature Reserve (LNR). These impacts can be avoided through maintaining a 5m buffer from river and drainage ditch banks and the implementation of suitable precautionary works which would reduce the impact to these receptors to Neutral.

2.6.9. The scheme is likely to result in a Slight Adverse impact to three LNRs connected to the River Cam and Coldham's Brook, hedgerows, bats, badger, otter, nesting birds, reptiles and amphibians including Great Crested Newts (GCN). Precautionary measures could reduce the potential impact to Neutral for the three LNRs, nesting birds, reptiles and amphibians, including GCN. However, at this stage of the assessment and in the absence of suitable survey data to inform required mitigation measures for hedgerows, bats, badger and otter, the likely impacts on these receptors remain Slight Adverse. Mitigation proposals should be developed which may include the following measures:

- Pollution control measures.
- Mitigation Schemes for otter and water vole;
- Wildlife planting, to include areas with wildflowers.
- Bird and bat boxes; and
- Invertebrate hotels.

2.6.10. Further surveys have been recommended which would inform specific mitigation. However, a precautionary approach has been applied to the assessment scores and therefore further surveys and mitigation as required would be more likely to bring the assessment score down to Neutral.

WATER ENVIRONMENT

2.6.11. The majority of the scheme is located in Flood Zone 1. There are two areas that the scheme is within Flood Zone 2 and Flood Zone 3. The first area of flood risk, associated with the River Cam, is from the western-most area, Elizabeth Way, to when it exits Dittons Meadow, this area of flood risk extends for approximately 2.15km. The second area of flood risk, associated with the River Quy, extends for approximately 0.12km. Review of the EA's Flood Risk from Surface Water map indicates that there are small areas at risk of surface water flooding to the western areas of the Proposed Scheme, near Ditton Meadows. The River Cam and the Quy Water is classified as a Main River.

2.6.12. There will be 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. Principal bedrock Chalk aquifer is exposed at surface and will be intercepted by the Proposed Scheme. Localised superficial deposit cover in some areas that is expected to be in hydraulic continuity with underlying Principal Chalk aquifer. Increased impermeable surface area may result in localised impacts on reduced recharge to major/minor 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. This will need to be assessed as the scheme progresses.

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

2.6.13. The Table 2-15 summarises the environmental impacts of the scheme.

Table 2-15 – Summary of Environmental Impacts

Environmental Impact	Assessment
Noise	8,467
Air Quality	17,333
Greenhouse Gases	61,599
Landscape	Neutral to Slight Beneficial
Townscape	Neutral
Historic Environment	Designated assets: Neutral Non-designated assets: Unknown (subject to further detailed assessment)
Biodiversity	Large Adverse in the absence of mitigation Slight Adverse with mitigation
Water Environment	Neutral – Slight Adverse

2.7 SOCIAL IMPACTS

2.7.1. The following sections summarise the social impacts of the Bottisham Greenway scheme.

2.7.2. 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 AMAT.

RELIABILITY

2.7.3. Through providing a continuous walking & cycling route between Bottisham and Cambridge, the Bottisham Greenway will improve reliability for those travelling by active modes along this corridor and onwards on other cycling infrastructure into central Cambridge.

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

PHYSICAL ACTIVITY

2.7.5. 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.

2.7.6. AMAT estimates the monetised impact of physical activity to be £9,779,320 (2010 PV).

2.7.7. In addition, an increase in walking trips along the Bottisham 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

2.7.8. 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)

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

2.7.10. Based on the outputs of the AMAT tool, the monetised impact on journey quality is estimated to be £272,249.

ACCIDENTS

2.7.11. 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.

2.7.12. Based on the outputs of AMAT, the monetised impact on accidents is estimated to be £128,067.

SECURITY

2.7.13. 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 greater sense of security to users of the Bottisham Greenway, particularly on off-road sections.

2.7.14. The impact of the scheme on security is estimated to be Slight Beneficial.

ACCESS TO SERVICES

2.7.15. The expansion, and improvement, of cycling and pedestrian infrastructure provided by the Bottisham Greenway scheme will improve accessibility between Riverside, the Marleigh Development, Newmarket Road and Cambridge. In addition, accessibility for both pedestrians and cyclists will be enhanced with respect to improvements in path widening and wayfinding signs.

2.7.16. The impact of the scheme on access to services is estimated to be Neutral.

AFFORDABILITY

2.7.17. 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.

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

SEVERANCE

2.7.19. The introduction of the Bottisham Greenway will improve the cycle facility provision between Riverside, the Marleigh Development, Newmarket Road and Cambridge. The pathway is already in use, and it has been modified to adapt more with the user benefits. Improved surface quality is expected to reduce the severance currently created due to the lack of facilities benefitting the active modes.

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

OPTION AND NON-USE VALUES

2.7.21. The proposed scheme does not introduce new travel options. Therefore, the impact is considered to be Neutral.

SUMMARY

2.7.22. The Table 2-16 summaries the social impacts of the scheme.

Table 2-16 – Summary of Social Impacts

Social Impact	Assessment
Reliability	Slight Beneficial
Physical Activity	£9,779,320 (2010 PV)
Journey Quality	£272,249 (2010 PV)
Accidents	£128,067 (2010 PV)
Security	Slight Beneficial
Access to Services	Neutral
Affordability	Slight Beneficial
Severance	Slight Beneficial
Option and Non-Use Values	Neutral

2.8 DISTRIBUTIONAL ANALYSIS

2.8.1. 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.

2.8.2. In terms of distributional analysis, the impact categories that need to be considered include user benefits, impact on the incidence of accidents, affordability, and the impacts 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

2.8.3. Based on the proportionate approach set out in TAG Unit A4.2, the DI assessment for the active travel elements of the Bottisham 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.

2.8.4. 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 forecast 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.	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	Yes, positive	The installation of lighting suds along off-road sections of the route will	This may provide a particular benefit to socially vulnerable groups such as the

Indicator	Appraisal output criteria	Potential impact	Qualitative Comments	Assessment
	perceptions of personal security.		improve the security of users along the corridor.	disabled, elderly and ethnic minorities.
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	Improved surface quality 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 Bottisham 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.

2.9 VALUE FOR MONEY STATEMENT

2.9.1. The economic appraisal for the Bottisham Greenway scheme produces a BCR of 2.4:1, implying high value for money. The main benefits are associated with increased physical activity as a result of users switching to active modes (reduced risk of premature death and absenteeism). Benefits associated with the scheme's congestion improvement accrue the next highest scheme benefits after health benefits, from a reduction in vehicles on the highway network as a result of modal shift. Other scheme benefits include journey quality improvements. Overall, the benefits amount to £11.03m (2010 PV). The cost of the scheme is £4.53m (2010 PV), which includes 23% optimism bias.

2.9.2. Sensitivity tests undertaken demonstrate that changes in the forecast demand assumptions will change the outcomes and the scheme changes from low value of money (Sensitivity test 2 – 50% reduction in uplift for cyclists) to very high value for money category (Sensitivity test 9 - 40 year appraisal period) with a BCR range of between 1.3:1 to 4.7:1. An assessment of the sensitivity of changes in the cost assumption (optimism bias and inclusion of a risk assumption in place of optimism bias) shows that the scheme BCR is in the high value for money category (BCR 2.0:1). The greatest impact on the scheme value for money is changing the appraisal period. A 30-year appraisal period increases the BCR to 3.6:1 and a 40-year appraisal period increases the BCR to 4.7:1 (Very High value for money category).

2.9.3. 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.

2.9.4. This appraisal has considered the Bottisham Greenway as a standalone scheme. There are potential connectivity benefits encouraging additional demand arising from the network effects of integration with neighbouring planned schemes, particularly the Chisholm trail, Horningsea Greenway and Swaffham Greenway.

2.9.5. The scheme is also aligned with the Making Connections Programme which aims to improve the environment for active travel modes, transform the city bus network and reduce congestion and pollution. Hence, there is a strategic fit with GCP's policy ambitions to promote sustainable modes and deliver mode shift from private vehicles to ensure the ongoing economic growth of the Cambridge city region.

3 FINANCIAL CASE

3.1 INTRODUCTION

3.1.1. This chapter presents the Financial Case for the Bottisham 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 Bottisham Greenway.

3.2 SCHEME COSTS

3.2.1. Scheme costs and a cost profile for the Bottisham 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 Bottisham 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 Bottisham Greenway will cost in the region of £10.6m, including allowances for inflation, as set out in Table 3-1.

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

Item	2024	2025	Total
Direct Construction Costs	1,779	1,779	3,558
Indirect Construction Costs	890	890	1,779
Indirect Non-Construction Costs	801	801	1,602
Sub-total	**3470**	**3470**	**6,939**
Risk / Contingency	1,388	1,388	2,776
Inflation (Construction Mid-Point 3Q 2024)	158	158	316
Inflation Contingency	292	292	583
Scheme Total	**5,305**	**5,305**	**10,610**

3.2.4. The Bottisham 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 Bottisham Greenway. It is not expected that the maintenance costs will be excessive.

3.2.5. The Greenway Maintenance Guide states that the Bottisham Greenway comprises 3.98km of exclusively off-road path, with only 0.05km of 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 Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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) have been appointed as Early Contractor Involvement (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 Bottisham 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 Bottisham 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 or the preferred Contractor at time of appointment is the NEC3 contract (Option C) 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

4.4.1. An overall risk register has been produced for the Greenways programme. A scheme specific management of risk will be undertaken using the Bottisham Greenway risk management plan / risk register. The risk register is detailed in the Management Case. Specific factors pertaining to the Bottisham 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 Bottisham 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 Bottisham 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 Bottisham 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

	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.
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, to give them equal priority with pedestrians over oncoming vehicles to provide a safer environment for cycling and pedestrians.	The scheme was opened in August 2020, and implemented by Cambridgeshire County Council and contractor, Milestone.
Fen Ditton and Stow-cum-Quy. (Five Cross City	Construction of a new foot/cycleway on Ditton Lane and Horningsea Road	The scheme was delivered by the GCP.

Cycling Schemes total of £8m)	which is part of the Cross City Cycling schemes being funded by the GCP.	
The Cambridge Core Traffic Scheme (c.£7m[14])	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[15])	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)[16]	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 - Improved cycle lanes - 2 new pedestrian crossings - Removal of on-street parking	Ongoing

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

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 Bottisham Greenway. Key complementary schemes include the Swaffham Greenway and Horningsea Greenway which will offer connectivity to the north.

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 such as Cambridge City Access.

Swaffham Greenway

5.3.4. 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.

5.3.5. 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.

Horningsea Greenway

5.3.6. Horningsea is located approximately 7km northeast of Cambridge across relatively flat terrain and for cyclists it is currently served by shared use paths of varying quality and widths adjacent to the carriageway. In network terms, the 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.

5.3.7. 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.

Newmarket Road Park & Ride

5.3.8. The relocation of the existing P&R site provides the second part of Phase A of the Cambridge Eastern Access (CEA) programme. The Park & Ride is proposed to be relocated to an area to the south-east of the Airport Way roundabout. Two options with different access points are being consulted on. Both options could accommodate approximately 1,750 car parking spaces, bus stops, cycle parking and cycle lockers and a Park & Ride operations building.

5.3.9. The proposals for the Bottisham Greenway are considered as part of the concept and detailed design stages for the Newmarket Road enhancements. The Newmarket Road P&R scheme will enable more car users traveling from the east to 'Park & Pedal' and continue their journey by bicycle

along the Bottisham Greenway or improved Newmarket Road to the city centre and connect to the Chisholm Trail.

Marleigh Development

5.3.10. The Marleigh urban village is a 1,300-home development in east Cambridge, located on land north of Newmarket Road, to the south of Fen Ditton and adjacent to the Newmarket Road Park & Ride to the east. Construction began in 2019, with the second phase of the development now underway.

5.3.11. The site includes community facilities such as a nursery, primary school, sports pitches, as well as green spaces. These spaces create a range of accessible outdoor areas that prioritise pedestrians and cyclists over cars. Extensive cycle parking provisions have been incorporated for all residents, including the apartment buildings, each with a dedicated secure bike store close to the entrance.

5.3.12. Residents of the Marleigh development will benefit from the additional connectivity offered by the Bottisham Greenway to location in the city centre and east Cambridge.

Chisholm Trail

5.3.13. 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.

5.3.14. Phase 2 is ongoing; 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 Chisolm Trail includes links to the Melbourn Greenway and the Fulbourn Greenway.

5.3.15. As part of the Greenways network, the Bottisham 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

5.3.16. 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

5.3.17. 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

5.3.18. 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 dependency 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 5-1).

Figure 5-1 – Cambridge City Access Strategy Measures

Source: Greater Cambridge Partnership

5.3.19. 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 PROGRAMME GOVERNANCE 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.

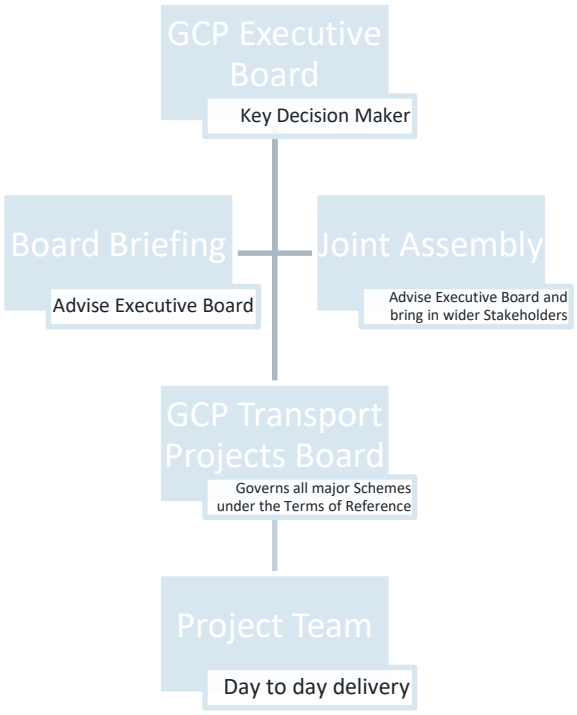
Transport Programme Board

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

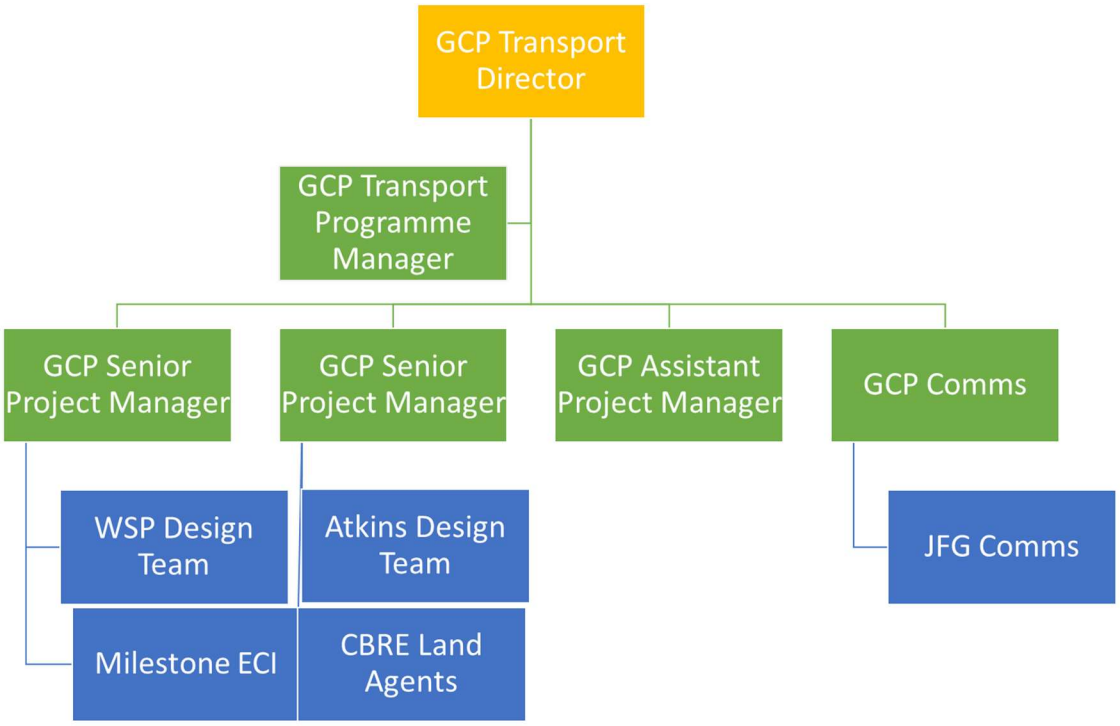
5.4.5. The Cycling Projects Meeting is primarily a coordination meeting between the different Active Travel projects. It includes:

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

Figure 5-3 – Structure of the Greenways Management Team



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

Internal GCP Resources

5.4.8. 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

5.4.9. 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

5.4.10. 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). For the Bottisham Greenways scheme the 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

5.4.11. Atkins and WSP have been appointed for the Bottisham Greenway to deliver the following aspects of the 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

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

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

Milestone

5.4.13. 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

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

CBRE and Pathfinder Legal

5.4.15. 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

5.4.16. 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, APPROVALS 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:

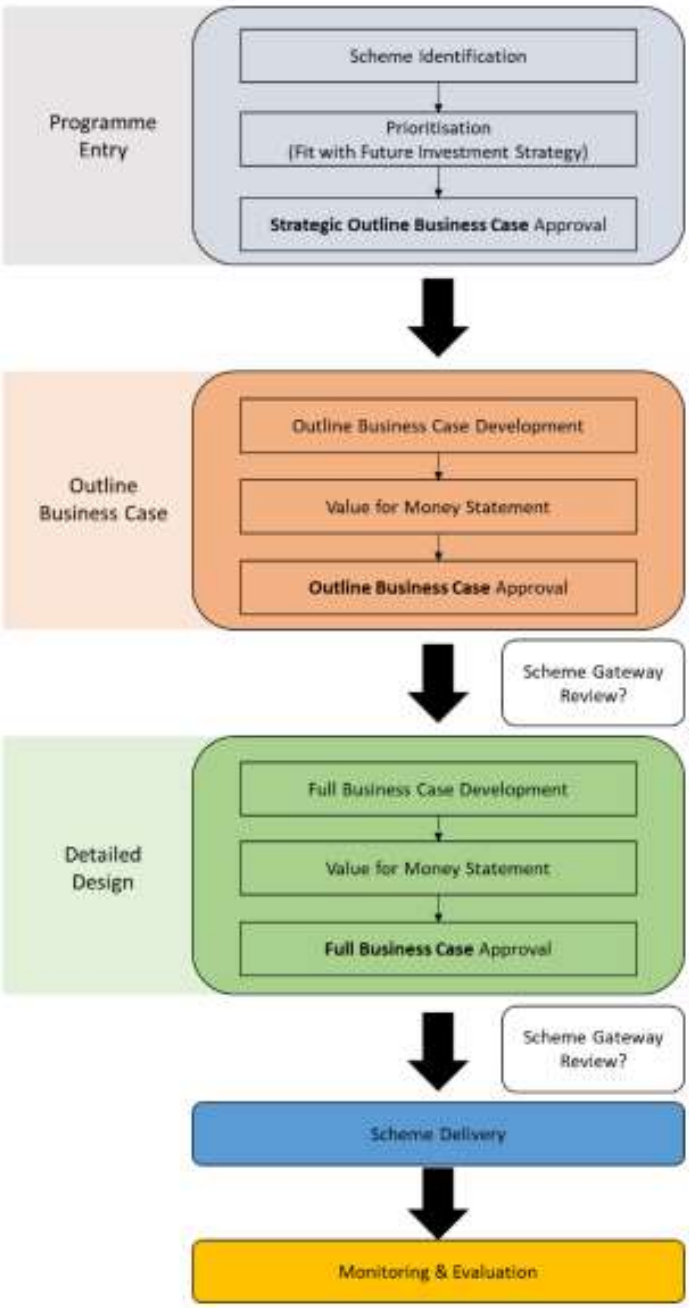
- Ensuring good liaison and collaboration throughout the project to achieve good governance
- Assuring that user needs and expectations are being met or managed
- Ensuring that risks are being controlled
- Monitoring project expenditure versus benefits
- Informing the project of any changes caused by 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 Bottisham Greenway scheme, as with the other individual schemes, is developed at Outline Business Case stage as an addendum to the POC.

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 POC 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 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

Bottisham Outline Delivery Plan

5.5.8. The technical concept design for the Bottisham 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 Bottisham Greenway route will be constructed, and what early works can be expected in 2023. The Outline Delivery Plan for the Bottisham Greenway provides milestones and scheduled dates for completion.

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

Year	Delivery Plan
2022	▪ Development of Concept Design ▪ Planning and Consents Strategies ▪ Traffic Surveys ▪ Topographical Surveys
2023	▪ Development of preliminary designs ▪ Public Engagement and preceding Stakeholder Engagement completed – April 2023 ▪ Environmental Surveys ▪ Land Owner Discussions
2023	▪ Land Owner Negotiations ▪ Detailed design and technical approvals ▪ Planning Applications ▪ Traffic Regulation Orders (TRO) ▪ Compulsory Purchase Orders (CPO) / PRoW orders ▪ Full Business Case
2024	▪ Compulsory Purchase Orders (CPO) / PRoW order work to continue as in 2023 ▪ Finalisation of land agreements ▪ Construction (subject to approvals): – Quiet road sections – Through parkland including structures – Ditton Lane / Fison Road junction – Airport way roundabout to A14 underpass – Newmarket Road Church Road junction
2025	▪ Construction to be completed of all remaining sections of the Bottisham 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 Bottisham 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 analysing these responses
- Build upon the feedback received during the public consultation period
- Create a consistent message to convey that the Bottisham 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 Bottisham Greenway is now proceeding with development of the agreed alignments and 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 Bottisham Greenway.

5.6.3. The majority of respondents supported the majority of the elements of the proposed Greenway route after the initial consultation event in 2019, particularly the lighting, surfacing and visibility improvements to the A14 underpass. Accordingly, this information was then fed into the designs for initial proposals for the Bottisham 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 27th February 2023 and 24th March 2023. A range of key stakeholders along the Bottisham 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 Bottisham 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 Bottisham Greenway.

5.6.7. There are two key channels for proactive communications that the GCP will use to tell the story of the Bottisham 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 Bottisham

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 Bottisham consultation September - October 2019 Bottisham engagement early 2023 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 Bottisham Greenway 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 Bottisham 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.

- **Maintenance –** There is an insufficient budget for ongoing maintenance of new infrastructure, as well as insufficient space for storage of bespoke street furniture/kerbs. This may have reputational cost implications, an impact on safety, as well as traffic disruption.
- **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.
- **Maintenance –** Design to reduce street clutter / unnecessary street furniture. Consider sourcing material locally using approved suppliers.
- **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 Bottisham 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 Bottisham 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 overall Greenways Programme including Bottisham Greenway follows enhanced monitoring practice as the scheme is likely to be more than £50m in value.

Monitoring and Evaluation Plan

5.8.7. The 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 – 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 improved cycling infrastructure: attract new active mode users in the Bottisham 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 / East Cambridgeshire District / Cambridge City Council
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	Provision of improved cycling infrastructure offering more direct routes/links and developing network connectivity	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 / East Cambridgeshire District / 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 Bottisham 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 / East Cambridgeshire District / Cambridge City Council

Appendix A

APPENDIX A - SCHEME DRAWINGS

EXISTING CATTLE GRIDS TO REMAIN

CUTTER FERRY BRIDGE

PROPOSED WAY FINDER SIGN EXACT SIGN AND LOCATION TO BE CONFIRMED

EXISTING POSTS TO REMAIN

RIVER CAM

BM01

EXISTING CATTLE GRID TO REMAIN

PROPOSED WAY FINDER SIGN EXACT SIGN AND LOCATIONS TO BE CONFIRMED

PROPOSED QUIET ROUTE TO TIE IN WITH THE EXISTING CYCLE PATH

A1134

RIVER CAM

20

PROPOSED SIGNS TO DIAG 670 TO BE PLACED ON EXSITING LAMPOSTS

PROPOSED QUIET STREET ENVIRONMENT: 20MPH SPEED LIMIT. ADDITIONAL TRAFFIC CALMING MEASURES TO BE CONFIRMED IN THE NEXT DESIGN STAGE

EXISTING ROAD MARKINGS TO DIAG 1003 BE REMOVED TO ENSURE CYCLISTS PRIORITY

EXISTING SIGN TO DIAG 816 TO REMAIN

RIVERSIDE

EXISTING PARKING BAY TO REMAIN

PROPOSED ROAD MARKINGS TO DIAG 1057 SPACED AT 20m

EXISTING SIGN TO DIAG 816 TO REMAIN

EXISTING POST BOX TO REMAIN

FOR CONTINUATION REFER BELOW

A1134

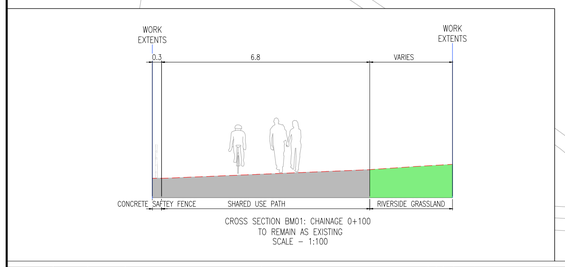
PROPOSED WAY FINDER SIGN EXACT SIGN AND LOCATION TO BE CONFIRMED

ABBEY ROAD

WALNUT TREE AVENUE

PRIORY ROAD

0 1:500 25 metres



CROSS SECTION BM01: CHAINAGE 0+100
TO REMAIN AS EXISTING
SCALE – 1:100

PROPOSED QUIET STREET ENVIRONMENT: 20MPH SPEED LIMIT. ADDITIONAL TRAFFIC CALMING MEASURES TO BE CONFIRMED IN THE NEXT DESIGN STAGE

EXISTING BOLLARDS TO REMAIN

FOR CONTINUATION REFER ABOVE

EXISTING PARKING BAY TO REMAIN

PROPOSED SAFETY BUFFER ZONE

EXISTING PARKING BAY TO REMAIN

PROPOSED WAY FINDER SIGN EXACT SIGN AND LOCATION TO BE CONFIRMED

PROPOSED ROAD MARKINGS TO DIAG 1057 SPACED AT 20m

BM02

RIVERSIDE

PROPOSED SAFETY BUFFER ZONE

EXISTING PARKING BAY TO REMAIN

EXISTING SIGN TO DIAG 664 TO BE RETAINED

RIVER CAM

EXISTING SIGN TO DIAG 660 TO BE RETAINED

BM03

SAXON ROAD

20

EXISTING PARKING BAY TO REMAIN

PROPOSED SIGNS TO DIAG 670 TO BE PLACED ON EXSITING LAMPOSTS

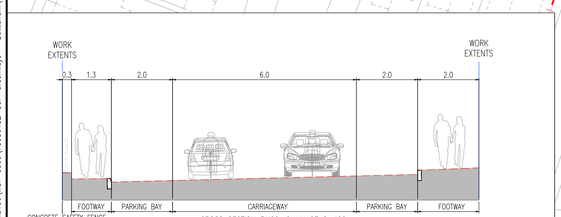
RIVER LANE

PROPOSED FORMALISED PARKING BAY

20

PROPOSED SIGNS TO DIAG 670 TO BE PLACED ON EXSITING LAMPOSTS

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100002



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PROPOSED QUIET STREET TREATMENT
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

	INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
i	INDICATES A RESIDUAL RISK FOR INFORMATION.
	INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
	INDICATES A RESIDUAL RISK AS A WARNING.

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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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
1. ALL DIMENSIONS IN METRES, UNLESS OTHERWISE STATED.
2. DESIGN BASED ON OS MAPPING SUBJECT TO TOPOGRAPHIC SURVEY AT NEXT STAGE OF DESIGN.
3. PROPOSED DESIGN WITHIN HIGHWAY BOUNDARY UNLESS OTHERWISE STATED.

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P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

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REV.
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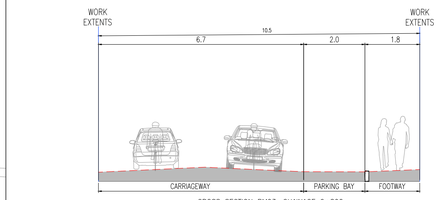

CROSS SECTION BM03: CHAINAGE 0+800
PROPOSED QUIET STREET TREATMENT
SCALE – 1:100

PROPOSED ROAD MARKINGS TO DIAG 1057 SPACED AT 20m

RIVER CAM

EXISTING RESIDENTIAL ACCESS TO REMAIN

PROPOSED PARKING AREA

PROPOSED GATEWAY FEATURE TO BE CONFIRMED AT THE NEXT STAGE OF DESIGN

EXISTING CATTLE GRID TO REMAIN

CYCLE AND FOOTBRIDGE

EXISTING BRIDGE TO REMAIN

PROPOSED QUIET STREET TO TIE IN WITH THE EXISTING NETWORK

BM03

RIVERSIDE

RIVER CAM

EXISTING BOLLARDS TO REMAIN

PROPOSED SIGN TO DIAG 602

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMPOST

PROPOSED PARKING BAYS

PROPOSED SIGN TO DIAG 602

EXISTING PEDESTRIAN ACCESS GATE TO REMAIN

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMPOST

TIE-IN TO EXISTING SHARED USED PATH

PROPOSED RELOCATED DIRECTION AND INFORMATION SIGNS

FOR CONTINUATION REFER BELOW

EXISTING BOLLARDS TO REMAIN

SECTION BETWEEN EXISTING BOLLARDS TO REMAIN AS EXISTING

FOR CONTINUATION REFER TO DRG: 8656-WSP-BM-XX-DR-CV-100001

MUSEUM OF TECHNOLOGY

PROPOSED QUIET STREET TO TIE IN WITH THE EXISTING NETWORK

STOURBRIDGE COMMON

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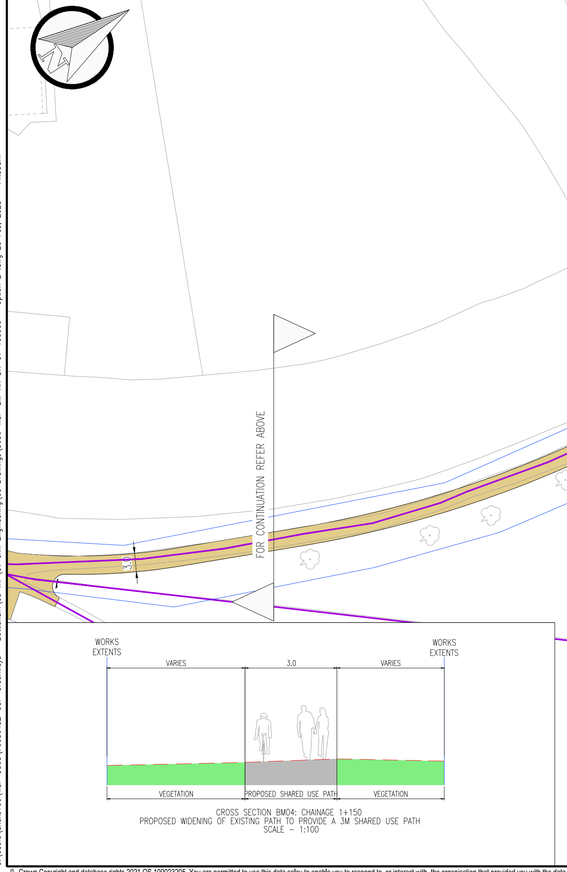

RIVER CAM

BM04

BM05

TIE-IN TO EXISTING SHARED USE PATH

TIE-IN TO EXISTING SHARED USE PATH

TIE-IN TO EXISTING SHARED USED PATH

PROPOSED WAY FINDER SIGN - EXACT SIGN AND LOCATION TO BE CONFIRMED

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

FOR CONTINUATION REFER ABOVE

FOR CONTINUATION REFER TO DRG: 8656-WSP-BM-XX-DR-CV-100003

STOURBRIDGE COMMON

0 1:500 25 metres

CROSS SECTION BM04: CHAINAGE 1+150
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

	INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
	INDICATES A RESIDUAL RISK FOR INFORMATION.
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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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
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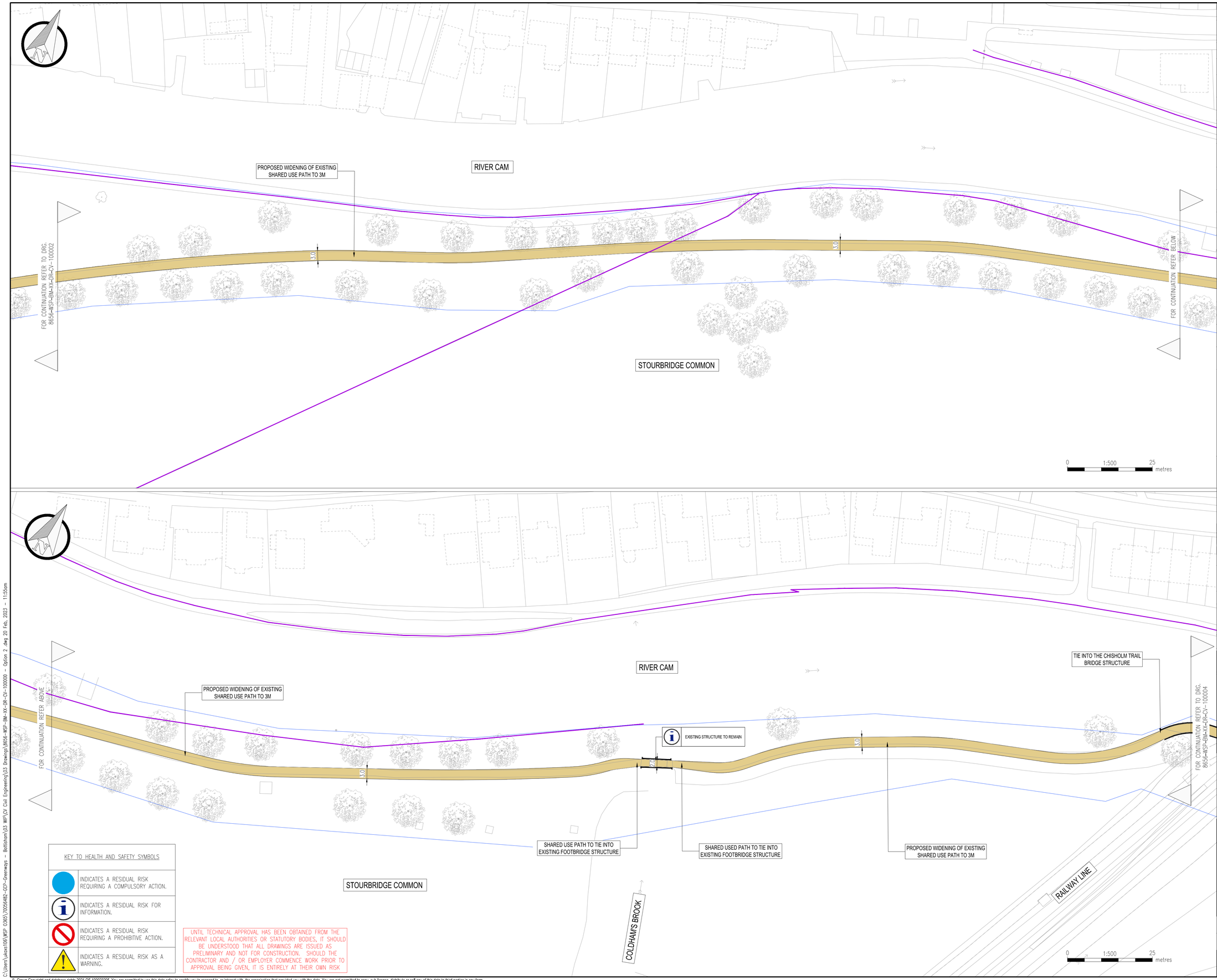

KEY

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	PROPOSED CORDUROY
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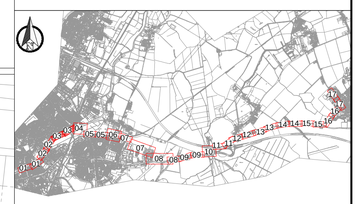

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KEY TO HEALTH AND SAFETY SYMBOLS

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REV.
P03

RIVER CAM

RAILWAY LINE

COLDHAM'S BROOK

DITTON MEADOWS

DITTON MEADOWS

EXISTING CHISHOLM TRAIL BRIDGE STRUCTURE TO REMAIN

EXISTING CATTLE GRID AND PEDESTRIAN ACCESS GATE TO REMAIN

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

TIE INTO THE CHISHOLM TRAIL BRIDGE

TIE INTO THE CHISHOLM TRAIL BRIDGE

EXISTING FOOTBRIDGE STRUCTURE TO REMAIN

TIE INTO EXISTING FOOTBRIDGE STRUCTURE

TIE INTO EXISTING FOOTBRIDGE STRUCTURE

BM03

BM04

BM05

3.0

3.0

3.0

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100003

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100005

0 1:500 25 metres

WORK EXTENTS | VARIES | 3.0 | VARIES | WORK EXTENTS

VEGETATION | PROPOSED SHARED USE PATH | VEGETATION

CROSS SECTION BM05: CHAINAGE 2+310
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

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	PROPOSED VERGE
	PROPOSED SHARED USE PATH
	PROPOSED NEW PARKING SPACES
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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KEY

	PROPOSED FOOTWAY
	PROPOSED RED TACTILE PAVING
	PROPOSED CORDUROY
	PROPOSED CARRIAGEWAY RESURFACING
	PROPOSED RED ASPHALT SURFACING
	PROPOSED VERGE
	PROPOSED SHARED USE PATH
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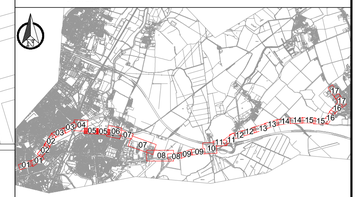

KEY TO HEALTH AND SAFETY SYMBOLS

	INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
	INDICATES A RESIDUAL RISK FOR INFORMATION.
	INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
	INDICATES A RESIDUAL RISK AS A WARNING.

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REV	DATE	BY	DESCRIPTION	CHK	APD
P03	17/02/2023	AS	AMMENDED FOLLOWING LANDOWNER ENGAGEMENT	BKD	ACC
P02	31/10/2022	AS	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

DRAWING STATUS
S2 - FOR INFORMATION

wsp
62-64 Hills Road, Cambridge, CB2 1LA, UK
T +44 (0) 1223 558 050, F +44 (0) 1223 558 051
www.wsp.com

CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 05 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100005

REV.
P03

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SIGNIFICANT LEVEL DIFFERENCE

DRAIN

TIE INTO EXISTING SHARED FOOTWAY

TIE INTO EXISTING SHARED FOOTWAY

PROPOSED WIDENING OF EXISTING SHARED FOOTWAY TO 3m

TIE INTO EXISTING SHARED FOOTWAY

TIE INTO EXISTING SHARED FOOTWAY

PROPOSED WIDENING OF EXISTING SHARED FOOTWAY TO 3m

TIE INTO EXISTING SHARED FOOTWAY

B1047

FISON ROAD

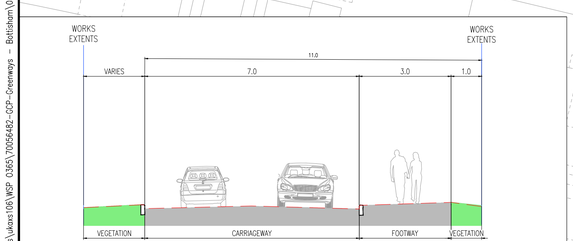
DITTON LANE

PROPOSED PARALLEL CROSSING ARRANGEMENT

TIE INTO EXISTING WING DEVELOPMENT

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100005

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100007



CROSS SECTION BM06: CHAINAGE 3+150
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

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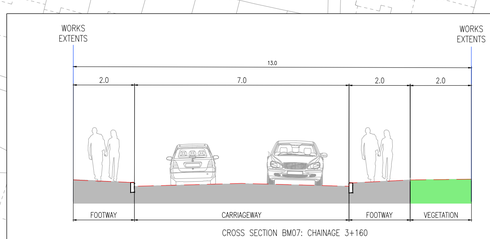
0 1:500 25 metres



CROSS SECTION BM07: CHAINAGE 3+160
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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
1. ALL DIMENSIONS IN METRES, UNLESS OTHERWISE STATED.
2. DESIGN BASED ON OS MAPPING SUBJECT TO TOPOGRAPHIC SURVEY AT NEXT STAGE OF DESIGN.
3. PROPOSED DESIGN WITHIN HIGHWAY BOUNDARY UNLESS OTHERWISE STATED.

REV	DATE	BY	DESCRIPTION	CHK	APD
P03	17/02/2023	AS	AMMENDED FOLLOWING LANDOWNER ENGAGEMENT	BKD	ACC
P02	04/11/2022	AS	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

DRAWING STATUS
S2 - FOR INFORMATION

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 06 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100006

REV.
P03

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THIS SECTION OF THE SCHEME RUNS THROUGH THE EXISTING WING DEVELOPMENT SITE.

EXISTING 2M FOOTWAY

EXISTING 2-WAY 3M CYCLE LANE

DISMANTLED RAILWAY

2.0

3.50

R18.0

FISON ROAD

TIP TREE CLOSE

EXISTING BOLLARDS TO REMAIN

PROPOSED WAY FINDER SIGN - EXACT SIGN AND LOCATION TO BE CONFIRMED AT THE NEXT STAGE OF DESIGN

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100006

FOR CONTINUATION SEE BELOW

0 1:500 25 metres

FOR CONTINUATION SEE ABOVE

EXISTING SHARED CYCLE/FOOTPATH CONNECTION TO EXISTING NEWMARKET ROAD PARK AND RIDE ROUTE

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100008

0 1:1000 50 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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES

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KEY TO HEALTH AND SAFETY SYMBOLS

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DRAWING STATUS

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GREATER CAMBRIDGE PARTNERSHIP

PROJECT

BOTTISHAM GREENWAY

TITLE

GENERAL ARRANGEMENT
SHEET 07 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:1000/1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.

70088656

DRAWING No.

8656-WSP-BM-XX-DR-CV-100007

REV.

P03

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FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100007

PROPOSED WAY FINDING SIGNS TO HIGHLIGHT THE CONTINUATION OF THE GREENWAY

TIE INTO CAMBRIDGE EASTERN ACCESS

NEW MARKET ROAD

TIE INTO CAMBRIDGE EASTERN ACCESS

FOR CONTINUATION SEE BELOW

AIRPORT WAY

0 1:1000 50 metres

QUY WATERS

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

PRIVATE DRIVEWAY ACCESS - PROPOSED CYCLIST PRIORITY

PRIVATE DRIVEWAY ACCESS - PROPOSED CYCLIST PRIORITY

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

TO ACHIEVE A 3M SHARED USE PATH IN THIS SECTION, SIGNIFICANT VEGETATION CLEARANCE AND TREE REMOVAL WILL POTENTIALLY BE REQUIRED - THE EXTENT OF WORKS WILL BE DISCUSSED IN THE NEXT DESIGN STAGE

PROPOSED 1.5m VERGE

TRACK

3.0

FOR CONTINUATION SEE ABOVE

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100009

A1303

SEGREGATION IN THIS SECTION WILL NOT BE LTN 120 COMPLIANT DUE TO WIDTH CONSTRAINTS

DARWIN NURSERIES AND FARM SHOP ENTRANCE - PROPOSED CYCLIST PRIORITY

A1303

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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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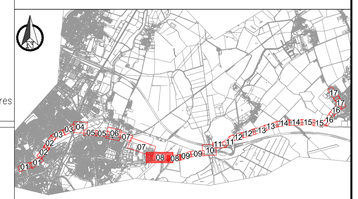

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DRAWING STATUS
S2 - FOR INFORMATION

wsp
62-64 Hills Road, Cambridge, CB2 1LA, UK
T +44 (0) 1223 558 050, F +44 (0) 1223 558 051
www.wsp.com

CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 08 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:1000/1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100008

REV.
P03

C:\Users\alexas106\WSP 0365\70056482 - CCP - Greenways - Bottisham\03 WIP\CV Civil Engineering\03 Drawings\8656-WSP-BM-XX-DR-CV-100000 - Option 2.dwg 20 Feb, 2023 - 1:35pm

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

ENTRANCE & EXIT TO PRIVATE ACCESS - PROPOSED CYCLIST PRIORITY

QUY WATER FARMS

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100008

FOR CONTINUATION SEE BELOW

BM08

3.0

3.0

A1303

NEWMARKET ROAD

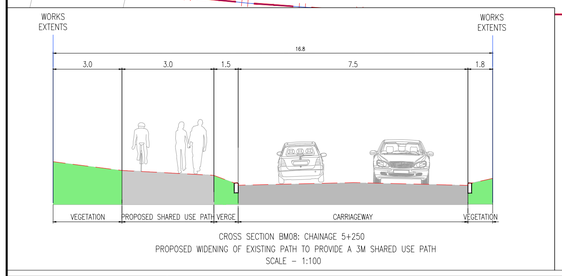
EXIT OF DARWIN NURSERIES & FARM SHOP - PROPOSED GIVE WAY MARKINGS AT BACK OF FOOTWAY TO ENSURE CYCLISTS PRIORITY

PROPOSED 1.5m VERGE

PROPOSED 1.5m VERGE

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

LAYBY TO REMAIN AT 2.5m WIDTH



CROSS SECTION BM08: CHAINAGE 5+250
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

PROPOSED SIGN TO DIAG 950 - THE EXACT LOCATION OF THIS SIGN WILL BE CONFIRMED AT THE NEXT DESIGN STAGE

PROPOSED RELOCATION OF EXISTING SIGNS TO DIAG 670 AND 671 NORTH OF JUNCTION - THE EXACT LOCATION OF THESE SIGNS WILL BE CONFIRMED AT THE NEXT DESIGN STAGE

POOR VISIBILITY VEGETATION CLEARANCE REQUIRED

PROPOSED UNCONTROLLED CROSSING

EXISTING SIGN TO DIAG 950 TO BE RETAINED AND EXISTING SIGNS TO DIAG 670 & 671 TO BE RELOCATED NORTH OF THE JUNCTION

PROPOSED RELOCATION OF EXISTING SIGNS TO DIAG 670 AND 671 NORTH OF JUNCTION - THE EXACT LOCATION OF THESE SIGNS WILL BE CONFIRMED AT THE NEXT DESIGN STAGE

PROPOSED WAY FINDER SIGNS - THE EXACT LOCATION OF THESE SIGNS WILL BE CONFIRMED AT THE NEXT DESIGN STAGE

PROPOSED REALIGNMENT OF EXISTING SHARED USED PATH

SIGNIFICANT LEVEL DIFFERENCE EARTHWORKS REQUIRED

EXISTING SIGNS TO DIAG 670 & 671 TO BE RELOCATED NORTH OF THE JUNCTION

EXISTING SIGN TO DIAG 501 TO BE RETAINED

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

HIGH DITCH ROAD

BM09

3.0

3.0

NEWMARKET ROAD

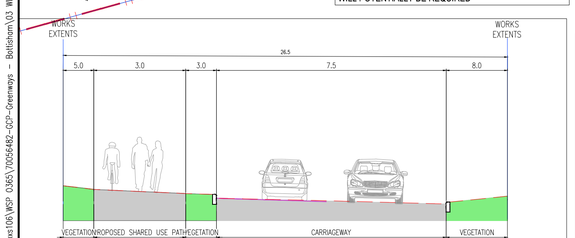
A1303

NEWMARKET ROAD

FOR CONTINUATION SEE ABOVE

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100010

TO ACHIEVE A 3m SHARED USED PATH IN THIS SECTION, SIGNIFICANT VEGETATION CLEARANCE & TREE REMOVAL WILL POTENTIALLY BE REQUIRED



CROSS SECTION BM09: CHAINAGE 5+550
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS	
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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
- EXISTING WING DEVELOPMENT SCHEME
- WORK EXTENTS
- PUBLIC FOOTPATHS
- HIGHWAY BOUNDARY
- EXISTING TREES
- PROPOSED SIGNS
- CROSS SECTION EXISTING PROFILE
- TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
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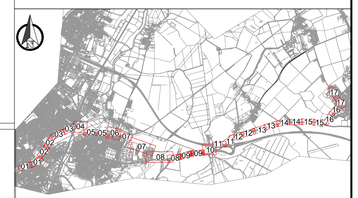

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P03	17/02/2023	AS	AMMENDED FOLLOWING LANDOWNER ENGAGEMENT	BKD	ACC
P02	04/11/2022	AS	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

DRAWING STATUS: S2 - FOR INFORMATION

62-64 Hills Road, Cambridge, CB2 1LA, UK
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CLIENT: GREATER CAMBRIDGE PARTNERSHIP

PROJECT: BOTTISHAM GREENWAY

TITLE: GENERAL ARRANGEMENT SHEET 09 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.: 70088656

DRAWING No.: 8656-WSP-BM-XX-DR-CV-100009 REV.: P03

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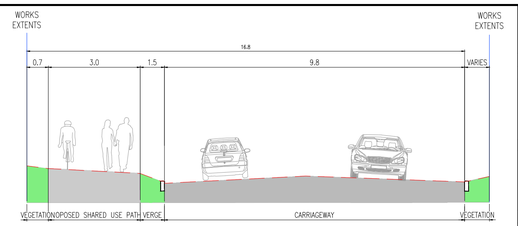
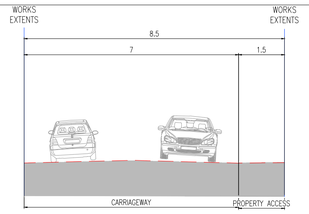


CROSS SECTION BM10: CHAINAGE 6+075
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100



CROSS SECTION BM11: CHAINAGE 6+150
PROPOSED QUIET STREET ENVIRONMENT
SCALE – 1:100

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100011

PROPOSED RESURFACING OF EXISTING SHARED USE PATH WITHIN THE UNDERPASS

ADDITIONAL LAND ACQUISITION MAY BE REQUIRED

PROPOSED BOLLARDS TO RESTRICT VEHICULAR ACCESS

QUIET STREET ENVIRONMENT

TO A393

BM11

BM10

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100009

FIELD ACCESS - CYCLE PRIORITY

EXISTING VEHICLE RESTRAINT SYSTEM TO REMAIN

EXISTING VEHICLE RESTRAINT SYSTEM TO REMAIN

FIELD ACCESS - CYCLE PRIORITY

3.0

2.5

A1303

PROPOSED 1.5M VERGE

LOCALISED NARROWING TO TIE INTO EXISTING PATH AT BRIDGE

LAYBY

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

PROPOSED 1.5M VERGE

LOCALISED NARROWING TO TIE INTO EXISTING PATH AT BRIDGE

EXISTING BRIDGE STRUCTURE TO REMAIN - PARAPET HEIGHT TO BE CHECKED TO ENSURE THAT IT IS SUITABLE FOR EQUESTRIANS

TO ISLAND BUNGALOW

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

PROPOSED 1.5M VERGE

T0 ACHIEVE 3M IN THIS AREA VEGETATION CLEARANCE WOULD NEED TO BE REQUIRED

EXISTING BRIDGE STRUCTURE TO REMAIN - PARAPET HEIGHT TO BE CHECKED TO ENSURE THAT IT IS SUITABLE FOR EQUESTRIANS

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

POTENTIAL EARTHWORKS MAY BE REQUIRED DUE TO THE LEVEL DIFFERENCE BETWEEN THE PROPOSED FACILITY AND THE EXISTING GROUND LEVELS. THE EMBANKMENTS MIGHT PROTURDE THE HIGHWAY BOUNDARY

QUY WATER BRIDGE

A1303

TO ACHIEVE 3M AT THIS SECTION HEAVY VEGETATION CLEARANCE WOULD NEED TO BE REQUIRED

PROPOSED 1.5M VERGE

1 IN 5 TAPER TO TIE INTO EXISTING

LOCALISED NARROWING TO TIE INTO EXISTING PATH AT BRIDGE

EXISTING VEHICLE RESTRAINT SYSTEM TO REMAIN

1 IN 10 TAPER TO TIE INTO EXISTING

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
- EXISTING WING DEVELOPMENT SCHEME
- WORK EXTENTS
- PUBLIC FOOTPATHS
- HIGHWAY BOUNDARY
- EXISTING TREES
- PROPOSED SIGNS
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- TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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DRAWING STATUS
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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 10 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100010

REV.
P03

KEY TO HEALTH AND SAFETY SYMBOLS

- INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
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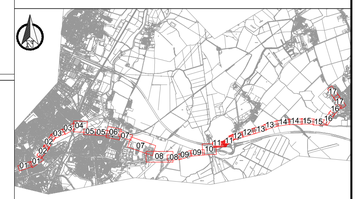
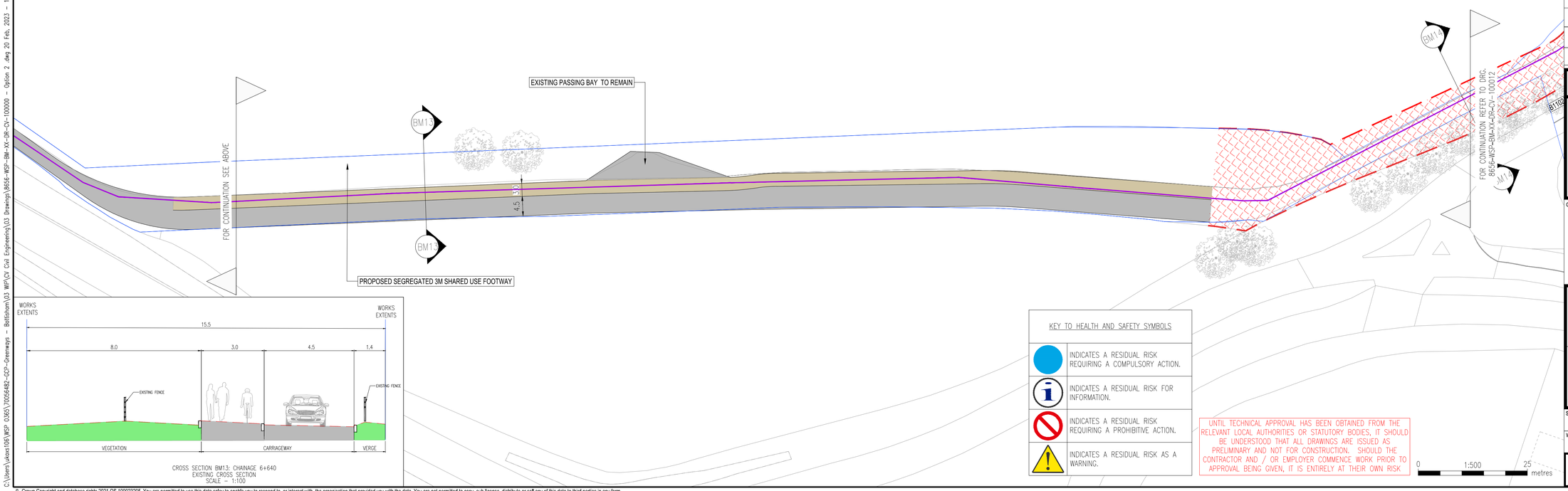
- INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
- INDICATES A RESIDUAL RISK AS A WARNING.

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

CROSS SECTION BM12: CHAINAGE 6+440
EXISTING CROSS SECTION
SCALE – 1:100





CROSS SECTION BM13: CHAINAGE 6+640
EXISTING CROSS SECTION
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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
1. ALL DIMENSIONS IN METRES, UNLESS OTHERWISE STATED.
2. DESIGN BASED ON OS MAPPING SUBJECT TO TOPOGRAPHIC SURVEY AT NEXT STAGE OF DESIGN.
3. PROPOSED DESIGN WITHIN HIGHWAY BOUNDARY UNLESS OTHERWISE STATED.

KEY TO HEALTH AND SAFETY SYMBOLS

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P03	17/02/2023	AS	AMMENDED FOLLOWING LANDOWNER ENGAGEMENT	BKD	ACC
P02	04/11/2022	AS	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

DRAWING STATUS
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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 11 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100011

REV.
P03

C:\Users\alexan106\WSP O365\70056482-GCP-Greenways - Bottisham\03 WIP\CV Civil Engineering\03 Drawings\8656-WSP-BM-XX-DR-CV-100000 - Option 2.dwg 20 Feb, 2023 - 1:04pm

EXISTING SIGNAL CONTROLLED CROSSING TO BE RETAINED

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

ST MARRY'S CHURCH

B1102

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M
EXISTING FENCE TO BE RELOCATED

BM14

BM13

FOR CONTINUATION REFER TO DRG: 8656-WSP-BM-XX-DR-CV-100011

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLIST

FOR CONTINUATION REFER BELOW

3.0

2.5

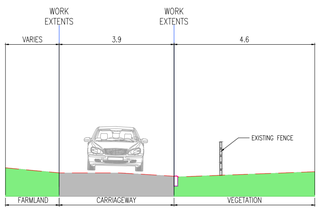
LAY-BY

NEW MARKET ROAD

NEWMARKET ROAD

CHURCH FARM

0 1:500 25 metres



CROSS SECTION BM14: CHAINAGE 6+875
EXISTING CROSS SECTION
SCALE – 1:100

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLIST

FOR CONTINUATION REFER ABOVE

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLIST

FOR CONTINUATION REFER TO DRG: 8656-WSP-BM-XX-DR-CV-100013

3.0

2.0

3.0

2.5

3.0

NEWMARKET ROAD

LAY-BY

NEWMARKET ROAD

EXISTING PRIVATE ACCESS PRIORITY TO CYCLIST

DESIRABLE MINIMUM VERGE WIDTH DUE TO WIDTH CONSTRAINTS

0 1:500 25 metres

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- 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
- EXISTING WING DEVELOPMENT SCHEME
- WORK EXTENTS
- PUBLIC FOOTPATHS
- HIGHWAY BOUNDARY
- EXISTING TREES
- PROPOSED SIGNS
- CROSS SECTION EXISTING PROFILE
- TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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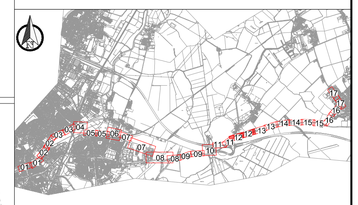

REV	DATE	BY	DESCRIPTION	CHK	APD
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P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

KEY TO HEALTH AND SAFETY SYMBOLS

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 12 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100012

REV.
P03

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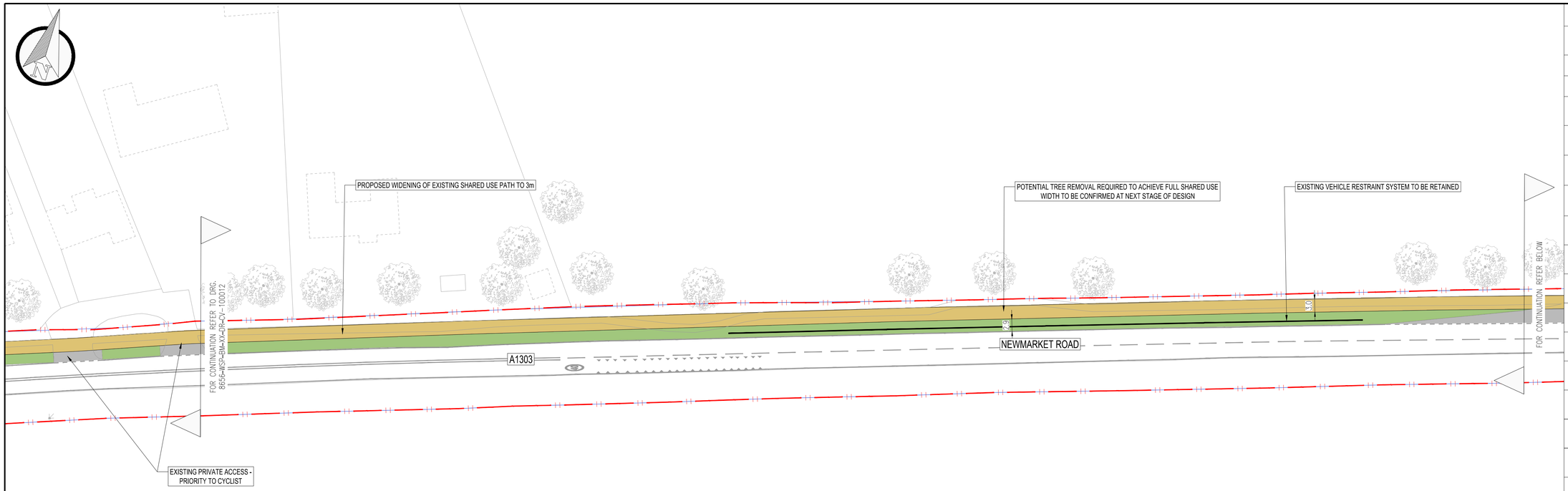
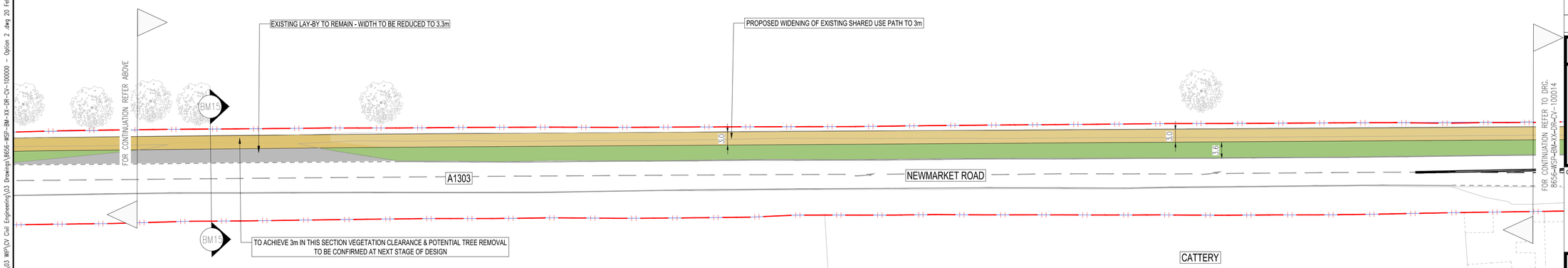
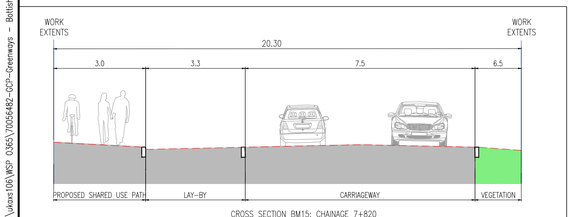


0 1:500 25 metres



0 1:500 25 metres



CROSS SECTION BM15: CHAINAGE 7+820
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

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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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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REV	DATE	BY	DESCRIPTION	CHK	APD
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P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 13 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100013

REV.
P03

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PROPOSED CARRIAGEWAY REALIGNMENT TO TIE BACK INTO EXISTING CARRIAGEWAY

REFER TO INSET FOR STANDARD DETAILS

PROPOSED RELOCATED SIGN TO DIAG 610 - LEFT

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

DUNSLEY CORNER

PROPOSED RELOCATED ISLAND

PROPOSED RELOCATED BOLLARDS

ALBERT ROAD

PROPOSED CARRIAGEWAY REALIGNMENT TO THE WEST

EXISTING ISLAND TO BE REMOVED

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

VEGETATION TO BE TRIMMED TO THE BACK OF SHARED USE PATH

EXISTING SIGNS TO BE RELOCATED AT NEXT STAGE OF DESIGN

POTENTIAL LAND TAKE REQUIRED, TO BE CONFIRMED AT NEXT STAGE OF DESIGN

POTENTIAL TREE REMOVAL REQUIRED TO BE CONFIRMED AT NEXT STAGE OF DESIGN

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLISTS

2M VERGE STRIP TO BE MAINTAINED

A1303

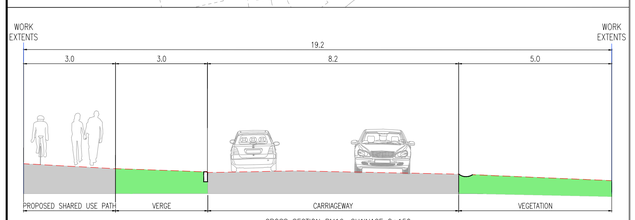
NEWMARKET ROAD

BM16

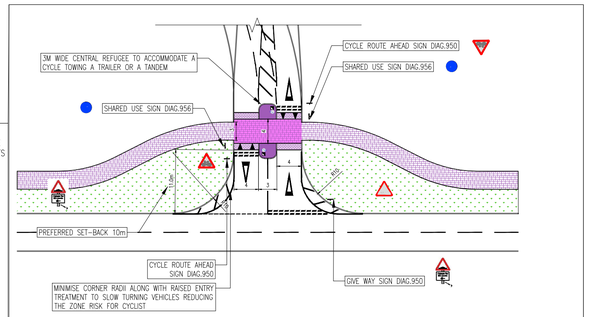
BM15

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100015

FOR CONTINUATION SEE BELOW



CROSS SECTION BM16: CHAINAGE 8+150
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE - 1:100



CYCLE PRIORITY CROSSING ON ROAD HUMP WITH REFUGEE ISLAND AND TRAFFIC CALMING FEATURE
SCALE 1:500

0 1:500 25 metres

VEGETATION TO BE TRIMMED TO THE BACK OF SHARED USE PATH

EXISTING SIGNS TO BE RELOCATED AT NEXT STAGE OF DESIGN

POTENTIAL LAND TAKE REQUIRED, TO BE CONFIRMED AT NEXT STAGE OF DESIGN

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLISTS

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3M

FOR CONTINUATION SEE ABOVE

A1303

NEWMARKET ROAD

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100015

2M VERGE STRIP TO BE MAINTAINED

EXISTING PRIVATE ACCESS - PRIORITY TO CYCLISTS

2M VERGE STRIP TO BE MAINTAINED

LITTLE WILBRAHAM ROAD

0 1:500 25 metres

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KEY TO HEALTH AND SAFETY SYMBOLS

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	PROPOSED VERGE
	PROPOSED SHARED USE PATH
	PROPOSED NEW PARKING SPACES
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
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	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

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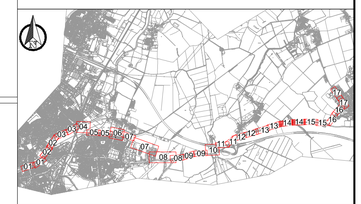

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PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 14 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100014

REV.
P03

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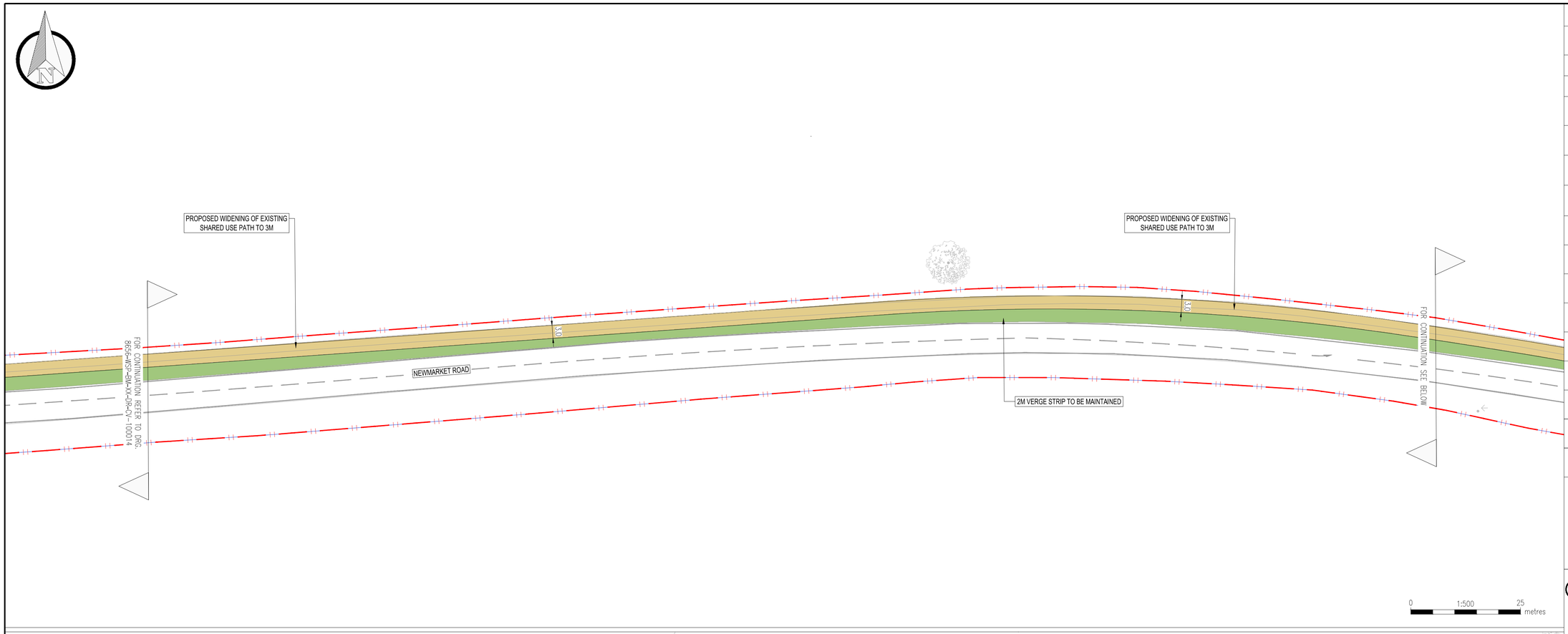

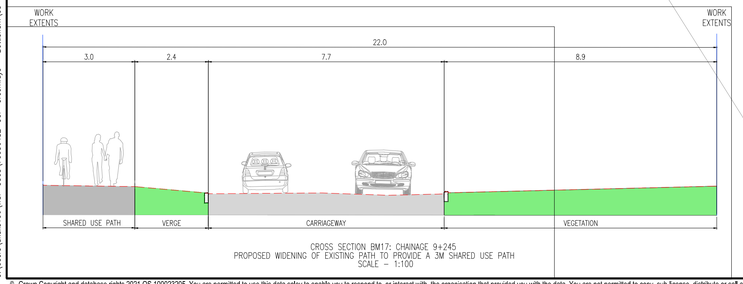

CROSS SECTION BM17: CHAINAGE 9+245
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
SCALE – 1:100

KEY TO HEALTH AND SAFETY SYMBOLS

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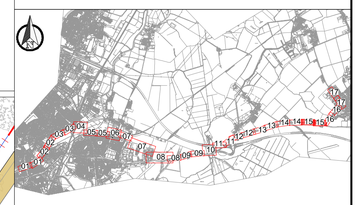

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CLIENT
GREATER CAMBRIDGE PARTNERSHIP

PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 15 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100015

REV.
P03

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VEGETATION TO BE TRIMMED TO THE BACK OF THE SHARED USE PATH

EXISTING SIGNS AND LAMP COLUMNS TO BE RELOCATED AT NEXT STAGE OF DESIGN

POTENTIAL LAND TAKE REQUIRED TO BE CONFIRMED AT NEXT STAGE OF DESIGN

POTENTIAL TREE REMOVAL REQUIRED TO BE CONFIRMED AT NEXT STAGE OF DESIGN

POTENTIAL LOCATION OF SPEED REDUCTION FROM NATIONAL SPEED LIMIT TO 40MPH TO BE CONFIRMED AT NEXT STAGE OF DESIGN (APPROX CH 9 +420)

PROPOSED WIDENING OF EXISTING SHARED USE PATH TO 3m

PROPOSED GATEWAY FEATURE TO BOTTISHAM VILLAGE TO BE CONFIRMED AT THE NEXT STAGE OF DESIGN

EXISTING PUMPING STATION ACCESS TO REMAIN

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100015

FOR CONTINUATION SEE BELOW

3.0

BELL ROAD

PROPOSED SPEED LIMIT OF 40MPH

EXISTING 30mph SIGN TO REMAIN
NATIONAL SPEED LIMIT SIGN TO BE REPLACED WITH 40mph SIGN

ST PETERS FIELD

OX MDW

0 1:500 25 metres

PROPOSED QUIET STREET ENVIRONMENT: 20MPH SPEED LIMIT. ADDITIONAL TRAFFIC MEASURES SUCH AS A BUILD OUT TO BE CONFIRMED IN THE NEXT DESIGN STAGE

REFER TO STANDARD BUILD OUT DETAIL

EXISTING FARM ACCESS TO REMAIN

FOOTWAY TO REMAIN AS EXISTING

WISBEACH CLOSE

BELL ROAD

HOWLETT WAY

BM18

FOR CONTINUATION SEE ABOVE

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100017

STANDARD BUILD OUT DETAIL ALLOWING CYCLISTS TO JOIN THE CARRIAGEWAY NORTH-BOUND & SHARED USE PATH SOUTH-BOUND
SCALE - 1:200

SIGN TO DIAG 674

SIGN TO DIAG 675

1003B GIVE WAY LINE MAY BE OMITTED SUBJECTED TO RSA COMMENTS

SIGN TO DIAG 965

SIGN TO DIAG 956

800MM CORDUROY

SIGN TO DIAG 615

DIRECTIONAL SIGNS FOR CYCLE ROUTE TBC

4.6

10.2

BOLLARD WITH KEEP RIGHT ARROW TO DIAG 610

DIRECTIONAL SIGNS FOR CYCLE ROUTE TBC

SIGN TO DIAG 811

SIGN TO DIAG 674

SIGN TO DIAG 675

KEY TO HEALTH AND SAFETY SYMBOLS

	INDICATES A RESIDUAL RISK REQUIRING A COMPULSORY ACTION.
	INDICATES A RESIDUAL RISK FOR INFORMATION.
	INDICATES A RESIDUAL RISK REQUIRING A PROHIBITIVE ACTION.
	INDICATES A RESIDUAL RISK AS A WARNING.

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0 1:500 25 metres

WORK EXTENTS

10.6

1.8 6.6 2.2

FOOTWAY CARRIAGEWAY FOOTWAY

CROSS SECTION BM18: CHAINAGE 9+955
PROPOSED WIDENING OF EXISTING PATH TO PROVIDE A 3M SHARED USE PATH
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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
	EXISTING TREES
	PROPOSED SIGNS
	CROSS SECTION EXISTING PROFILE
	TIE IN TO SWAFFHAMS ROUTE TO BE CONFIRMED

NOTES
1. ALL DIMENSIONS IN METRES, UNLESS OTHERWISE STATED.
2. DESIGN BASED ON OS MAPPING SUBJECT TO TOPOGRAPHIC SURVEY AT NEXT STAGE OF DESIGN.
3. PROPOSED DESIGN WITHIN HIGHWAY BOUNDARY UNLESS OTHERWISE STATED.

REV	DATE	BY	DESCRIPTION	CHK	APD
P03	17/02/2023	AS	AMMENDED FOLLOWING LANDOWNER ENGAGEMENT	BKD	ACC
P02	04/11/2022	AS	ROAD SAFETY AUDIT STAGE 1 ISSUE	BKD	AKM
P01	12/07/2022	AS	FIRST ISSUE	AS	AKM

DRAWING STATUS
S2 - FOR INFORMATION

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PROJECT
BOTTISHAM GREENWAY

TITLE
GENERAL ARRANGEMENT
SHEET 16 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100016

REV.
P03

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PROPOSED QUIET STREET ENVIRONMENT: 20MPH SPEED LIMIT. ADDITIONAL TRAFFIC CALMING MEASURES TO BE CONFIRMED IN THE NEXT DESIGN STAGE

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMP COLUMN

EXISTING FOOTWAY TO REMAIN

ARBER CL

COLLEGE CL

LODE ROAD

FOR CONTINUATION SEE BELOW

PROPOSED ROAD MARKINGS TO DIAG 1057 SPACED AT 20m

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMP COLUMN

EXISTING LAMP COLUMN TO BE RELOCATED

TUNBRIDGE LN

EXISTING BOLLARDS TO BE RELOCATED

PROPOSED RAISED TABLE

EXISTING RESIDENTIAL ACCESS TO REMAIN

EXISTING BOLLARDS TO BE REMOVED

PROPOSED PLANTERS

PROPOSED BLOCK PAVED AREA FOR CYCLISTS AND DRIVERS

PROPOSED RAISED TABLE

EXISTING PARKING BAY TO REMAIN

PROPOSED BLOCK PAVED AREA OUTSIDE HIGHWAY BOUNDARY TO BE CONFIRMED AT NEXT STAGE OF DESIGN

BRADFORDS CL

BELL ROAD (A10)

EXISTING RESIDENTIAL ACCESS TO REMAIN

PROPOSED WAY FINDING SIGN EXACT SIGN AND LOCATION TO BE CONFIRMED AT NEXT DESIGN STAGE

PROPOSED SIGNS TO DIAG 675 & 674

EXISTING BUS FLAG & SHELTER TO REMAIN

SLOW

HIGH STREET

EXISTING BOLLARDS TO REMAIN

PROPOSED RAISED TABLE

PROPOSED SIGN TO DIAG 675

FOR CONTINUATION REFER TO DRG. 8656-WSP-BM-XX-DR-CV-100016

0 1:500 25 metres

PROPOSED QUIET STREET ENVIRONMENT: 20MPH SPEED LIMIT. ADDITIONAL TRAFFIC CALMING MEASURES TO BE CONFIRMED IN THE NEXT DESIGN STAGE

BOTTIHSAM VILLAGE COLLEGE

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMP COLUMN

PROPOSED ROAD MARKINGS TO DIAG 1057 SPACED AT 20m

EXISTING FOOTWAY TO REMAIN

BM18

BM19

LODE ROAD

FOR CONTINUATION SEE ABOVE

EXISTING PARKING BAY TO REMAIN

PROPOSED SIGN TO DIAG 670 TO BE PLACED ON EXISTING LAMP COLUMN

EXISTING FOOTWAY TO REMAIN

JENNY'S CL

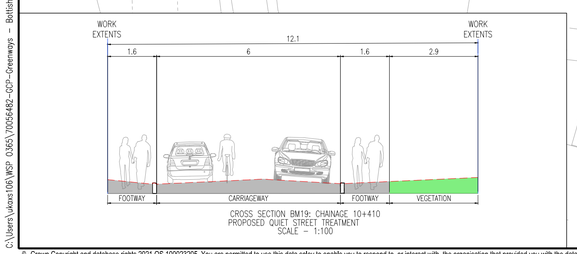
POUND CL

END OF BOTTISHAM GREENWAY ROUTE

PROPOSED SIGNS TO DIAG 675 & 674

PROPOSED SIGNS TO DIAG 674 & 675

0 1:500 25 metres



CROSS SECTION BM19: CHAINAGE 10+410
PROPOSED QUIET STREET TREATMENT
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
	EXISTING WING DEVELOPMENT SCHEME
	WORK EXTENTS
	PUBLIC FOOTPATHS
	HIGHWAY BOUNDARY
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	PROPOSED SIGNS
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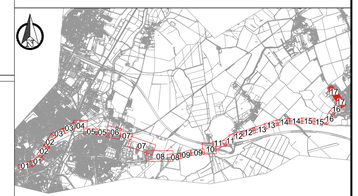

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GENERAL ARRANGEMENT
SHEET 17 OF 17

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
70088656

DRAWING No.
8656-WSP-BM-XX-DR-CV-100017

REV.
P03

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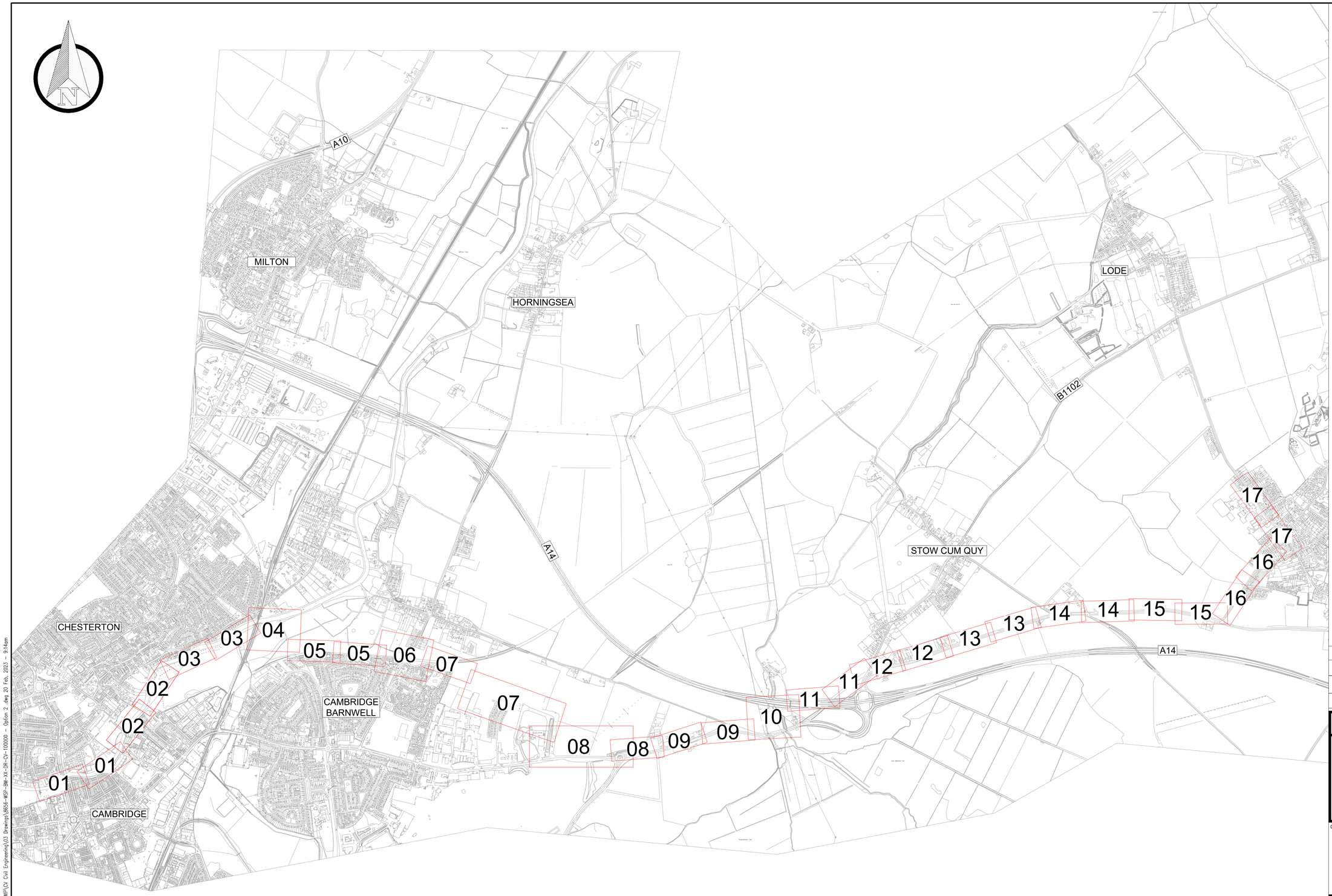

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PROJECT

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TITLE

GENERAL ARRANGEMENT
KEY PLAN

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:12500	12/07/2022	AP	AS	AKM	A1

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70088656

DRAWING No.

8656-WSP-BM-XX-DR-CV-100000

REV.

P03

0 1:12500 625 metres

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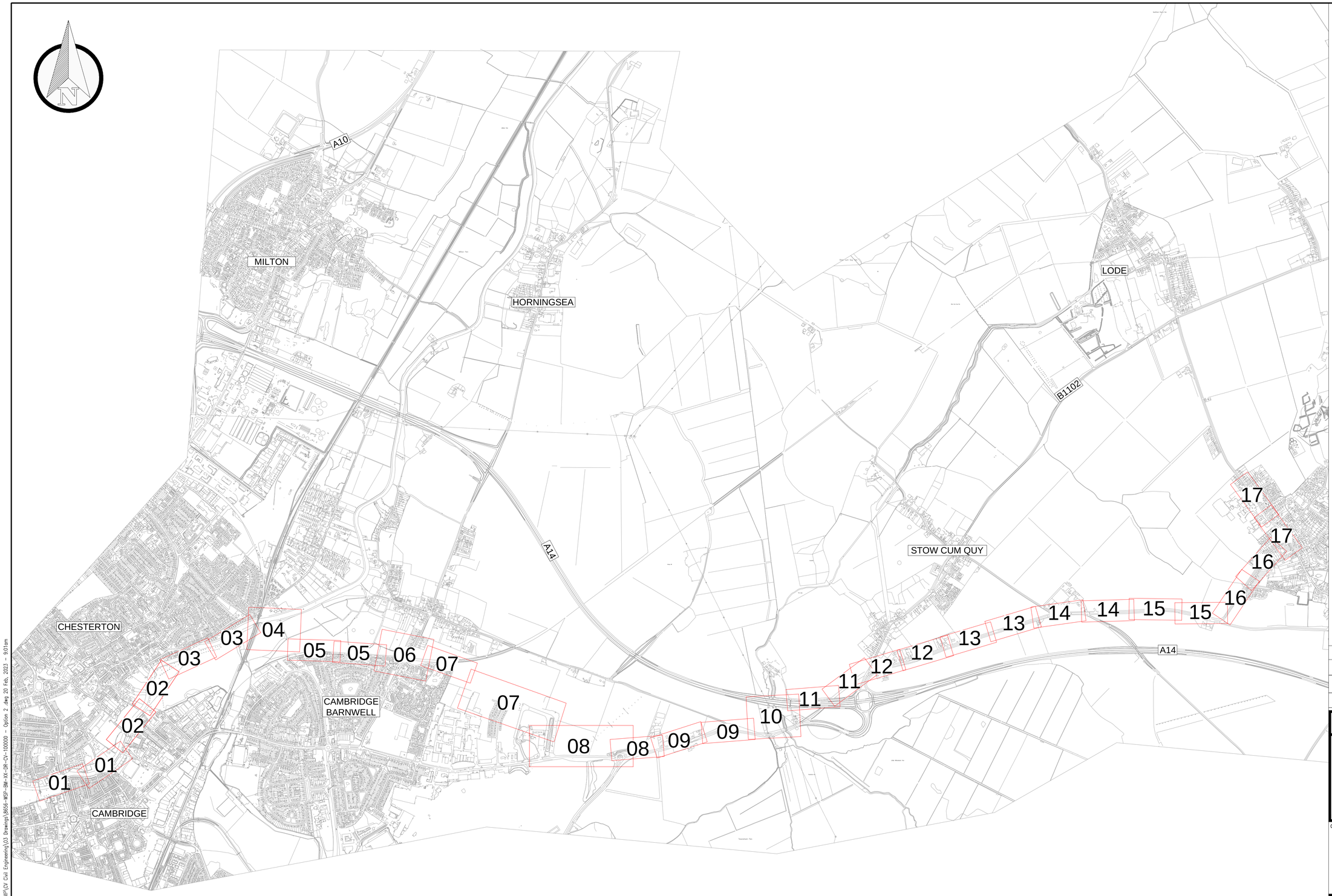

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TITLE
GENERAL ARRANGEMENT
KEY PLAN

SCALE @ A1	DATE	DESIGN/DRAWN	CHECKED	APPROVED	SHEET
1:12500	12/07/2022	AP	AS	AKM	A1

WSP PROJECT NO.
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REV.
P03

0 1:12500 625 metres

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Appendix B

APPENDIX B - TEE, PA, AMCB TABLES

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

Non-business: Commuting

	MODES		ROAD	COACH	RAIL	OTHER
User benefits	**TOTAL**		**Private Cars and LGVs**	**Passengers**	**Passengers**	
Travel time	192,882		192,882			0
Vehicle operating costs	0					
User charges	0					
During Construction & Maintenance	0					
NET NON-BUSINESS BENEFITS: COMMUTING	192,882	*(1a)*	192,882	0	0	0

Non-business: Other

	MODES		ROAD	COACH	RAIL	OTHER
User benefits	**TOTAL**		**Private Cars and LGVs**	**Passengers**	**Passengers**	
Travel time	472,600		472,600			0
Vehicle operating costs	0					
User charges	0					
During Construction & Maintenance	0					
NET NON-BUSINESS BENEFITS: OTHER	472,600	*(1b)*	472,600	0	0	0

Business

User benefits			**Goods Vehicles**	**Business Cars & LGVs**	**Passengers**	**Freight**	**Passengers**	
Travel time	91,257			91,257				
Vehicle operating costs	0							
User charges	0							
During Construction & Maintenance	0							
Subtotal	91,257	*(2)*	0	91,257	0	0	0	0

Private sector provider impacts			**Freight**	**Passengers**	
Revenue	0				
Operating costs	0				
Investment costs	0				
Grant/subsidy	0				
Subtotal	0	*(3)*	0	0	0

Other business impacts						
Developer contributions		*(4)*				
NET BUSINESS IMPACT	91,257	*(5) = (2) + (3) + (4)*				

TOTAL

Present Value of Transport Economic Efficiency Benefits (TEE)	756,739	*(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 - Swaffhams Greenway

	ALL MODES		ROAD	BUS and COACH	RAIL	OTHER
Local Government Funding	**TOTAL**		**INFRASTRUCTURE**			
Revenue	0					
Operating Costs	-4,669		-4,669			
Investment Costs	0					
Contributions	0					
Grant/Subsidy Payments	0					
NET IMPACT	-4,669	*(7)*				
Central Government Funding: Transport						
Revenue	0					
Operating costs	0					
Investment Costs	4,532,113					4,532,113
Contributions	0					
Grant/Subsidy Payments	0					
NET IMPACT	4,532,113	*(8)*				
Central Government Funding: Non-Transport						
Indirect Tax Revenues	73,106	*(9)*				73,106
TOTALS						
Broad Transport Budget	4,527,444	*(10) = (7) + (8)*				
Wider Public Finances	73,106	*(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	8,467	*(12)*
Local Air Quality	17,333	*(13)*
Greenhouse Gases	61,599	*(14)*
Journey Quality	272,249	*(15)*
Physical Activity	9,779,320	*(16)*
Accidents	208,138	*(17)*
Economic Efficiency: Consumer Users (Commuting)	192,882	*(1a)*
Economic Efficiency: Consumer Users (Other)	472,600	*(1b)*
Economic Efficiency: Business Users and Providers	91,257	*(5)*
Wider Public Finances (Indirect Taxation Revenues)	- 73,106	*- (11) - sign changed from PA table,*
Present Value of Benefits (see notes) (PVB)	11,030,740	*(16) + (17) + (1a) + (1b) + (5) - (11)*
Broad Transport Budget	4,527,444	*(10)*
Present Value of Costs (see notes) (PVC)	4,527,444	*(PVC) = (10)*

OVERALL IMPACTS

Net Present Value (NPV)	6,503,296	NPV=PVB-PVC
Benefit to Cost Ratio (BCR)	2.4	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

AST

Appraisal Summary Table

Date produced:	19	5	2023

Contact:

Name of scheme:	Bottisham Greenway
Description of scheme:	This Bottisham Greenway scheme provides improvements to walking and cycling facilities between Bottisham and Cambridge.

Contact:	
Name	Thomas Fitzpatrick
Organisation	GCP
Role	Promoter/Official

Impacts		Summary of key impacts	Assessment			
			Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
Economy	Business users & transport providers	The scheme will provide new, safer, more direct segregated cycling and walking 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(£) Net journey time changes (£) 0 to 2min / 2 to 5min / > 5min	-	91,257	
	Reliability impact on Business users	Reliability impacts on business users are likely to be very small and have not been considered at this stage and therefore a qualitative assessment is not provided.	-	Not Assessed		
	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	Overall, the scheme is expected to reduce vehicle traffic as people transfer to foot or bicycle. Traffic noise would reduce accordingly.	-	-	8,467	
	Air Quality	Modal shift to cycling and walking, and associated reduced road traffic, will result in locally improved air quality.	-	-	17,333	
	Greenhouse gases	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.	Change in non-traded carbon over 60y (CO2e) Change in traded carbon over 60y (CO2e)	-	61,599	
	Landscape	Although the Proposed Scheme will be notable during construction, these would be short-term and temporary in effect. The existing adjacent landscape consists of agricultural land, as well as the village of Bottisham. The minor losses associated with the Proposed Scheme will not be significant when considered in the context of the overall character of the area. There is the opportunity for mitigation and additional planting and improvement to hedgerow, 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. 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 to Slight Beneficial.	-	Neutral to Slight Beneficial		
		The townscape has few cultural heritage features, and has medium levels of human interaction. The village of Bottisham is rural, with close proximity to the city of Cambridge. The Proposed Scheme will be notable during construction, but would be short term and temporary in effect. During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. Overall, the changes are minor and do not impact the wider townscape character and offer only minor changes to localised visual receptors. The impact of the Proposed Scheme is therefore considered to be Neutral.	-	Neutral		
	Historic Environment	Within the site boundary, there will be a negligible effect on the Riverside and Stourbridge Common Conservation Area and a negligible effect on the three Grade II listed assets (Milestones). Outside the site boundary and within the 50m study area, there would be a negligible effect on the Ferry Lane Conservation Area, neutral effect on the scheduled monument (pumping station), neutral effect on the Grade II listed Parish Church of St Mary's and a negligible effect on the Grade II listed buildings (1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street). The Proposed Scheme presents opportunities for the enhancement of heritage assets (e.g. cycling and walking trails and appropriate traffic sign boards along the route). A full baseline assessment of non-designated heritage assets was scoped out at this stage. The Bottisham Greenway has the potential to result in the partial or complete lo.ss of buried heritage assets in areas where ground disturbance is proposed is outside of the existing highway.Whilst the extent of survival and the potential for non-designated heritage assets along the route is unknown, based on the localised and superficial nature of the	-	Designated assets: Neutral Non-designated assets: Unknown (subject to further detailed assessment)		
			-			
	Biodiversity	Without mitigation the Proposed Scheme is likely to result in a Large Adverse impact on biodiversity, due to potential effects to water vole, Wilbraham Fens Site of Special Scientific Interest (SSSI) and Logan's Meadow Local Nature Reserve (LNR). These impacts can be avoided through maintaining a 5m buffer from river and drainage ditch banks and the implementation of suitable precautionary works which would reduce the impact to these receptors to Neutral.	-	Neutral		
		The Proposed Scheme is likely to result in a Slight Adverse impacts to three LNRs connected to the River Cam and Coldham's Brook, hedgerows, bats, badger, otter, nesting birds, reptiles and amphibians including Great Crested Newts (GCN). Precautionary measures could reduce the potential impact to Neutral for the three LNRs, nesting birds, reptiles and amphibians, including GCN. However, at this stage of the assessment and in the absence of suitable survey data to inform required mitigation measures for hedgerows, bats, badger and otter, the likely impacts on these receptors remain. Scored Slight Adverse. Further surveys and mitigation as required would be more likely to bring the assessment score down to Neutral.	-	Neutral to Slight Adverse		
Social	Commuting and Other users	It is not expected that this route will provide any specific journey time savings. 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.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	-	665,482	
	Reliability impact on Commuting and Other users	The Bottisham Greenway scheme will provide an upgraded continuous walking and cycling route from between Bottisham and Cambridge, improving 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. Increased usage of the cycle network will promote more physical activity. Greater levels of walking and cycling will result in health benefits through reduced health problems including diabetes and high blood pressure. The increase 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, and economic growth in the region.	-	-	9,779,320	
	Journey quality	The improvements to the cycling and walking infrastructure along the route will improve the pleasantness of surroundings for users.	-	-	272,249	
	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 an overall reduction in highway-kilometres travelled and therefore the number of highway accidents.	-	-	208,138	
	Security	Security improvements based on Greenways lighting strategy will form a part of the Swaffhams Greenway scheme, providing some benefits with respect to security along the network.	-	Slight Beneficial		
	Access to services	The Bottisham Greenway scheme is not expected to have an impact on the accessibility of services, as there is already walking and cycling infrastructure in place along the road, and there are no sections of new route.	-	Neutral		
	Affordability	Due to the scheme instigating mode shift, 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.	-	Slight Beneficial		

Appraisal Summary Table		Date produced:	19	5	2023	Contact:	
Name of scheme:	Bottisham Greenway					Name	Thomas Fitzpatrick
Description of scheme:	This Bottisham Greenway scheme provides improvements to walking and cycling facilities between Bottisham and Cambridge.					Organisation	GCP
						Role	Promoter/Official

Impacts		Summary of key impacts	Assessment			
			Quantitative	Qualitative	Monetary £(NPV)	Distributional 7-pt scale/ vulnerable grp
	Severance	The introduction of the Bottisham Greenway scheme will improve severance slightly for cyclists and pedestrians due to improved continuity of the cycling and walking infrastructure and priority at junctions for active modes.	-	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).	-	-	4,527,444	
	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.	-	-	-73,106	

Appendix D

TAG WORKSHEETS

TAG Landscape Impacts Worksheet

	Step 2	Step 3				Step 4
Features	**Description**	**Scale it matters**	**Rarity**	**Importance**	**Substitutability**	**Impact**
Pattern	The pattern of landscape within the wider 1km study area is of low-lying, gently undulating land rising to the north-east. The land is lowest nearer to central Cambridge and the land rises gently to the north-east near Bottisham Village. The route runs from north-east Cambridge, north east through rural landscape, crossing the A14, passing Stow Cum Quy Village, and ending within Bottisham Village. The landscape pattern is of irregular, generally rectilinear arable fields defined by mature, fragmented hedgerows and interspersed by small, scattered woodlands. There are also few pastoral fields within the area. Roads follow linear routes from Cambridge to the low density settlement of Bottisham village, largely following the A1303.	The pattern of the landscape is typical of the local area.	The landscape pattern is common at all scales.	The landscape pattern is of medium importance at the local level.	Loss of field margin or roadside vegetation can be substituted. Loss of mature trees could be replaced in the medium to long term.	**Slight beneficial** The proposal will integrate into the existing pattern of the landscape, following existing field boundaries and roads. There will likely be a minor impact on hedgerows and trees associated with the Proposed Scheme, however there will be the opportunity for strengthening existing hedgerows and to provide additional tree planting. Overall, the Proposed Scheme will be a broadly imperceptible change to the landscape pattern.
Tranquillity	The rural landscape comprising of arable fields, interspersed villages, and rural roads provides a medium level of tranquillity. The A1303 corridor which runs through the study area, following the majority of the route, and the quieter Bell Road to the east of the study area limit tranquillity in surrounding localised locations, from vehicle noise pollution. The busy A14 crossing the middle of the route, negatively impacts tranquillity. Cambridge City Airport is also located south of the route, adding to noise pollution. Tranquillity levels remain moderate to the south area of the route and between Fen Ditton and the A14.	Tranquillity in the study area matters at the local level.	Low availability of tranquillity in the study area is 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 instead cycle along the Greenway. 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. The lack of tranquillity during construction will be notable but short term and temporary in effect.
Cultural	There are no nationally designated landscape sites such as national parks or Areas of Outstanding Natural Beauty within the 1km study area. Bottisham Village at the north end of the route of the Proposed Scheme is locally designated as a Conservation Area and includes Listed Buildings as well as scheduled monuments. The historic layout of villages followed the routes of roads. Expansion of Bottisham village has included conversion of local fields into more dense housing with minor access roads. Historic field boundaries and patterns remain. Woodland pockets surrounding Bottisham and the rest of the route are priority habitats.	The conservation areas, settlement layout and field pattern matter at the local level.	Areas identified as Conservation Areas are not rare nationally but locally noteworthy.	Cultural landscapes in the study area are important at a regional, local and site scale.	Cultural landscapes cannot be substituted.	**Neutral** The Proposed Scheme would follow existing field boundaries and roads and would pass through Conservation Areas. Degradation to existing cultural landscapes including field boundaries and layout surrounding the Proposed Scheme is unlikely.
Landcover	Landcover surrounding the 1km study area is a mixture of village settlements, business parks, and agricultural land comprised of medium to large, rectilinear arable fields with smaller pastoral fields close to villages. Field boundaries consist of hedgerows. Scattered woodlands are prevalent within the study area. The Cambridge City Airport is located south of the route, within the study area.	Landcover within the study area matters at the local and regional level.	Landcover within the study area is locally common.	Landcover in the study area is of moderate importance at a local level.	Field margins across the study area are replaceable. Woodland and mature tree cover would be replaceable in the medium to long term.	**Neutral to slight beneficial** As the Proposed Scheme follows existing field boundaries, lanes and roads, losses associated with the Proposed Scheme to the existing landcover are generally limited to field margins which will be nominable and broadly imperceptible in the context of the local land cover. There is the opportunity for the Proposed Scheme to strengthen landcover by re-establishing sections of fragmented hedgerows at field boundaries.

TAG Landscape Impacts Worksheet

	Step 2	Step 3				Step 4
Features	**Description**	**Scale it matters**	**Rarity**	**Importance**	**Substitutability**	**Impact**
Summary of character	Overall, the landscape character within the study area is in its majority that of an arable rural landscape with medium to large, regular shaped fields, hedgerow field boundaries, village settlements along country roads with scattered woodlands and small pastoral fields at the village edges. Roads are generally straight and linear. The Cambridge City Airport, the A14 and the A1303 limit localised levels of tranquillity. Vegetation clearance to accommodate the Proposed Scheme would be minimal and there is the 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. There are few residential receptors adjacent to the Proposed Scheme from Bottisham Village and north-east Cambridge, however, the changes proposed are typical and minor.	Overall the landscape character matters at the local level.	Overall the landscape character of the study area is regionally, and locally common.	Overall the landscape character of the study area is of low importance at a national and regional level. At local level the landscape character is of moderate importance.	Overall the landscape character across the study area is replaceable in the medium to long term.	**Neutral to slight beneficial** The proposed changes will be notable during construction 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 the opportunity to introduce additional planting and restore 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 with the potential to increase tranquillity. 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) – Prepared by Natural England
Greater Cambridge Landscape Character Assessment (2021) - Prepared by Chris Blandford Associates
Ordnance Survey Mapping - 1:25,000
Google Maps Satellite Imagery

Step 5 - Summary Assessment Score

Neutral to Slight Beneficial.

Qualitative Comments

Although the Proposed Scheme will be notable during construction, these would be short-term and temporary in effect. The existing adjacent landscape consists of agricultural land, as well as the village of Bottisham. The minor losses associated with the Proposed Scheme will not be significant when considered in the context of the overall character of the area. There is the opportunity for mitigation and additional planting and improvement to hedgerow, 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. 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 to Slight Beneficial.**

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 townscapes of Bottisham and the north-east area of Cambridge are within the Proposed Scheme's 1km Study Area. The village of Stow Cum Quy is situated near to the route. Bottisham and the urban area in north-east Cambridge are associated with residential development. The townscape has a fine grain of medium plot sizes following a regular road layout. Large areas of open green space, primarily characterised by arable land, surround Bottisham village, and border north-east Cambridge to the north. Within Bottisham there is also a large sports centre with several sports fields to the west of the village. The underlying topography is flat at approximately 18m Above Ordnance Datum (AOD). Within North East Cambridge and Barnwell, there is Cambridge City Airport to the south of the route, as well as a business park.	The layout of the townscape matters on a local scale.	The layout of the townscape is common locally and regionally.	The townscape layout is of low importance at a local scale.	Development 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 of Bottisham is of low to medium density including residential houses in private plots and in terraces. Large areas of open green space, predominantly as arable land or sports pitches of Bottisham Sports Centre, are interspersed within the townscape. North East Cambridge and Barnwell are of similar density, with the addition of few larger commercial buildings. There is little variation in surrounding fields, with majority as medium sized agricultural fields.	The low/medium density matters on a local scale.	The low/medium density of buildings is common locally and regionally.	The low/medium density is of high local importance.	Loss of low/medium density built form is not readily reversible.	Changes to the density without the Proposed Scheme are unlikely.	**Neutral Effect** The introduction of the Proposed Scheme would not impact the density of the townscape and as such would have no impact on the wider townscape character.
Scale	Residential properties are of medium scale although some large properties are present. They are typically two to three storeys and either terraced or semi-detached. Within Bottisham, there are few other buildings such as the Holy Trinity Church and several farming buildings which are larger in size. Within north-east Cambridge and Barnwell there are larger commercial buildings as well as the much larger Cambridge City Airport.	The medium scale of buildings matters locally.	The medium scale of residential buildings is common locally.	The medium 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, the highest elements include new sign posts and tree planting both of which are already present.
Appearance	The townscape is dominated by period built form designed with pitched roofs, chimney stacks and regular shapes. The dominant material is brick and the buildings contrast with adjacent agricultural land. The current shared use path is tarmac, in fitting with the road.	The period townscape matters on a local scale.	Townscape appearance is relatively common locally.	The appearance is important locally.	Loss of period architecture with their contribution to townscape character is irreplaceable.	Changes to the appearance of the townscape without the Proposed Scheme are unlikely.	**Neutral Effect** The Proposed Scheme will not change appearance of built form within the existing townscape.
Human interaction	The townscape has low human interaction with some interactions between cyclists/pedestrians and vehicle users. There are some areas within the village such as the Holy Trinity Church which will have a higher pedestrian usage at certain times. The provision of bus stops, benches, cycle parking and letter boxes will also increase human interaction along the route. The Cambridge City Airport has high vehicle interaction which impacts the route between Cambridge and East Barnwell.	The human interaction matters locally.	The levels of human interaction are common locally.	Provision of footways/cycleways are of high importance locally.	Human interaction has a high potential for substitution.	The interaction of people with the townscape would likely remain the same without the Proposed Scheme.	**Neutral Effect** The existing human interaction will likely be improved by the Proposed Scheme including a widened shared use pathway. However this will likely be used as a thoroughfare rather than for 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. There are a few larger and stand out buildings scattered through Bottisham village, such as the Holy Trinity Church, which is a Grade II listed building, as well as historical farm buildings in the periphery of the village, also a Grade II. Within north-east Cambridge there are several Grade II* and Grade II listed buildings and few scheduled monuments.	The cultural contributions are of medium/ high importance regionally.	Cultural contributions are common locally and regionally.	Cultural contributions are medium importance regionally.	Cultural features have low substitutability.	Changes to the cultural contribution of the townscape are low without the Proposed Scheme.	**Neutral Effect** As no features of cultural value would be lost as a result of the Proposed Scheme, the cultural contribution of the townscape will not change.
Land use	The Proposed Scheme is situated within a rural area of Cambridgeshire, occupied by residential properties. Green spaces punctuate the buildings throughout the study area. Land is occupied by agriculture on the periphery of the villages. The site itself is occupied by shared use paths and roads. The route runs from the denser north-east Cambridge through rural landscape, crossing the A14, to the village of Bottisham.	Residential land use along with the provision of roads and shared use paths matters locally.	Residential land use is common locally.	The combination of land use is important locally.	Change of use of buildings is uncommon. Open space is irreplaceable. Land use of roads and shared use paths is substitutable.	Changes to the land use of the site are unlikely without the Proposed Scheme.	**Neutral Effect** The change of land use from carriageway and separate footways will complement the surrounding townscape characteristics.
Summary of character	The townscape is heavily dominated by period, well crafted residential properties. Overall plots are medium and follow a regular layout. The townscape has few cultural heritage features, and has medium levels of human interaction. The village of Bottisham is rural, with close proximity to the city of Cambridge.	Overall the townscape character matters locally.	Overall the townscape is relatively common locally.	Overall the townscape is of medium importance regionally.	Overall the site is substitutable.	Overall, changes to the site and surrounding area without the Proposed Scheme are unlikely.	**Neutral Effect** The Proposed Scheme will be notable during construction but would be short term and temporary in effect. During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. 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 46. The Fens (NCA 46) – Prepared by Natural England
Greater Cambridge Landscape Character Assessment (2021) – Prepared by Chris Blandford Associates

TAG Townscape Impacts Worksheet

	Step 2	Step 3					Step 4
Features	**Description**	**Scale it matters**	**Rarity**	**Importance**	**Substitutability**	**Changes in Without-scheme case**	**Impact**
Greater Cambridge Landscape Character Assessment (2021) - Prepared by Chris Blandford Associates Ordnance Survey Mapping - 1:25,000 Google Maps Satellite Imagery							

Step 5 - Summary Assessment Score

Neutral

Qualitative Comments

The Proposed Scheme will be notable during construction but would be short term and temporary in effect. During operation, changes will be largely imperceptible in the wider townscape causing no effect to layout, density, scale and cultural contribution. Overall, the changes are minor and do not impact the wider townscape character and offer only minor changes to localised visual receptors. The impact of the Proposed Scheme is therefore considered to be **Neutral**.

TAG Historic Environment Impacts Worksheet

	Step 2	Step 3			Step 4
Feature	Description	Scale it matters	Significance	Rarity	Impact
Form	**Designated heritage assets within the site boundary** 1. Riverside and Stourbridge Common Local Planning Authority (LPA) Conservation Area. 2. Three Grade II listed assets; comprising Milestone to East North East of St. Marys Parish Church at NGR 520 599 (National Heritage List Entry NHLE ref: 1127355), Milestone East of the Bury at NGR 602 536 (NHLE ref: 1301983) and Milestone South West of Quy Mill at NGR 505 594 (NHLE ref:1331307). **Designated heritage assets outside of the site boundary (50m study area)** 3. Ferry Lane LPA Conservation Area and listed built heritage assets within the Conservation Area. 4. Old Cheddar's Lane pumping station scheduled monument (NHLE ref:1006896). The pumping station was established in 1894 to pump sewage and water away to the Milton sewage farm. Household rubbish was burnt to raise steam, to power the engines which pumped sewage to the Milton sewage farm. The steam engines worked until 1968 when trade/hospital waste was burnt. The site was later converted into the Cambridge Museum of Technology in the 20th century. 5. One Grade II* listed building; Parish Church of St Mary (NHLE ref: 1179413) outside Conservation Areas. 6. Three Grade II listed buildings outside Conservation Areas; comprising 1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street.	1. Descriptions 1-3,5,6 - The protection of listed buildings and conservation areas is a national concern (Planning (Listed Buildings and Conservation Areas) Act 1990). 2. Description 4 - The protection provided to scheduled monuments is given under the Ancient Monuments and Archaeological Areas Act 1979.	1,3. The conservation areas are of High significance. 4. The scheduled monument is of High significance. 5. The Grade II* listed buildings are of High significance. 6 The Grade II listed buildings are of Medium significance.	1,3. There are nearly 10,000 LPA 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. 4. There are around 20,000 scheduled monuments in England (2020). 5. Nationally, 5.8% of listed buildings are Grade II*, making them rare and of 'more than special interest.' 6. Nationally, 92% of listed buildings are Grade II, making them less rare but still of national importance.	The Proposed Scheme aims to make local walking and cycling journeys easier. The Proposed Scheme follows the existing route connecting Cambridge, Riverside and Stourbridge Common, Chisholm Trail at the Abbey-Chesterton Bridge, Ditton Fields, Fen Ditton and Stow-cum-Quy (where it converges with the Swaffhams Greenway) into Bottisham. The main proposed changes relate to modifying existing carriageways, enhancing and widening existing walkways, landscape verges, relining works, re-surfacing works, and traffic control measures. The Proposed Scheme will also connect villages along the route to each other, with new and improved signage enabling a direct connection with Cambridge. Within the Riverside and Stourbridge Common Conservation Area, it is proposed to enhance the existing cycling path along the riverside by introducing red asphalt surfacing (with road markings) to it and by resurfacing the existing parking bays up to the existing pedestrian access gate of the open green area of Stourbridge Common. Additional provisions such as traffic calming measures (speed limit signs on existing lamp posts and otherwise), formalised parking bays, and way-finder signs have also been proposed *(WSP 8656-WSP-BM-XX-DR-CV-100001 to 100002, rev. P03, dated 12-07-2022)* . From this point the modified cycle pathway ties into the existing shared used path, the widening of which is proposed to 3 meters, crossing Stourbridge Common ground and Ditton Meadows, where it joins the Horningsea Greenway *(WSP 8656-WSP-BM-XX-DR-CV-100002 to 100005, rev. P03, dated 12-07-2022)*. In the southern part of the Proposed Scheme in Riverside and Stourbridge Common, the proposed works would include modifying the existing cycle pathway with red asphalt lining and resurfacing the adjacent existing parking bays within the existing highway boundary, located near the western edge of the later added front boundary wall of the Old Cheddar's Lane pumping station scheduled monument *(WSP 8656-WSP-BM-XX-DR-CV-100002, rev. P03, dated 12-07-2022)*. The northern part of the Proposed Scheme, near the junction of High Street, Bell Road, Lode Road, and Tunbridge Lane is located close to the Grade II listed assets 1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street. The proposed work includes modification of the existing carriageway of Bell Road and Lode Road by means of resurfacing and of addition of red asphalt surfacing in the centre of the road with the existing footways retained on both edges *(WSP 8656-WSP-BM-XX-DR-CV-100017, rev. P03, dated 12-07-2022)*. Additional block paved areas for cyclists and drivers are proposed within and outside (to be finalised in the next design stage) the highway boundary at the junction. Other interventions such as raised tables, planters, relocation, and removal of lamp posts and bollards are proposed. **Designated heritage assets within the site boundary** 1. Although there will be a direct impact on the Riverside and Stourbridge Common LPA Conservation Area deriving from the proposed red asphalt surfacing over the existing cycle pathway, such works are considered to have an **negligible** effect on how the Conservation Areas are understood and appreciated given the small nature of the change in an already built-up environment. 2. There will be no direct physical impact on the three Grade II listed assets (Milestones) within the existing highway extent, as these lie at a distance from the proposed works. Based on the nature of the proposals, an impact deriving from a change in the historic setting is unlikely, as it involves widening the existing shared-use pathway along with green verges (WSP 8656-WSP-BM-XX-DR-CV-100012 and 100015, rev. P03, dated 12-07-2022). No additional built form is proposed other than the relocation of existing road signages located at a distance from the asset (WSP 8656-WSP-BM-XX-DR-CV-100009, rev. P03, dated 12-07-2022). As such the key views would remain unaffected and the impact to the asset therefore negligible. Overall, there is likely to be a **neutral** effect on the significance of three Grade II listed assets *(WSP 8656-WSP-BM-XX-DR-CV-100009,100012 and 100015, rev. P03, dated 12-07-2022)*. **Designated heritage assets outside of the site boundary (50m study area)** 3. In relation to the setting, there will be a **negligible** impact to the character and appearance of the Ferry Lane Local Planning Authority (LPA) Conservation Area. 4. In relation to the setting, there will be a **negligible** effect on the Old Cheddar's Lane pumping station scheduled monument. No physical works are proposed within the boundary of the scheduled monument, which is located outside of the proposed scheme extent *(WSP 8656-WSP-BM-XX-DR-CV-100002, rev. P03, dated 12-07-2022)*. 5. Based on current information, the small-scale nature of the proposals means there is likely to be a **neutral** effect on the significance of the Grade II* listed Parish Church of St Mary's. 6. There will be an impact to the setting the three Grade II listed buildings (1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street) due to the colour of the proposed red asphalt surfacing on the existing carriageway and proposed block paved areas, within as well as outside the extent of the existing highway boundary *(WSP 8656-WSP-BM-XX-DR-CV-100017, rev. P03, dated 12-07-2022)*. However, taken overall, there would be a **negligible** effect on the assets' significance.
Survival	1,3. The conservation areas are likely to have a good level of survival. 4. The survival of the designated archaeological remains within the scheduled monument is unknown. 2, 5-6 The listed buildings are likely to have a good level of survival.	1-6 The survival of designated heritage assets matters on a national scale.	1-6 The significance of the survival of designated elements of the historic environment is high.	1-6 The survival of the designated elements of the historic environment are common locally but rare nationally.	1-6. It is anticipated that there will be a **neutral** impact on the survival of these designated heritage assets or their relationship with their setting.
Condition	1,3 The condition of the conservation areas is unknown. 4. The condition of the scheduled monument is unknown. 2,5-6 The condition of the listed buildings is unknown.	1-6 The condition of designated heritage assets matters on a national scale.	1-6 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.	1-6 The rarity of the condition of the designated heritage assets varies from common locally to rare nationally.	1-6 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.
Complexity	1,3 The complexity of the conservation areas is unknown. 4. The complexity of the scheduled monument is unknown. 2,5-6 The complexity of the listed buildings is unknown.	1-6 The scale at which the complexity of designated heritage assets matters is considered to be national.	1-6 The significance of the complexity of the designated elements of the historic environment is low to high.	1-6 The rarity of the complexity of designated heritage assets is common locally and rare nationally.	1-6 The Proposed Scheme is not anticipated to impact the complexity of the designated heritage assets. The impact is therefore **neutral**.
Context	1,3,4 Urban 2,5,6 Rural	1-6 The context of designated heritage assets matters on a local to national scale.	1-6 The significance of the context of the designated heritage assets is low to high.	1-6 The rarity of the context of the designated heritage assets is common locally but rare nationally.	1. There will be a change to the context of the Riverside and Stourbridge Common LPA Conservation Area arising from the proposed speed limit, way-finding signages, and Red Asphalt surfacing likely to result in a **slight adverse** impact. 4. There will be a change to the context of Old Cheddar's Lane pumping station scheduled monument arising from the proposed red asphalt surfacing likely to result in a **slight adverse** impact. 6. There will be a change to the context of three Grade II listed buildings arising from the proposed paved area and red asphalt surfacing likely to result in a **slight adverse** impact. 2,3,5 The small-scale nature of the proposals means there is likely to be a **neutral** impact to the context of these designated heritage assets.
Period	1. Later Medieval 2. Modern 3. Early Medieval 4. Post Medieval 5. Later Medieval 6. Post Medieval	1-6 The period of the designated heritage assets is considered to matter on a regional to national scale.	1-6 The period of the heritage assets does not necessarily affect their heritage significance.	1-6 The rarity of the periods represented by the designated heritage assets is common to townscapes and villages nationally.	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.
The Historic Environment Record (HER), the primary repository for information on past investigations and archaeological findspots/features was not consulted.

Step 5 - Summary Assessment Score

Within the site boundary, there will be a negligible effect on the Riverside and Stourbridge Common Conservation Area and a negligible effect on the three Grade II listed assets (Milestones). Outside the site boundary and within the 50m study area, there would be a negligible effect on the Ferry Lane Conservation Area, neutral effect on the scheduled monument (pumping station), neutral effect on the Grade II* listed Parish Church of St Mary's and a negligible effect on the Grade II listed buildings (1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street).

Qualitative Comments

Based on current design, sources consulted, and prior to any mitigation, within the site boundary there is one conservation area and three Grade II listed milestones. There is one Grade II* and three Grade II listed buildings within the 50m study area, in addition to one scheduled monument, and an LPA Conservation Area.
Within the extent of the highway boundary, the Proposed Scheme passes through the Riverside and Stourbridge Common Local Planning Authority (LPA) Conservation Area, and would result in a negligible effect on the conservation area.
The Proposed Scheme would have a neutral effect on the three Grade II listed designated heritage assets (milestones).
Outside the extent of the highway boundary (within the 50m study area), the Proposed scheme would result in a neutral effect on the Old Cheddar's Lane pumping station scheduled monument.
The Proposed Scheme would result in a negligible effect on the three Grade II listed buildings (1, 3 and 5, Lode Road, Bell Inn, and 8,10 and 12, High Street).
The Proposed Scheme would result a neutral effect on the Grade II* listed Parish Church of St Mary's.
The Proposed Scheme presents opportunities for the enhancement of heritage assets through interpretation (e.g. cycling and walking trails and appropriate traffic sign boards along the route). This could be explored as part of the preliminary design stage.

TAG Historic Environment Impacts Worksheet

	Step 2	Step 3			Step 4
Feature	**Description**	**Scale it matters**	**Significance**	**Rarity**	**Impact**
Form	**Potential Known and Unknown Non-designated Archaeological Remains** The potential and form of archaeological remains, is unknown at this time.	The form of currently unknown buried archaeological remains are of indeterminate importance. However, archaeological remains could be of local to national significance, depending on their nature and extent.	The significance of the form of currently unknown buried archaeological remains could be of Low to Very High significance.	The form of currently unknown buried archaeological remains are of indeterminate rarity. However, the form of archaeological remains could be of common locally to rare internationally.	The Proposed Scheme follows the existing route connecting Cambridge, Riverside and Stourbridge Common, Chisholm Trail at the Abbey-Chesterton Bridge, Ditton Fields, Fen Ditton and Stow-cum-Quy (where it converges with the Swaffhams Greenway) into Bottisham. The main proposed changes relate to modifying existing carriageways, enhancing and widening existing walkways, lintroducing andscape verges, re-lining works, re-surfacing works, and traffic control measures. The Proposed Scheme will also connect villages along the route to each other, with new and improved signage enabling a direct connection with Cambridge. It is proposed to enhance the existing cycling path in places along the route by introducing red asphalt surfacing (with road markings) to it and by resurfacing the existing parking bays. Additional provisions such as traffic calming measures (speed limit signs on existing lamp posts and otherwise), formalised parking bays, and way-finder signs have also been proposed (WSP 8656-WSP-BM-XX-DR-CV-100001 to 100002, rev. P03, dated 12-07-2022). Elements of the Proposed Scheme relevant to the assessment of potential impact to buried non-designated heritage assets are limited to the proposed 3.0m wide footpath along the eastern extent of the route to Bottisham (approximately 7km). The precise details of the footpath construction are not currently known, however, such works are not anticipated to entail extensive ground disturbance nor deep excavation (WSP 8656-WSP-BM-XX-DR-CV-100002 to100006,100008 to100016, rev. P03, dated 12-07-2022). In all locations, the footpath is being widened from an existing footpath at the current grade level and is contained within highway boundaries. **Potential known and Unknown Non Designated Heritage Assets (possible physical impact)** Any improvements requiring below-ground construction or works beyond the existing footway have the potential to impact non-designated assets (i.e. potential below-ground archaeological remains). Whilst the extent of survival and the potential for non-designated heritage assets along the route is unknown, based on the localised and superficial nature of the works there is unlikely to be a significant impact (as archaeological remains if present would survive at greater depths). Should the emerging design include deeper or more extensive areas of topsoil strip/excavation, further assessment may be required.
Survival	The survival of any unknown archaeological remains is unknown at this time.	The survival of currently unknown buried archaeological remains matters on an indeterminate scale but could be from a local to international scale.	The significance of survival of currently unknown buried remains is unknown at this time.	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.	Impacts on the survival of potential archaeological remains is unknown at this time.
Condition	The condition of currently unknown buried archaeological remains is indeterminate at this stage but could range from poor to good.	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.	The significance of the condition of currently unknown buried archaeological remains is indeterminate at this time.	The rarity of the condition of currently unknown buried archaeological remains is indeterminate, but could be from common locally to rare internationally.	Impacts on the condition of potential archaeological remains is unknown at this time.
Complexity	11. The complexity of any potential archaeological remains is unknown at this time.	The scale at which the complexity of currently unknown buried archaeological remains matter is indeterminate, but could be from local to international.	The significance of the complexity of currently unknown buried archaeological remains is indeterminate at this time.	The rarity of the context of currently unknown buried archaeological remains is indeterminate but could be from common locally to rare internationally.	Impacts on the complexity of potential remains is unknown at this time.
Context	The context of any potential archaeological remains is unknown at this time.	The context of currently unknown buried archaeological remains is indeterminate.	The significance of the context of currently unknown buried archaeology is indeterminate at this time.	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.	Impacts on the context of potential archaeology is unknown at this time
Period	Data relating to potential archaeological remains is unavailable at this time.	The scale at which the periods represented by currently unknown buried archaeological remains matter are indeterminate at this stage.	The significance of the periods represented by currently unknown buried archaeological remains is unknown at this time.	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.	The Proposed Scheme will have a neutral impact on the period of the heritage assets.

Reference Sources

The Historic Environment Record (HER), the primary repository for information on past investigations and archaeological findspots/features was not consulted. A site walkover was not undertaken and historic maps and other sources were not consulted for this high-level appraisal

Step 5 - Summary Assessment Score

The extent of survival and potential is unknown and would require further detailed assessment.

Qualitative Comments

A full baseline assessment of non-designated heritage assets was scoped out 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 is outside of the existing highway, principally relating to the construction of shared pathways for pedestrians and cyclists tracks along green verge. Whilst the extent of survival and the potential for non-designated heritage assets along the route is unknown, based on the localised and superficial nature of the works there is unlikely to be a significant impact (as archaeological remains if present would survive at greater depths). Should the emerging design include deeper or more extensive areas of topsoil strip/excavation, further assessment may be required.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
Area	**Description of feature/ attribute**	**Scale (at which attribute matters)**	**Importance (of attribute)**	**Trend (in relation to target)**	**Biodiversity and earth heritage value**	**Magnitude of impact**	**Assessment Score**
Eversden and Wimpole Woods Special Area of Conservation (SAC)	The Eversden and Wimpole Woods SAC is 12.6km south-west from the Site. The SAC comprises 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 Site is 12.6km north-east of the SAC which is outside 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.	**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 Site is 8.4km south-west of the nearest of the three SAC wetland sites, Wicken Fen. The SAC supports Annex I habitats which are the primary reason for the site's 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;* and -1166 Great crested newt *Triturus cristatus.*	**International**	**High -** Fenland SAC 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 distinctive in East Anglia.	**Varying** - The trend for the target features which are the reason for the SAC's designation vary at each of the three wetland sites.	**Very high** - Internationally important site with limited potential for substitution.	**Neutral** - Although the Site is functionally connected to the SAC via the River Cam it is 8.4km from the nearest of the three wetland sites Wicken Fen. Therefore, pollution of the SAC is unlikely unless a major pollution event took place. Due to the nature of the Proposed Scheme a major pollution event is considered unlikely. Furthermore, industry standard pollution control measures will likely be in pace to prevent any such occurence.	**Neutral**

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
Area	**Description of feature/ attribute**	**Scale (at which attribute matters)**	**Importance (of attribute)**	**Trend (in relation to target)**	**Biodiversity and earth heritage value**	**Magnitude of impact**	**Assessment Score**
Ramsar Sites (Designated for aquatic habitats)	The Site is within 15km of one Ramsar Site which is designated partly for aquatic habitats. **Wicken Fen 8.4km north-east of the Site** The Ramsar site is designated for satisfying criteria 1 and 2 of the Ramsar Criteria as it supports peat fens that have not been drained and where traditional management has created a mosaic of wetland habitats. The site also supports the British Red Data Book plant, fen violet *Viola persicifolia,* eight nationally scarce plants and 121 British Red Data Book invertebrates.	**International**	**High -** Ramsar sites are designated for supporting wetland habitats and species of international importance.	**Varying** - This Ramsar site is in varying condition.	**Very high** - Internationally important site with limited potential for substitution.	**Neutral -** Although the Site is functionally connected to the Ramsar via the River Cam it is 8.4km from Ramsar and so pollution of the Ramsar is unlikely unless a major pollution event took place. Due to the nature of the Proposed Scheme a major pollution event is considered unlikely. Furthermore, industry standard pollution control measures will likely be in pace to prevent any such occurence.	**Neutral**
Ramsar Sites (Designated for birds)	The Site is within 20km of one Ramsar Site which is designated partly for bird species populations. **Ouse Washes Ramsar Site 16.6km north of the Site** The Ramsar site is designated for satisfying criteria 1, 2, 5 and 6 of the Ramsar Criteria. In relation to birds these are: **Criteria 5** the site supports internationally important assemblages of waterfowl in winter; **Criteria 6** species/populations occurring at levels of international importance consisting of tundra swan *Cygnus columbianus bewickii*, whooper swan *Cygnus cygnus* Eurasian wigeon *Anas penelope* , gadwall *Anas strepera strepera* , Eurasian teal *Anas crecca* , northern pintail *Anas acuta* and northern shoveler *Anas clypeata*	**International**	**High -** Ramsar site designated partly for supporting internationally important bird populations	**Varying** - This Ramsar site is in varying condition.	**Very high** - Internationally important site with limited potential for substitution.	**Neutral**- The Site is 16.6km from the Ramsar site and is not functionally connected to the Ramsar site. Additionally, the Proposed Scheme is considered to be of a low impact, in a mostly urban landscape. Furthermore habitat suitable for species which the Ramsar site supports will not be impacted by the Proposed Scheme.	**Neutral**

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
Area	**Description of feature/ attribute**	**Scale (at which attribute matters)**	**Importance (of attribute)**	**Trend (in relation to target)**	**Biodiversity and earth heritage value**	**Magnitude of impact**	**Assessment Score**
Special Protection Areas (SPA)	The Site is within 20km of two SPAs designated for birds. **Ouse Washes SPA 16.6km north of the Site** The SPA provides breeding and winter habitats for important assemblages of wetland bird species, particularly wildfowl and waders. The Ouse Washes qualifies under Article 4.1 of the EC Birds Directive (79/409/EEC) by supporting, in summer, a nationally important breeding population of ruff *Philomachus pugnax;* an Annex 1 species, as well as regularly supporting internationally or nationally important wintering populations of three Annex 1 species. The Ouse Washes qualifies under Article 4.2 by supporting, in summer, nationally important breeding populations of five migratory species. In addition, it is a wetland of international importance by virtue of regularly supporting over 20,000 waterfowl. **Breckland SPA 19.5km north east of the Site** The SPA qualifies under Article 4.1 of the Directive (79/409/EEC) as it is used regularly by 1% or more of the Great Britain populations of the following species listed in Annex I in any season: Stone curlew *Burhinus oedicnemus;* Nightjar *Caprimulgus europaeus;* and Woodlark *Lullula arborea* .	**International**	**High -** The SPAs have bird species populations of international importance.	**Unknown** - the trend for the target features for which these sites are designated is not known.	**Very high** - Internationally important site with limited potential for substitution.	**Neutral** - The Proposed Scheme will not impact the SPAs as it is 16.6km away and is not functionally connected to either SPA. Additionally, the Proposed Scheme is considered to be of a low impact, in a mostly urban landscape. Furthermore, habitat suitable for species which the SPAs support will not be impacted by the Proposed Scheme.	**Neutral**
Sites of Special Scientific Interest (SSSI)	There is one SSSI within 2km of the Site, Wilbraham Fens SSSI. **Wilbraham Fens SSSI 0.03km south of the Site** The SSSI is a large area of fen and neutral grassland with associated scrub and open water communities.	**National**	**Medium-** SSSI consisting of fen and grassland habitat that are rare on a national level but common in Cambridgeshire**.**	**Varying** - The target features for the SSSI are all in varying condition. There are four units within this SSSI. Unit 1 is in unfavourable-declining condition, units 2 and 3 are in favourable condition and unit 4 is in unfavourable - recovering condition.	**High -** Nationally designated site, with habitats of national importance and limited potential for substitution	**Intermediate Negative -** The Site is 0.03km from the SSSI and hydrologically connected. Without suitable pollution control methods in place, the Proposed Scheme could result in pollution impacts to the SSSI. However, assuming industry standard pollution control measures are employed, the magnitude of impact would be reduced from Large adverse to **Neutral.**	**Large adverse** in the absence of mitigation. **Neutral** with mitigation.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
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Logan's Meadow Local Nature Reserve (LNR)	Logan's meadow LNR is situated 0.04km from the Site on the northern side of the River Cam. The reedbed and backwaters within the LNR provide habitats for a variety of species, including reed warblers *Acrocephalus scirpaceus* , water vole *Arvicola amphibius* , kingfishers *Alcedo atthis* , reed specialist moths and Daubenton's bats *Myotis daubentonii* . The woodland areas are home to breeding sparrowhawks *Accipiter nisus* and great spotted woodpeckers *Dendrocopos major* .	**Regional**	**Medium-** LNR consisting of wetland and woodland habitat that is locally important, and supports species of national importance.	**Unknown -** the trend for the target features for which this site is designated is not known.	**High -** Nationally designated site, with habitats of regional importance and limited potential for substitution	**Intermediate Negative -** The Site is 0.04km from the LNR and hydrologically connected via the River Cam. Without suitable pollution control methods in place, the Proposed Scheme could result in pollution impacts to the LNR. However, assuming industry standard pollution control measures are employed, the magnitude of impact would be reduced from Large adverse to **Neutral.**	**Large adverse** in the absence of mitigation. **Neutral** with mitigation.
Coldham's Common Local Nature Reserve (LNR)	Coldhams Common LNR is 0.49km south of the Site. The LNR is a mixture of chalky grassland, scrub and woodland. Coldham's Brook and the East Main Drain run through the eastern side of the reserve which hydrologically link the LNR to the River Cam. Chalk grassland plant species occur including spiny restharrow *Ononis spinosa* and upright brome *Bromus erectus* , as well as bee orchid *Ophrys apifera* and common spotted orchids *Dactylorhiza fuchsi* i. Kingfisher are within the LNR as well as water vole.	**Regional**	**Medium-** LNR consisting wetland and grassland habitat that is locally important.	**Unknown -** the trend for the target features for which this site is designated is not known.	**High -** Nationally designated site, with habitats of regional importance and limited potential for substitution	**Minor Negative -** The Site is 0.53km from the LNR and hydrologically connected via Coldham's Brook. Without suitable pollution control methods in place the Proposed Scheme could result in pollution impacts to the LNR. However, assuming industry standard pollution control measures are employed, the magnitude of impact would be reduced from Slight adverse to **Neutral.**	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
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Barnwell West Local Nature Reserve (LNR)	Barnwell West LNR is situated 1.56km south of the Site. The LNR is dominated by hawthorn *Cretaegus monogyna* scrub and is crossed by Coldham's Brook where there is a population of water vole.	**Regional**	**Medium-** LNR consisting aquatic and scrub habitats which support nationally important species.	**Unknown -** the trend for the target features for which this site is designated is not known.	**High -** Statutory Designated Sites.	**Minor Negative -** The Site is 1.55km from the LNR and hydrologically connected via Coldham's Brook. Without suitable pollution control methods in place the Proposed Scheme could result in pollution impacts to the LNR. However, assuming industry standard pollution control measures are employed, the magnitude of impact would be reduced from Slight adverse to **Neutral.**	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.
Sheep's Green and Coe Fen Local Nature Reserve (LNR)	The LNR is 1.6km south-west of the Site and situated on either side of the River Cam. Kingfisher frequent the LNR and water vole populations are present on the banks of the River Cam.	**Regional**	**Medium-** LNR consisting of aquatic and grassland habitats which support nationally important species.	**Unknown -** the trend for the target features for which this site is designated is not known.	**High -** Statutory Designated Sites.	**Minor Negative -** The Site is 1.6km from the LNR and hydrologically connected via the River Cam. Without suitable pollution control methods in place, the Proposed Scheme could result in pollution impacts to the LNR. However, assuming industry standard pollution control measures are employed, the magnitude of impact would be reduced from Slight adverse to **Neutral.**	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
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Local Nature Reserves (LNR)	The Site is within 2km of two further LNR's; Barnwell East LNR (1.87km south of the Site) and Bramblefields LNR (0.5km north of the Site). These LNRs are dominated by grassland and scrub habitats and are visited by a variety of birds including kingfisher and other protected species including common lizard *Zootoca vivipara.*	**Regional**	**Medium-** LNR's consisting of aquatic and scrub and grassland habitats which support nationally important species.	**Unknown -** the trend for the target features for which these sites are designated is not known.	**High -** Statutory Designated Sites.	**Neutral -** The closest of the two LNRs is 0.5km, however, neither LNR is functionally connected to the Site and barriers are present between the Site and the LNRs including roads and urban development.	**Neutral**
Hedgerows (including potential Important hedgerows)	It is unknown whether any hedgerows will be impacted by the Proposed Scheme, however it is considered unlikely. Further surveys would need to be undertaken to determine if there are hedgerows which will be impacted by the Proposed Scheme and if any of these are 'Important Hedgerows' under the Hedgerows Regulations 1997.	**Local**	**High -** 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.	**Minor Negative -** Until further surveys have been undertaken it is uncertain if any of the hedgerows are 'Important Hedgerows'. It is, however, considered unlikely that any hedgerows will be removed for the Proposed Scheme.	**Slight Adverse**
Bats	All species of bats recorded within the UK are protected from killing, injury and disturbance and their roosts protected from damage or destruction under the Conservation of Habitats and Species Regulations 2017 (as amended). Protection is also afforded under the Wildlife and Countryside Act 1981 (as amended) with respect to disturbance of individuals occupying places of rest or shelter and obstruction of access to these. Multiple bat species such as soprano pipistrelle *Pipistrellus pygmaeus* and brown long eared bat *Plecotus auritus* are also Species of Principal Importance (SPI) in accordance with the Natural and Rural Communities (NERC) Act 2006. Habitats present within, and adjacent to, the Site, comprising hedgerows, mature trees, grassland and the River Cam, provide suitable habitat for foraging, commuting and roosting bats. Further survey is required to determine whether there are any trees suitable to support roosting bats within, and adjacent to, the Site.	**National**	**High -** All species of bats recorded within the UK are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) as well as the Wildlife and Countryside Act 1981 (as amended). There are additionally multiple SPI bat species.	**Varying** - Species dependant- Some bat species' populations have decreased in England and some have increased.	**High** - Bats are a species of high biodiversity value on a national level.	**Minor Negative -** The Proposed Scheme is not anticipated to impact entire hedgerows or lines of trees. Furthermore, the Site is a narrow linear route and so would not fragment habitat if it were crossed. However, if light pollution is not mitigated, particularly along the River Cam, there would be a risk of disturbance to foraging and commuting bats. Further surveys will be required to determine whether any individual trees require felling for the Proposed Scheme which provide suitable roosting bat habitat. Until these surveys have taken place, the magnitude of impact for roosting bats is assumed as minor negative.	**Slight Adverse**

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Step 2		Step 3				Step 4	Step 5
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Badgers *Meles meles*	Badgers are offered protection under the Protection of Badgers Act 1992. Suitable habitat has been identified within the Site using satellite imagery. Hedgerows and grassland, as well as river banks and drainage ditch banks, provide suitable habitat for foraging badgers and suitable locations for sett construction. A badger survey for the Proposed Scheme has not yet been undertaken.	**Regional**	**Low -** Badgers are protected under the Protection of Badgers Act 1992. Badgers are a common species within the county.	**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).	**Medium** - badger are a species of medium biodiversity value on a national and local level.	**Minor Negative-** A badger survey has not been undertaken of the Site, and further surveys have been recommended to identify whether there are any badgers within suitable habitat on Site. Suitable sett building habitat has been identified on Site using satellite imagery and therefore should badgers be found to be present on Site there is potential for them to be impacted.	**Slight Adverse**
Water vole *Arvicola amphibius*	Water voles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Additionally water vole are a SPI in accordance with Section 41 of the NERC Act 2006. Open Source maps and desk study information indicates that water vole are present within watercourses within and adjacent to the Site, including the River Cam and Coldham's Brook, as well as associated drainage ditches.	**Regional**	**Medium** - Water voles are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Additionally water vole are a SPI in accordance with Section 41 of the NERC Act 2006.	**Declining** - According to the National Water Vole Database and Mapping Project (McGuire and Whitfield, 2017) water are declining nationally.	**High -** Water vole is a species of high biodiversity value.	**Intermediate Negative -** the Proposed Scheme has the potential to impact the terrestrial banks of the River Cam, as well as Coldhams Brook and associated drainage ditches where water vole populations are known to occur. In the absence of mitigation measures, the Proposed Scheme has the potential to have a negative impact on water voles should they be present. A survey should be undertaken and a mitigation strategy for the Proposed Scheme based on the findings of these surveys and the detailed designs will be required should they be found to be present. Notwithstanding this, if the Proposed Scheme can maintain a 5m buffer from the terrestrial banks of the River Cam, Coldhams Brook and associated drainage ditches, this would avoid the risk to potential water vole burrows and reduce the magnitude of impact from Large Adverse to **Neutral.**	**Large adverse** in the absence of mitigation. **Neutral** with mitigation.
Otter *Lutra lutra*	Otters are protected by the Conservation of Habitats and Species Regulations 2017 (as amended) and under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Additionally otter are a SPI in accordance with Section 41 of the NERC Act 2006. Open Source maps indicates that there is suitable habitat for otter present within watercourses within and adjacent to Site, including the River Cam and Coldham's Brook, as well as associated drainage ditches.	**Regional**	**Medium** -Otters are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 (as amended). Additionally otter are a SPI in accordance with Section 41 of the NERC Act 2006. Otters are however widespread in Cambridgeshire.	**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 terrestrial banks of the River Cam, Coldham's Brook, and associated ditches. A survey will be undertaken and a mitigation strategy for the Proposed Scheme based on the findings of these surveys may be required.	**Slight Adverse**
Birds	All wild birds and their nests, whilst in use, are protected under the Wildlife and Countryside Act 1981 (as amended). Habitats identified using satellite imagery within and adjacent to the Site comprising hedgerows, trees and grassland provide suitable habitat for common and widespread nesting birds.	**Local**	**Low -** All wild birds and their nests, whilst in use, are protected under the Wildlife and Countryside Act 1981 (as amended). Habitats on Site are suitable for common and widespread bird species.	**Varying** - Species dependent - some bird species are in significant decline nationally and locally within Cambridgeshire.	**Low -** Land within and adjacent to the Site is likely to support a diverse range of breeding and wintering bird species of local importance.	**Minor Negative -** Negligible habitat loss is predicted and there would be no operational impacts on completion of the works. There is however a low risk of disturbance or killing and injuring nesting birds during construction. Provided suitable precautionary measures are employed, such as avoiding construction works during the breeding bird season or conducting pre-works checks for nests with suitable buffers adhered to around active nests, the magnitude of impact would be reduced from Slight adverse to **Neutral.**	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
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Barn owl *Tyto alba*	Barn owl are a Schedule 1 species under the Wildlife and Countryside Act 1981 (as amended) and protected from disturbance during nesting. Further survey is required to determine whether trees within, and adjacent to, the Site are suitable for nesting barn owl.	**Regional**	**High -** Barn owl is a Schedule 1 species.	**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 as a result of the Proposed Scheme 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 is anticipated 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 (as amended). Additionally, all reptiles are SPI in accordance with Section 41 of the NERC Act 2006. Reptiles, such as grass snake, slow worm and common lizard, may be present in low numbers in suitable habitat such as grassland and hedgerow margins. There is no suitable habitat for adder within the Site.	**Local**	**Low** - Native widespread reptile species (adder, common lizard, grass snake and slow worm) are protected from killing and injury under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). Additionally all reptiles are SPI in accordance with Section 41 of the NERC Act 2006. The reptile species which may be present on Site are however common and wide spread within Cambridgeshire.	**Declining -** 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.	**Minor Negative -** Minimal habitat loss is anticipated and there would be no operational impacts on completion of the works. There is however a low risk of killing and injuring individual reptiles during construction. Should suitable precautionary measures be employed during the construction phase, the magnitude of impact would be reduced from Slight adverse to **Neutral**.	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.
Amphibians (Great Crested Newt *Triturus cristatus)*	Great crested newts (GCN) are protected under the following legislation: - Annexe II and IV of the Habitats Directive - Conservation of Habitats and Species Regulations 2017 (as amended) (Schedule 2) - Wildlife and Countryside Act 1981 (as amended) (Schedule 5). GCN are also listed as SPI in accordance with Section 41 of the NERC Act 2006. There are no ponds on Site, however, the use of satellite imagery has identified possible terrestrial habitat for GCN comprising grassland and hedgerow margins. There are five ponds within 250m of the Site. It is unknown whether these ponds are suitable for GCN, or whether there is suitable terrestrial habitat for GCN within 250m of these ponds within the Site.	**Regional**	**High** - GCN are protected under the Habitats Directive, Conservation of Habitats and Species Regulations 2017 (as amended), Wildlife and Countryside Act 1981 (as amended) and are an SPI in accordance with Section 41 of the NERC Act 2006	**Declining -** The GCN population has declined over much of their European range (Froglife 2001), however, they are widespread across England and Wales. A significant proportion of the national population is found 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.	**Minor negative -** 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. However, harm to GCN is considered highly unlikely according to the Natural England Rapid Risk Assessment Tool for GCN due to the minimal amount of potential GCN habitat that will be impacted by the Proposed Scheme. Notwithstanding this, should suitable precautionary measures be employed during the construction phase, the magnitude of impact would be reduced from Slight adverse to **Neutral**.	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.

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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 five ponds within 250m of the Site. It is not known whether there is suitable terrestrial habitat within 250m of these ponds within the Proposed Scheme extent. Furthermore, the ponds are not separated from the Proposed Scheme by any major barrier such as a dual carriageway or major water course. Potential terrestrial habitat includes hedgerows, tree lines and grassland.	**Local**	**Low -** Some common and widespread amphibian species within the UK including the common toad are SPI in accordance with Section 41 of the NERC Act 2006.	**Varying -** Species dependent	**Low -** Amphibians (with exception of GCN) are of low biodiversity value.	**Minor Negative -** Minimal habitat loss is anticipated and there would be no operational impacts on completion of the works. There is however a low risk of killing and injuring individual reptiles during construction. Should suitable precautionary measures be employed during the construction phase, the magnitude of impact would be reduced from Slight adverse to **Neutral**.	**Slight Adverse** in the absence of mitigation. **Neutral** with mitigation.
Hedgehog *Erinaceus europaeus*	Habitats on Site include hedgerows which offer valuable habitat to hedgehogs. This species is a SPI in accordance with Section 41 of the NERC Act 2006.	**Local**	**Low -** Hedgehog is a SPI in accordance with Section 41 of the NERC Act 2006, this species is however common within Cambridgeshire.	**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 Site is narrow and linear in extent and is mostly urban and managed grassland. The hedgerows within the Site act as boundaries and are not expected to be removed.	**Neutral**
Brown hare *Lepus europeaus*	The Site is adjacent to open arable farmland and fields and crosses areas of grassland which offer valuable habitat to brown hare. This species is a SPI in accordance with Section 41 of the NERC Act 2006.	**Local**	**Low -** Brown hare is a SPI in accordance with Section 41 of the NERC Act 2006, this species is however common and widespread within Cambridgeshire.	**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 Site is narrow and linear in extent and is mostly urban. The Proposed Scheme will not impact suitable arable and grassland habitat.	**Neutral**

Reference Sources

Cambridge City Council Biodiversity Strategy 2022 - 2030: https://www.cambridge.gov.uk/media/11066/biodiversity-strategy.pdf

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Barn Owl Trust 2021, State of the UK Barn Owl Population 2021 https://www.barnowltrust.org.uk/wp-content/uploads/SOUKBOP-2021.pdf

UKCEH, 2000, Countryside Survey 2000 https://catalogue.ceh.ac.uk/documents/b535ca33-c5e3-48fa-9912-ee9c0502ba1b

Wildlife Trust and Cambridgeshire Mammal Group Cambridgeshire and Peterborough Otter Survey 2022 https://www.wildlifebcn.org/sites/default/files/2022-05/Otter%20Survey%20Report%202022_small.pdf

Wildlife and Countryside Act 1981: http://www.legislation.gov.uk/ukpga/1981/

NERC Act Section 41 Species of Principal Importance: http://publications.naturalengland.org.uk/publication/4958719460769792.

Froglife: https://www.froglife.org/2018/03/23/amphibian-and-reptile-declines-uk-perspective/

Froglife, 2001 Great Crested Newt Conservation Handbook https://www.froglife.org/wp-content/uploads/2013/06/GCN-Conservation-Handbook_compressed.pdf

BTO reptile declines: https://www.bto.org/sites/default/files/shared_documents/publications/research-reports/2010/rr572.pdf

Peoples Trust For Endangered Species & British Hedgehog Preservation Society The State of Britain's Hedgehogs 2022 https://www.hedgehogstreet.org/wp-content/uploads/2022/02/SoBH-2022-Final.pdf

The Hare Preservation Trust Brown Hare History & Status http://hare-preservation-trust.com/species-status/brown-hare-history-status/

McGuire, C. & Whitfield, D. National Water Vole Database and Mapping Project https://www.wildlifetrusts.org/sites/default/files/2018-05/water_vole_report_2006-2015_final.pdf

Summary Assessment Score

Large Adverse in the absence of mitigation, Slight Adverse with mitigation

Qualitative Comments

Overall the Assessment Score is "Large Adverse" in the absence of mitigation, due to potential effects to water vole, Wilbraham Fens SSSI and Logan's Meadow LNR unless these can be avoided through maintaining a 5m buffer from river and drainage ditch banks and the implementation of suitable precautionary works which would reduce the assessment for these receptors to "Neutral". Individual areas with a "Slight Adverse" score additionally result from potential impacts to three LNRs connected to the River Cam and Coldham's

TAG Biodiversity Impacts Worksheet

Step 2		Step 3				Step 4	Step 5
Area	**Description of feature/ attribute**	**Scale (at which attribute matters)**	**Importance (of attribute)**	**Trend (in relation to target)**	**Biodiversity and earth heritage value**	**Magnitude of impact**	**Assessment Score**

the implementation of suitable precautionary works which would reduce the assessment for these receptors to "Neutral". Individual areas with a "Slight Adverse" score could likely result from potential impacts to three LNRs connected to the River Gam and Goldham's Brook, hedgerows, bats, badger, otter, nesting birds, reptiles and amphibians including GCN. Precautionary measures could reduce the assessment score to "Neutral" for the three LNRs, nesting birds, reptiles and amphibians, including GCN. However, in the absence of suitable survey data to inform required mitigation measures for hedgerows, bats, badger and otter, assessment scores for these receptors remain "Slight Adverse". Mitigation proposals should be developed which may include the following measures:

- Pollution control measures;
- Mitigation Schemes for otter and water vole;
- Wildlife planting, to include areas with wildflowers;
- Bird and bat boxes; and
- Invertebrate hotels.

Further surveys have been recommended which could affect the assessment score and/or require specific mitigation. However a precautionary approach has been applied to the assessment scores and therefore further surveys and mitigation as required would be more likely to bring the assessment score down to Neutral.

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. - Increase 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
	Coldham's Brook	Water supply	Ordinary watercourse. Unlikely to be part of the local water supplies.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Transport and dilution of waste products	Ordinary watercourse.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Biodiversity	Small watercourse, not monitored by WFD. No known fish species or designations.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Aesthetics	Straightened watercourse.	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	Flows in predominantly rural areas and under multiple bridges.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
	Quy Water	Water supply	Main River. 'Moderate' WFD status. Unlikely to be part of the local water supplies.	Local	Low	Limited potential for substitution	Low	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	Limited potential for substitution	Medium	Slight Beneficial - Runoff quality may increase due to modal shift to green modes of transport.	Insignificant
		Biodiversity	'Moderate' ecological 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	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 and under multiple bridges.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant
		Water supply	Ordinary Watercourses, unlikely to be part of the local water supplies.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant

TAG Water Environment Impacts Worksheet

Description of study area/ summary of potential impacts	Key environmental resource	Features	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
	Gutter Bridge Ditch	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 watercourse, 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
	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 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 floodplain storage.	Floodplain	Conveyance of flood flows	The majority of the Proposed Scheme is located in Flood Zone 1. There are two areas that the Proposed Scheme is within Flood Zone 2 and Flood Zone 3. The first area of flood risk, associated with the River Cam, is from the western-most area, Elizabeth Way, to when it exits Dittons Meadow, this area of flood risk extends for approximately 2.15km. The second area of flood risk, associated with the River Quy, extends for approximately 0.12km.	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 mostly located in a rural area.	Local	Low	Limited potential for substitution	Low	Negligible	Insignificant

TAG Water Environment Impacts Worksheet

Description of study area/ summary of potential impacts	Key environmental resource	Features	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
* 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)	Limited superficial deposit within the area. The superficial deposit cover where present is not expected to be of sufficient thickness (>10m) and the underlying Principal Chalk aquifer (bedrock aquifer) will be likely target for supply. It is unclear at this stage if private (licensed and unlicensed) abstractions exist in proximity to the Proposed Scheme. Due to the limited extent of the superficial deposits it is unlikely they are targeted as superficial aquifers (River Terrace Deposits)	Local	Low	Limited potential for substitution	Medium	Slight (Adverse) - localised impacts expected where changes in groundwater level and flow may occur as a result of alternation to groundwater recharge	Insignificant
		Groundwater quality	Located within a Nitrate Vulnerable Zone. Superficial River Terrace Deposits designated Secondary A Aquifers - may provide limited / local supply	Local	Low	Limited potential for substitution	Medium	Slight (Adverse) - localised impacts due to scheme development activities i.e. resurfacing	Insignificant
	Groundwater (bedrock aquifers)	Principal Aquifer/Water supply (groundwater level and flow)	Several Groundwater Source Protection Zones (SPZ) to the south east of the Proposed Scheme. Closest SPZ Zone 3 approx 250m south from A1303 junction at Bell Road. BGS Hydrogeological Map Sheet 14 identifies PWS at approximate locations specified. At this stage, no additional information/data is provided on yields/supply. Based on the geology of the area the PWS will target the Principal Chalk aquifer. No drinking safeguard zone (groundwater) is specified for the area. It is unclear at this stage if private (licensed and unlicensed) abstractions are present and targeting Principal Chalk aquifer.	Regional	Medium	Cannot be substituted	High	Negligible - no significant impact expected on water supply, groundwater level and flow	Insignificant
		Groundwater quality	High and Medium to High groundwater vulnerability zones designated along length of the Proposed Scheme attributed to the Chalk aquifer. Soluble rock risk identified (assigned to Chalk) along the length of the Proposed Scheme. Medium - High groundwater vulnerability assigned to localised areas where superficial deposits are present specifically where minor watercourses exist. As the scheme progresses west to Cambridge, groundwater vulnerability class is Medium to Low. 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	Transport and dilution of pollutants	The preliminary design does not include any information of preliminary drainage strategy or proposed below ground earthworks likely to penetrate below the groundwater table. This will need to be assessed in detail once a formalised design becomes available.	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

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TAG Water Environment Impacts Worksheet

Description of study area/ summary of potential impacts	Key environmental resource	Features	Quality	Scale	Rarity	Substitutability	Importance	Magnitude	Significance
	bedrock aquifers)	Biodiversity including GWDTE (Groundwater Dependant Terrestrial Ecosystems)	Site of Special Scientific Interest (SSSI) south of Stow cum Quy is approximately 150m south of Proposed Scheme. No direct impact anticipated but the Proposed Scheme does sit within SSSI Impact Risk Zone. It is unclear at this stage if the SSSI is considered groundwater dependent. Baseflow provided to major watercourses	Regional	High	Limited potential for substitution	High	Negligible	Insignificant

Reference Sources

OS Mapping, MAGIC GIS Portal, British Geological Survey, Historic England 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 has two areas within Flood Zone 2 and Flood Zone 3. Review of the EA's Flood Risk from Surface Water map indicates that there are small areas at risk of surface water flooding to the western areas of the Proposed Scheme, near Ditton Meadows. The River Cam and the Quy Water 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. Principal bedrock Chalk aquifer is exposed at surface and will be intercepted by the Proposed Scheme. Localised superficial deposit cover in some areas that is expected to be in hydraulic continuity with underlying Principal Chalk aquifer. Increased impermeable surface area may result in localised impacts on reduced recharge to major/minor aquifers, although impacts are not expected to be significant. At this stage it is assumed that no intrusive works are likely to extend below the groundwater table (superficial and bedrock geologies), are anticipated. This will need to be assessed as the Proposed Scheme progresses.