Note

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1. Introduction

1.1. Project context

The Greater Cambridge Partnership (GCP) have requested that Atkins, via their role on the Cambridge and Peterborough Joint Professional Services Framework (JPSF), provides services to support the next phases of delivery for Phase 2 of the Chisholm Trail. Atkins have been asked to undertake a prioritisation exercise for Phase 2 elements and a review, at a high level, of the previously undertaken Value for Money assessment to identify if any subsequent changes call the original conclusions in to question. The Chisholm Trail is a strategic transport project that will provide a largely off-road foot and cycle link between the existing railway station/CB1 development/southern Cambridge Guided Busway spur and the new bridge at Abbey-Chesterton. The route will aim to follow as closely as possible to the rail alignment but may need to be placed some distance away due to the presence of buildings, operations such as servicing of shops, or inability to acquire land.

As part of the scheme development, a paper is required to be presented to the GCP Executive Board in March 2022 to provide an update to the business case for the trail and prioritisation of scheme elements to allow the Board to give acceptance for the next stages of scheme design.

1.2. Our approach

This report is subdivided into four sections according to the work packages that have been undertaken. These are as follows:

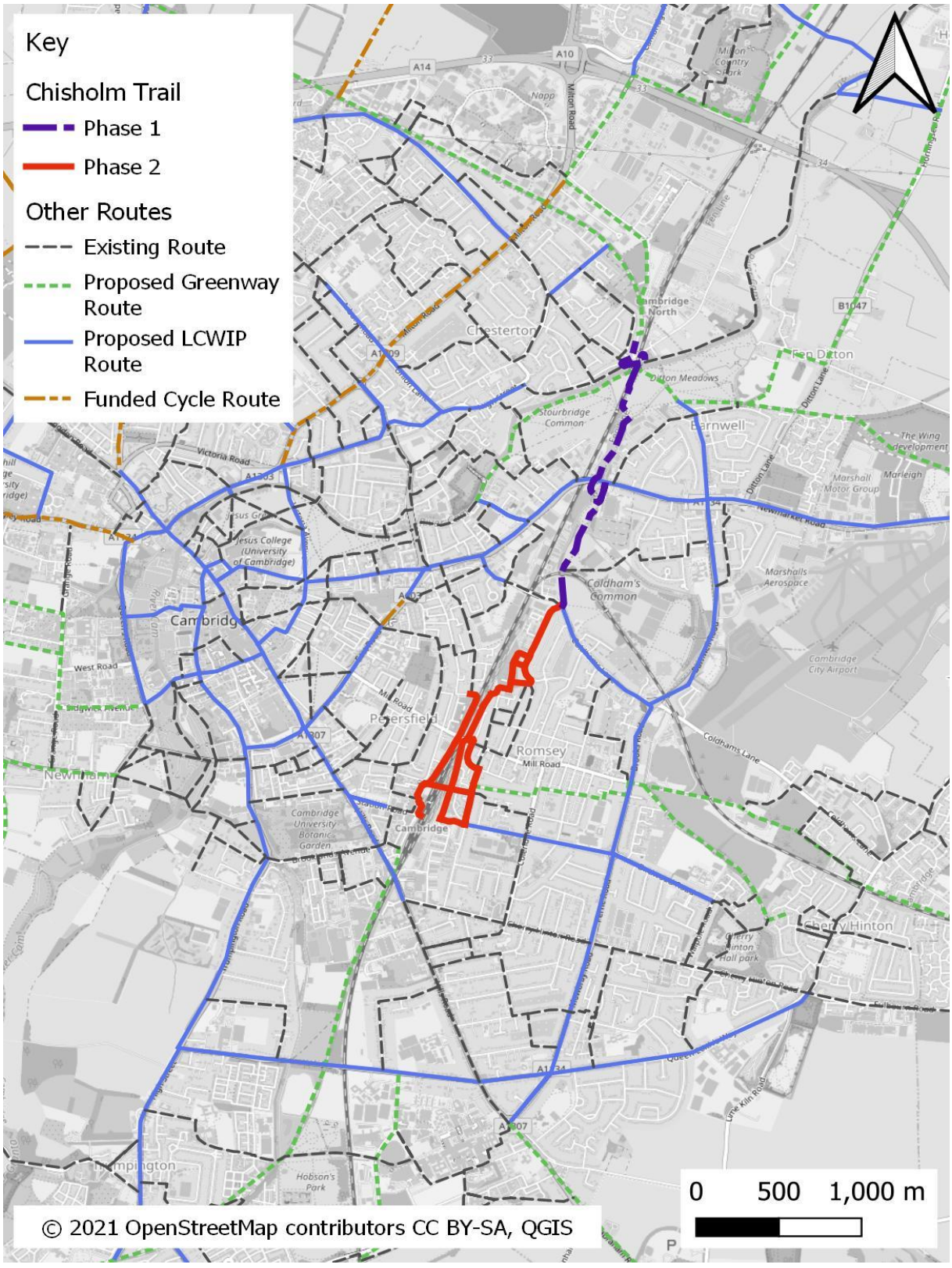
1. Identify the ‘core’ trail and complementary options;
2. Prioritisation of complementary options;
3. A desktop update review of previous appraisal work; and
4. Proportionate Value for Money assessment.

2. Chisholm Trail context

2.1. Existing routes, committed trail and connections

The Chisholm Trail (Phase 1 and 2) is a 3.5km route from Cambridge Central Station to Cambridge North Station. The location of the trail is shown in Figure 2-1 with the purple line representing Phase 1 and the red line representing Phase 2. The figure also shows how the Chisholm Trail connects to other cycle routes in Cambridge. The trail will follow the railway line between the two stations as closely as possible but for reasons such as building infrastructure, unavailable land, etc, parts of the route may be placed away from the tracks.

Figure 2-1 - Chisholm Trail and connecting routes[1]



The purpose of the Chisholm Trail is to provide a foot and cycle link between Cambridge Station and Cambridge North Station that is largely off-road, allowing users to travel more quickly and more safely through

[1] Consult Cambridgeshire, Appendix 1, Cambridgeshire Local Cycling and Walking Infrastructure Plan consultation | Consult Cambridgeshire (engagementhq.com) (Sept 2021)

the city. It aims to connect people with work, education and leisure opportunities and link into other active travel projects being developed which will be discussed later.

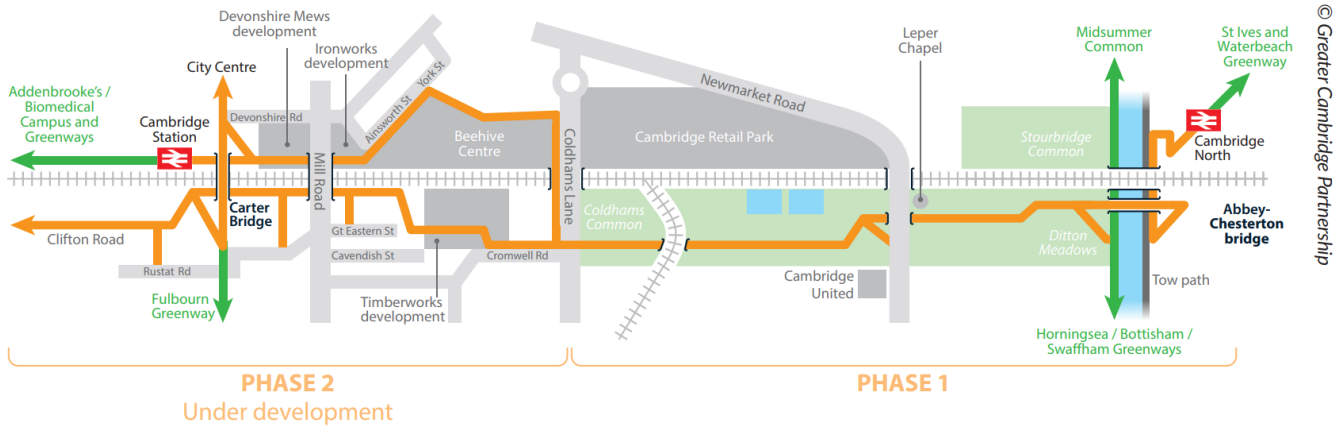
The scheme has four main objectives which are:

1. Safer, direct and more convenient routes for cycling and walking from Cambridge North Station to Cambridge Central Station;
2. Improved access to employment areas, railway stations, retail sites, green spaces and residential centres;
3. Enhance the environment, improve air quality and reduce emissions by creating more journeys made by active modes; and
4. Enhance streetscape, making junctions and highway more user friendly and safer to active modes.

2.2. Chisholm Trail - Phase 1

Phase 1 has already been delivered and was opened for public use on 23rd December 2021. This section runs from Cambridge North Station to the junction at Coldham Lane/Cromwell Road, where it will link onto Phase 2. There are also connections to the Greenway routes from Cambridge North Station which will connect Phase 1 of the Chisholm Trail to St Ives and Waterbeach. Figure 2-2 shows a plan of the route that has been completed in Phase 1 and how it links to Phase 2 and Greenway routes.

Figure 2-2 - Chisholm Trail plan



Source: Greater Cambridge Partnership[2]

Phase 1 runs from Cambridge North Railway Station over the newly built Abbey-Chesterton bridge (which opened in December 2021), through Ditton Meadows and travels under Newmarket Road through a new underpass. The trail then makes its way south to the junction at Coldham Lane/Cromwell Road, where Phase 2 will start.

There are also various Greenway, LCWIP (Local Cycling and Walking Infrastructure Plan) and funded cycle routes around the Chisholm Trail area as shown in Figure 2-1 above. There is ongoing design work on these Greenways projects and on Cambridge Eastern Access, and Waterbeach to Cambridge but the designs all take the Chisholm Trail into account.

In total, there are 12 Greenway routes which are at various stages of design and/or construction. The Chisholm Trail has been considered when designing the routes to ensure connectivity in the city. Several of these routes link directly to the Chisholm Trail.

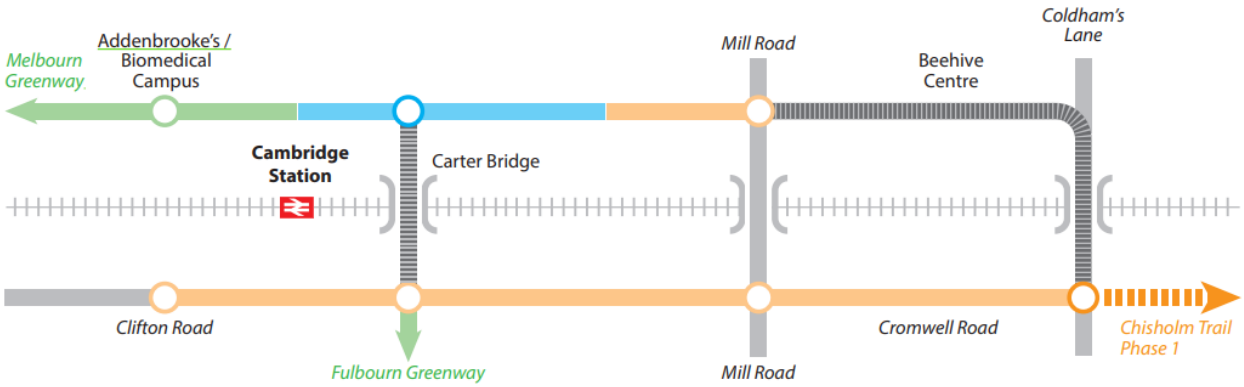
The Swaffhams Greenway will connect to Phase 1 of the trail and allow easier travel from Cambridge to Swaffham Prior and Swaffham Bulbeck. There are two Greenway routes that connect to Phase 1 of the trail at Cambridge North Station, namely, Waterbeach Greenway and St Ives Greenway which will give connectivity from North and North West of the trail respectively.

[2] Greater Cambridge Partnership, https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail (January 2022)

2.3. Chisholm Trail - Phase 2

Phase 2 of the Chisholm Trail will aim to provide a continuous route from Cambridge Station to the Coldham Lane/Cromwell Road junction where it will connect to the already completed Phase 1. Figure 2-3 shows a plan of the proposed route for this phase.

Figure 2-3 - Proposed route for Phase 2



Source: Greater Cambridge Partnership[3] Yellow – Chisholm Trail, Green – Cambridge Greenways, Grey – Existing connections

Phase 2 of the trail will connect to both Fulbourn Greenway and Melbourn Greenway. Fulbourn Greenway will have access from Carter Bridge to the east of Cambridge, whereas Melbourn Greenway will provide a cycle link south of the Chisholm Trail past Trumpington to Royston connecting at Cambridge Station.

The connections onto the other formal/signed cycle routes are shown in Figure 2-4 along with the locations of the three developments discussed below and the existing signed routes which cyclists currently use to navigate from Cambridge Station up to the start of Phase 1.

The three planned housing developments, shown in Figure 2-4, that affect the Chisholm Trail are:

- Timber Works – Located on the east of the railway. This development is already under construction and the Transport Assessment confirms that the Chisholm Trail has been incorporated within the designs;
- Devonshire Gardens – Located on the west of the railway. This development is currently at the planning stage and the current proposals have been refused as the density was considered to be too high. The proposals are being resubmitted, but it means there is no certainty around construction timescales, or as to whether it will be built; and
- Ironworks – Located on the west of the railway. The development is already under construction and has included a cycling route for the Chisholm Trail within its designs.

A number of existing reports have been referred to in defining the possible routes for Phase 2 of the Chisholm Trail:

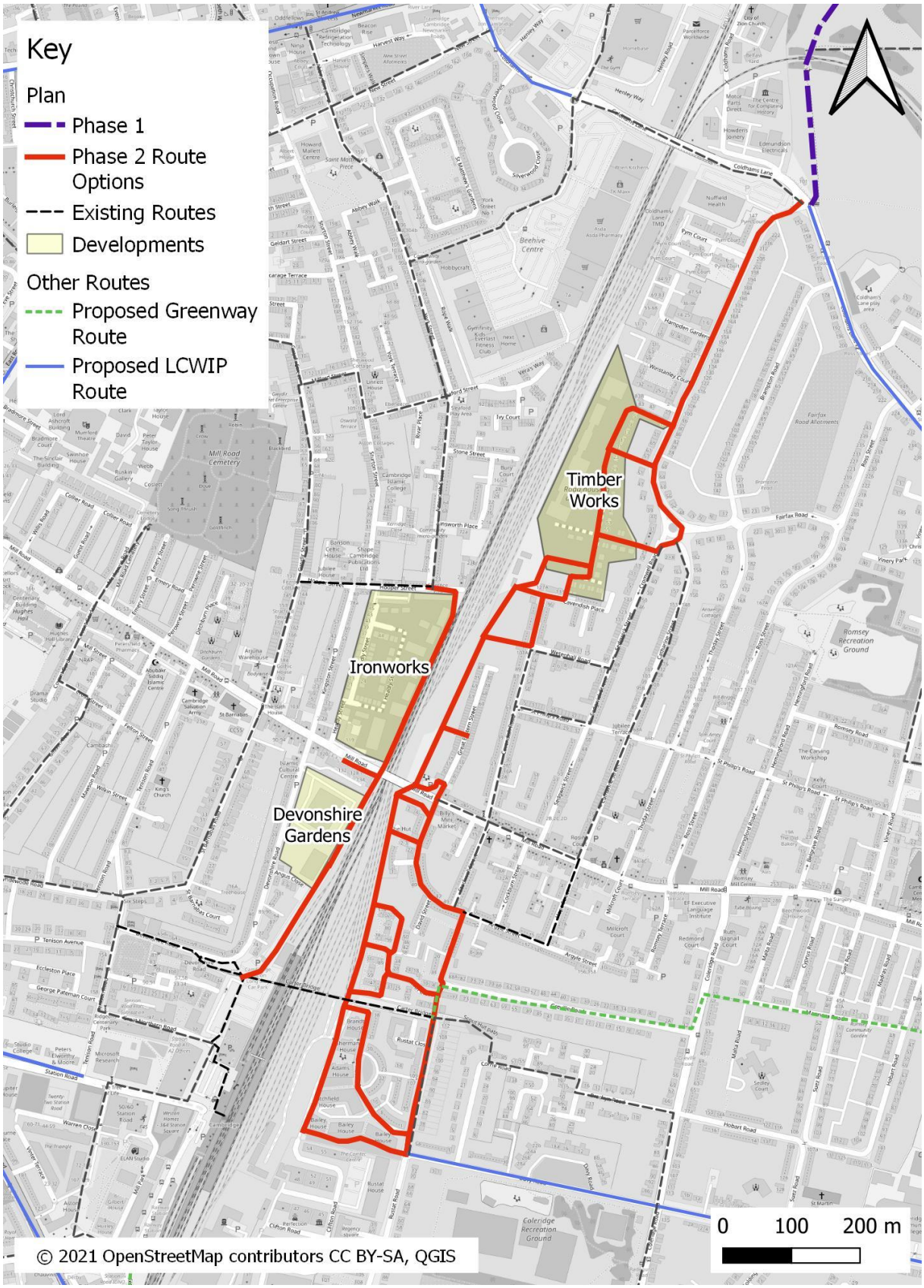
- Drawings from Milestone showing the proposals for the route[4];
- Atkins Option Assessment Report from 2009 taken from the Camcycle website[5]; and
- Greater Cambridge Partnership – Chisholm Trail Phase 2 project initiation document[6].

In addition, a site visit was carried out by the project team in December 2021.

Reviewing the existing reports and seeing the possible routes in person enabled the project team to identify any existing routes and informed the process of prioritising the Phase 2 options, which are shown in Figure 2-4.

[3] Greater Cambridge Partnership, https://www.greatercambridge.org.uk/transport/transport-projects/chisholm-trail (January 2022)
[4] Milestone, *Drawings of the proposals for Phase 2 of the trail* (2021)
[5] Atkins Ltd, *Option Assessment Report – Chisholm Trail Cycleway* (30 September 2009)
[6] Greater Cambridge Partnership, *Project Initiation Document - The Chisholm Trail Phase 2* (September 2021)

Figure 2-4 - Connections to Phase 2 and developments



2.4. Land Ownership

Land ownership needs to be considered when looking at the options for the Phase trail, as some options involve private land. These have the potential to add risk to the project if not considered appropriately. These include the housing developments discussed earlier, particularly Devonshire Gardens, as the current proposals have been rejected and the trail option through here relies on the development being built. There are also various connections from proposed new trails to existing routes that traverse private land and some of these proposals are not fully contained within the highway boundary. It is important to highlight the need for further assessment of land ownership and potential acquisition to be done if these options are proposed to be taken forward. The areas of the trail next to the railway, in particularly a new off-road trail that is proposed, will need use of Network Rail land, for which engagement will need to be continued. The high-level relationship between land ownership and sections of the trail as identified through desktop research, a site visit and client discussions, is set out in Figure 3-1.

3. Identifying the core trail and complementary options

3.1. Chisholm Trail Phase 2 – Definition of core trail

The primary objective of the Chisholm Trail scheme is to provide a continuous route from Cambridge Central Station to Cambridge North Station. Phase 1 of the Chisholm Trail opened in December 2021 which connects Cromwell Road to Cambridge North Station. Therefore, one of the key aims of Phase 2 is to link the Phase 1 scheme with Cambridge Central Station. This objective, along with providing linkages to developments and other cycle routes, was the key factor in defining the core trail.

The process that has been followed to undertake the identification of the core trail and complementary options is outlined in Figure 3-2. For ease of description and assessment when defining the core trail, the Phase 2 trail has been divided into 26 links as shown in Figure 3-3.

Figure 3-1 – High level identification of relationship between land ownership and trail sections

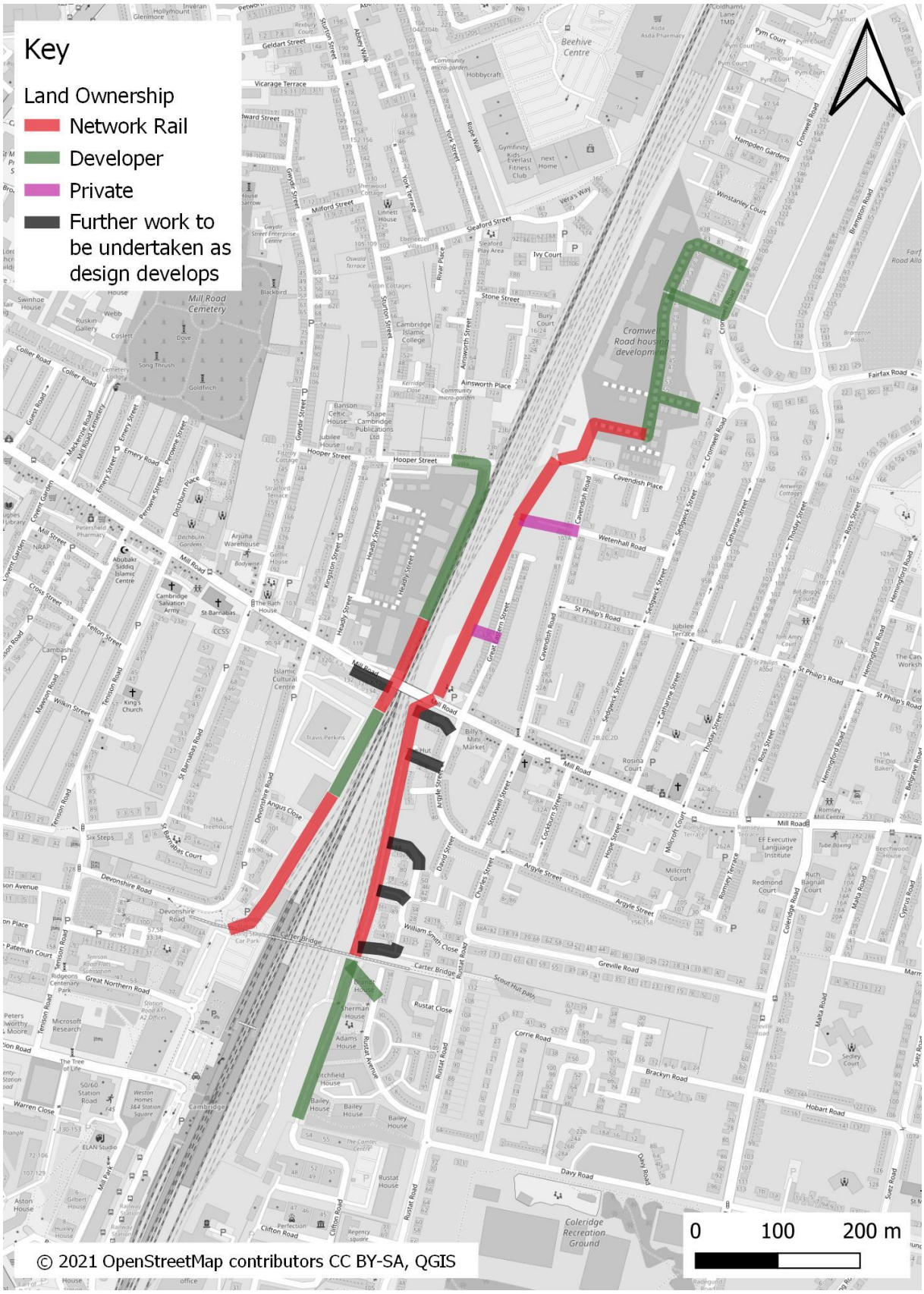


Figure 3-2 – Prioritisation process

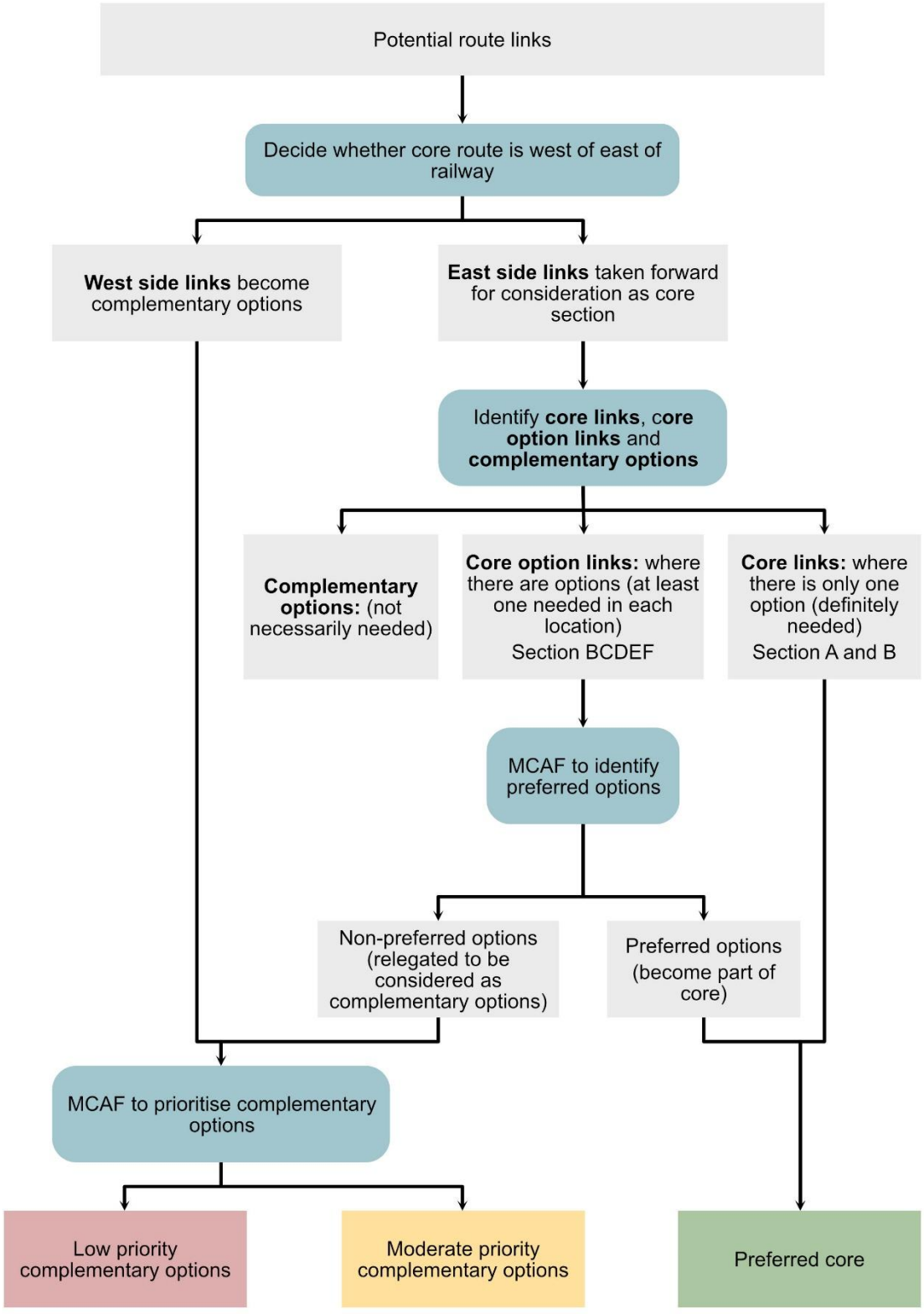
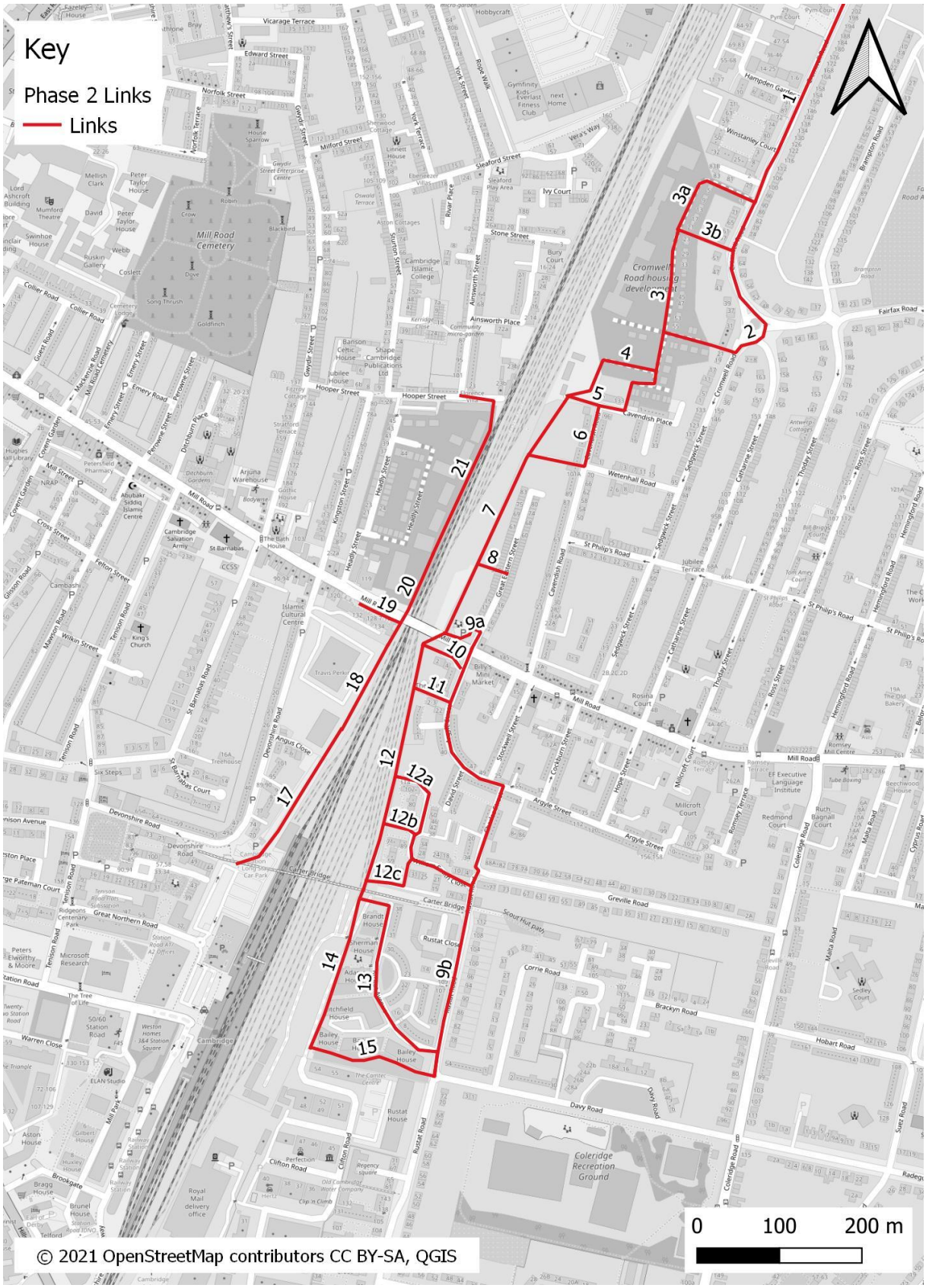


Figure 3-3 - Route links



Each of these links on the trail have then been defined as either ‘core’, ‘core option’ or ‘complementary’ and the method for determining the category for each link is discussed in the following sections.

The main decision to be made in defining the core trail was whether to focus on the route to the east or west of the railway. The strengths and weaknesses of the eastern and western routes are outlined in Table 3-1.

Table 3-1 – Strengths and weaknesses of eastern and western routes

	Strengths	Weaknesses
Eastern route	• Most sections have multiple route options so if preferred option become unavailable (for example due to failure to reach agreement with Network Rail), more likely to have a realistic alternative • Provides connections with Timber Works development and other existing residential areas • Connects directly to Phase 1 route through Coldhams Common without need to cross railway • Many options for off-road cycle provision	• Large sections depend on reaching agreement with stakeholders and landowners such as Network Rail • Requires strong wayfinding provision
Western route	• Provides connections to Devonshire Meadows development, Ironworks development and the Beehive Centre • Logical route to access Cambridge Central Station for many, as observed on site visit • Can travel between Cambridge Central Station and Coldhams Lane without crossing the railway line	• No off-road intervention between Hooper Street and the Beehive Centre, resulting in detrimental affect on overall connectivity to Phase 1 • Some sections depend on reaching agreement with stakeholders and landowners such as Network Rail • Key section is dependent on the Devonshire Gardens development being granted planning permission

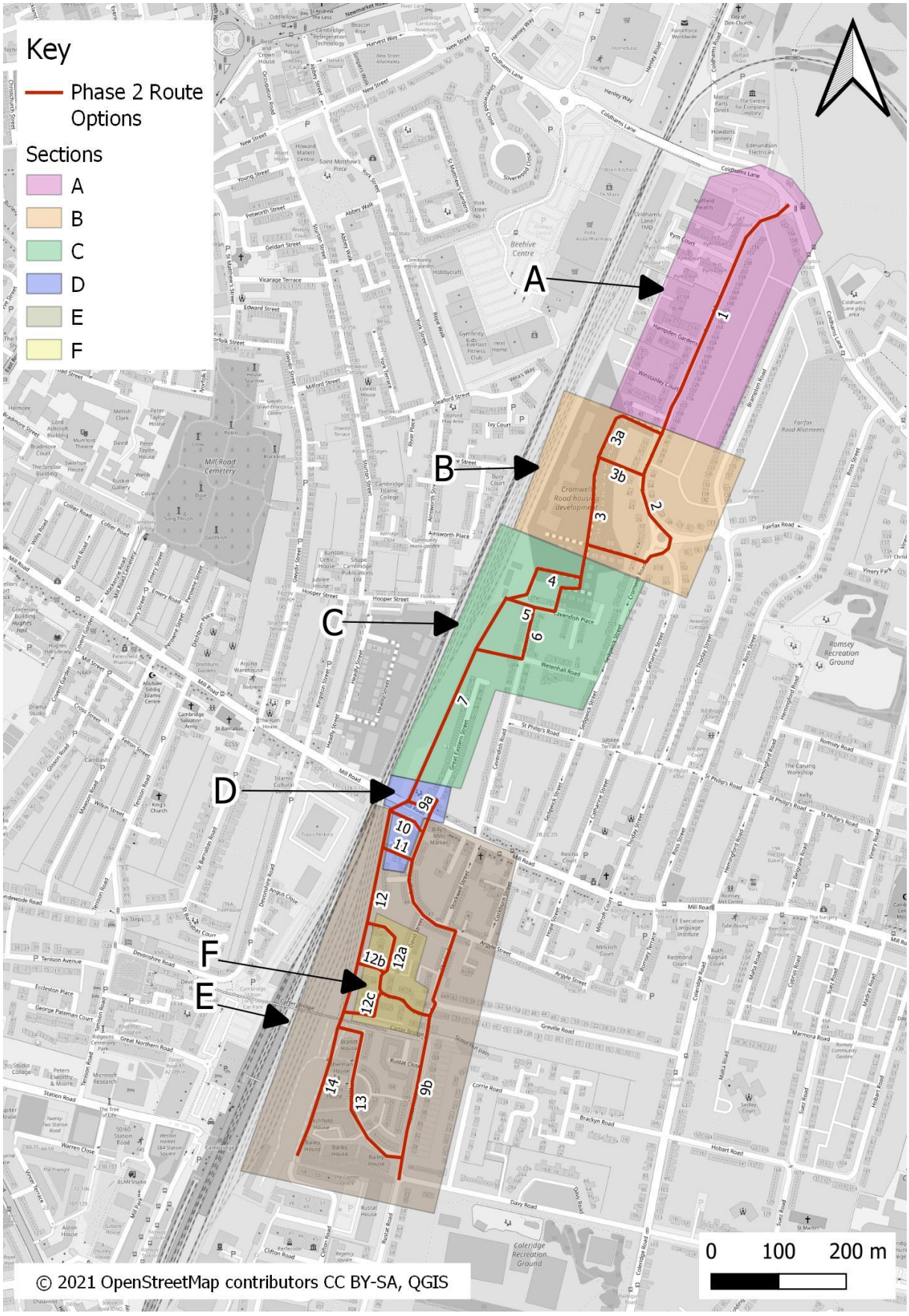
Given the evidence above and the continuity limitation of the western route, the eastern route would make the most suitable and effective core trail and would best fulfil the scheme objectives.

The broad key sections of the eastern route (now referred to as the core trail) have been identified as follows and labelled from A to F:

- Coldhams Lane to Timber Works housing development (A);
- Route through Timber Works housing development (B);
- Link between Timber Works housing development and the off-road cycle track (C);
- Link between track parallel to the railway and Mill Road (D);
- Link between Mill Road and Davy Road (E). The Carter Bridge to Davy Road section of this route extends south beyond Cambridge Central Station so does not contribute to connecting the two stations. However, it provides a connection to LCWIP routes which provides further connectivity to the south-east from Cambridge, and thus is considered part of the core trail; and
- Railway path access north of Carter Bridge (F).

There are multiple possible link routes for most of these core sections. The options for each section are shown in Figure 2-6.

Figure 3-4 - Core Section options



3.1.1. Core Links

There are two link routes which are essential to the delivery of this core trail since there are no other route options which would provide connectivity through these areas. These links are defined as core route sections and are described from north to south in Table 3-2.

Table 3-2 - Description of core links

Broad section	Location	Description
A	Coldhams Lane to Timber Works housing development	Cromwell Road (1) is the only option offering a link between the Phase 1 schemes and the remainder of the Phase 2 schemes, and it is therefore considered an essential part of the Chisholm Trail.
C	Link between Timber Works housing development and the off-road cycle track	The track parallel to the railway line between Timber Works housing development and Mill Road (7) is the only viable off road north-south connection and is therefore considered an essential part of the Chisholm Trail.

3.1.2. Core Option Links

The route links which are within a core section, but where there are multiple options which could provide the connectivity required are defined as core options. These links are described in Table 3-3.

Table 3-3 - Description of core option links

Broad section	Location	Description
B	Route through Timber Works housing development	There are multiple options of navigating the Timber Works housing development (2, 3a, 3b, 3).
C	Link between Timber Works housing development and the off-road cycle track	There are also multiple options for connecting Timber Works development / Cavendish Road to the track parallel to the railway line (4, 5 and 6), including an option via the current Network Rail / Train Operating Company sidings.
D	Link between track parallel to the railway and Mill Road	There are various options to link the track parallel to the railway to the Mill Road bridge over the railway (9a, 10, 11).
E	Between Mill Road and Davy Road	Between Mill Road, Carter Bridge and Davy Road on the east of the railway, there are three main options: a continuation of the track parallel to the railway (12 + 14), a partial continuation of the track parallel to the railway but diverting onto Rustat Avenue south of Carter Bridge (12 + 13), or Argyle Street and Rustat Road (9b).
F	Railway path access north of Carter Bridge	There are also three options for how the railway path could be accessed north of Carter Bridge (12a, 12b and 12c).

3.2. Chisholm Trail Phase 2 – Complementary Options

In addition to the core trail described in section 3.1, there are a number of possible complementary measures that could be considered for the Chisholm Trail Phase 2:

- Section between Carter Bridge and Hooper Street on western side of railway (17, 18, 19, 20 and 21);
- Access between track parallel to the railway and Great Eastern Street (8); and
- Link between Clifton Road and Davy Road (15).

These sections were not selected to be part of the core trail for the following reasons:

Western side of railway

As outlined in Table 3-1, there are limited options for connectivity between Hooper Street and the Beehive Centre. Ainsworth Street (Figure 3-5) is currently a signed cycle route, but it is a very narrow residential road with car parking on both sides. Without the removal of residential parking, there would be no road space

available to provide a marked or segregated cycle lane. As such, this section would not be a high-quality cycle link, and one poor link would have connectivity implications for the whole north-south route.

In addition, the existing route around the Beehive centre is a less direct north-south link than Cromwell Road on the east of the railway. Moreover, there are risks relating to the dependency of the route to the west of the railway on planning permission for developments and negotiations with Network Rail, bringing its deliverability into question.

Therefore, given the relative convenience and deliverability of the route on the east of the railway, the route on the west of the railway is not considered at this time to be essential for the delivery of a continuous cycle link between the two stations and is not a core option.

Great Eastern Street access

The proposed cut through from Great Eastern Street to the railway path would be located under the terraced houses as shown in Figure 3-6. Great Eastern Street is a cul-de-sac with 86 houses, so it is not considered that this route would significantly improve access to the Chisholm Trail, and it is therefore not deemed essential for the delivery of the Chisholm Trail objectives.

Off-road link between Clifton Road and Davy Road roundabout

The link between Clifton Road and Davy Road already exists as an off-road walking and cycling route as shown in Figure 3-7. It is considered that improvements to this section, such as widening the path, would add some value, but that these are not essential for the delivery of the Chisholm Trail objectives.

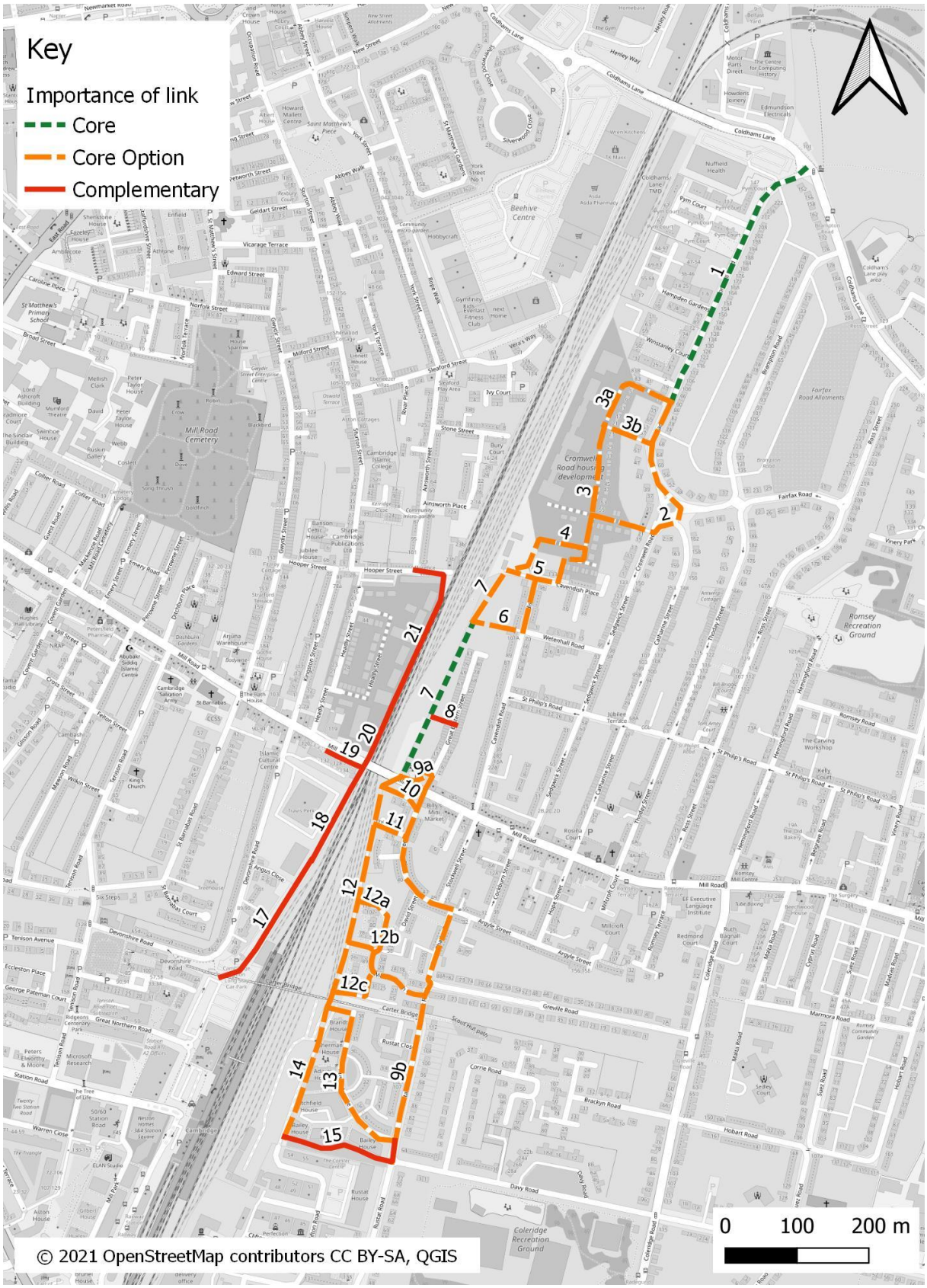
Figure 3-5 - Ainsworth Street

Figure 3-6 - Great Eastern Street

Figure 3-7 - Off-road link between Clifton Road and Davy Road roundabout

The summary of which links on Phase 2 of the Chisholm Trail are defined, at this stage, as core, core options and complementary measures, as discussed above, is shown in Figure 3-8.

Figure 3-8 - Showing the core, core option and complementary links for Phase 2



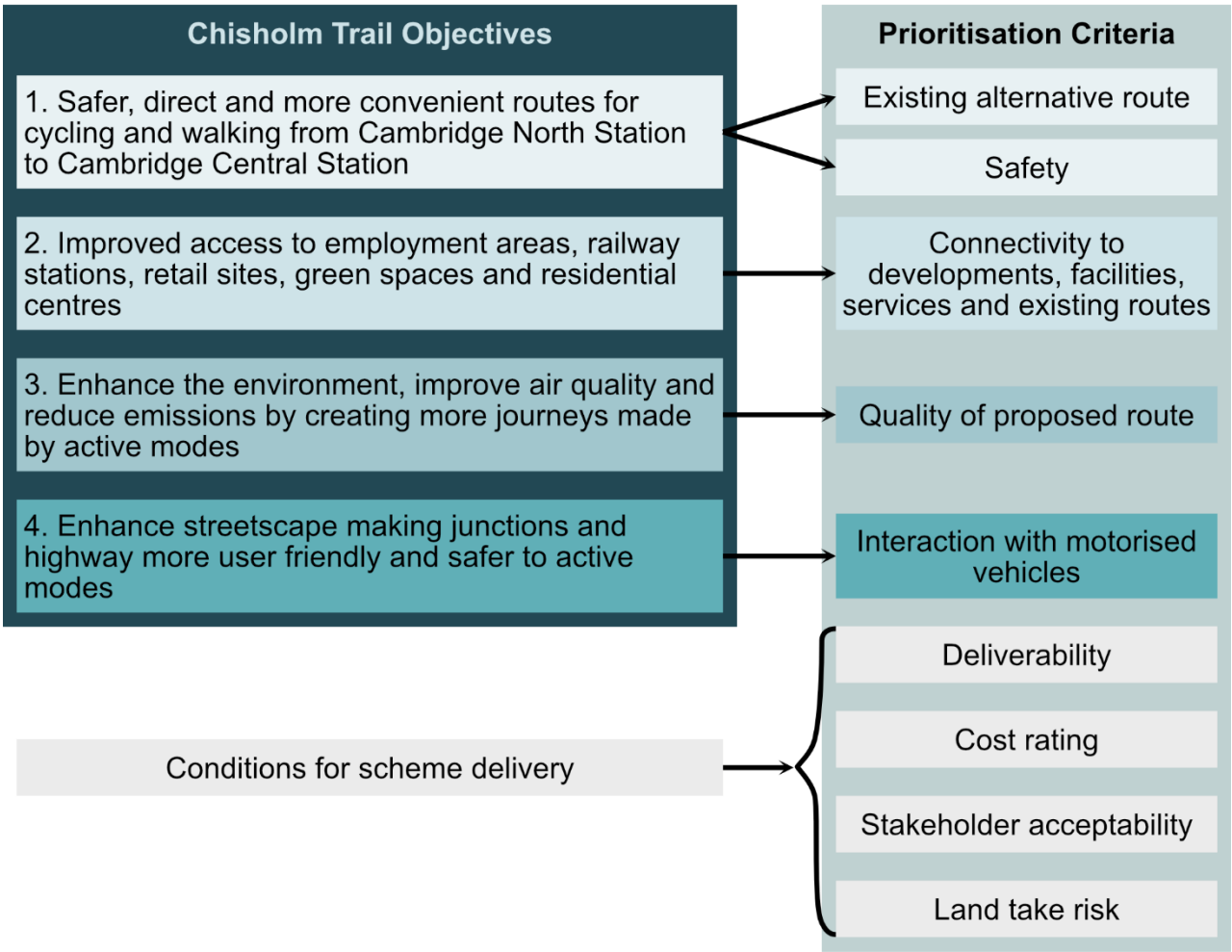
4. Prioritisation of options

4.1. Prioritisation methodology

A site visit was carried out in December 2021, during which the project team gained an understanding of the potential suitability of the various options.

To document the findings from the site visit and to provide an evidence base to aid decision making, a multicriteria assessment framework (MCAF) has been developed. Five criteria were derived from the scheme objectives, and a further four were chosen to represent various aspects of scheme deliverability. This is shown in Figure 4-1.

Figure 4-1 - Objectives and prioritisation criteria



Descriptions of and rationale for the nine criteria are as follows:

- **Existing alternative route** – this aligns with objective 1, as the scheme aims to provide significant improvements on the existing routes. Although a proposed section of the scheme may be of high quality, if there is already a good route option available it may not be considered good value for money to provide an alternative;
- **Safety** – this criterion considers route elements such as visibility, potential conflicts between users, road crossings, and necessity of cyclists making right turns, which aligns directly with objective 1;
- **Connectivity to developments, facilities, services, and existing routes** – this criterion is focused on maximising the benefits of the scheme via improved access to trip producers (such as residential areas), attractors (such as workplaces and facilities) and onward connections (such as public transport nodes and other cycle routes). This aligns with objective 2;
- **Quality of proposed route** – it is essential that all routes proposed are of high quality (including surface quality, convenience, alignment with desire lines, wayfinding, road markings, continuity) to achieve all four

of the scheme objectives. In particular, this criterion aligns with objective 3, because a high-quality route is more likely to provide a competitive alternative to motorised modes and therefore encourage more journeys to be taken via active modes;

- **Interaction with motorised vehicles** – this is linked to the safety criterion, but specifically considers how the interventions mitigate the risk of collisions between cyclists and motorised vehicles. This could be through providing a high-quality off-road route, redirecting cyclists via quiet roads, signage to make drivers more aware of cyclists, or specific provision for cyclists at junctions. This aligns with objective 4;
- **Deliverability** – considers the extent to which it would be possible to deliver the intervention. A low deliverability rating would indicate that there are serious concerns and/or risks, for example, availability of road space in which to construct the proposed intervention;
- **Cost rating** – it essential to consider the potential cost of each intervention, as it would not be possible to deliver a scheme that is not affordable, however well it ranks against the other criteria. Due to lack of consistently detailed costings, these have been estimated as low, medium or high;
- **Stakeholder acceptability** – this criterion considers the interests of stakeholders, such as developers, residents, business owners, Network Rail and Train Operating Companies (TOCs). Support from stakeholders would be very valuable in making the case for the scheme, whereas opposition from stakeholders could cause delays or prevent it from being successfully delivered; and
- **Land take risk** – this criterion takes account of land ownership. Those with land interests include bodies such as Network Rail, TOCs, the Council, developers, businesses, private landowners and tenants. While a scheme may in theory be deliverable and affordable, a landowner who is not willing to sell could hinder, increase the costs of, or prevent successful delivery.

Each scheme option was assessed against each of these nine criteria and given a rating between 1 and 3, where 3 represented the most positive result. The nine ratings for each option were then summed to give a score between 9 and 27. Each criterion was assigned an equal weighting as it was not considered appropriate or proportionate to apply weightings. The criteria were also devised so as to strike an appropriate balance between their contribution to the scheme objectives and their deliverability, rendering weighting unnecessary.

4.2. Results of prioritisation

The results of the prioritisation are outlined in the following section. The core trail and complementary options are considered separately.

4.2.1. Core trail options

The results for the core route sections are shown in Table 4-1 and Figure 4-2, with the preferred option for each route section shown in green. These are considered as essential for the successful delivery of the scheme objectives. If, in a future stage of scheme development, circumstances change and a preferred option becomes unfavourable or not possible, these results provide evidence for the selection of an alternative option.

As explained in Section 3.1.1, route link 1 (section A) is core as it is the only option for the essential section of the Chisholm Trail between the Phase 1 schemes and the remainder of the Phase 2 schemes, thus this has been excluded from the MCAF summary below. Route section 7 is also core as it is deemed essential and has therefore been excluded from section B in the analysis below. Figure 4-2 includes link and section labels for reference.

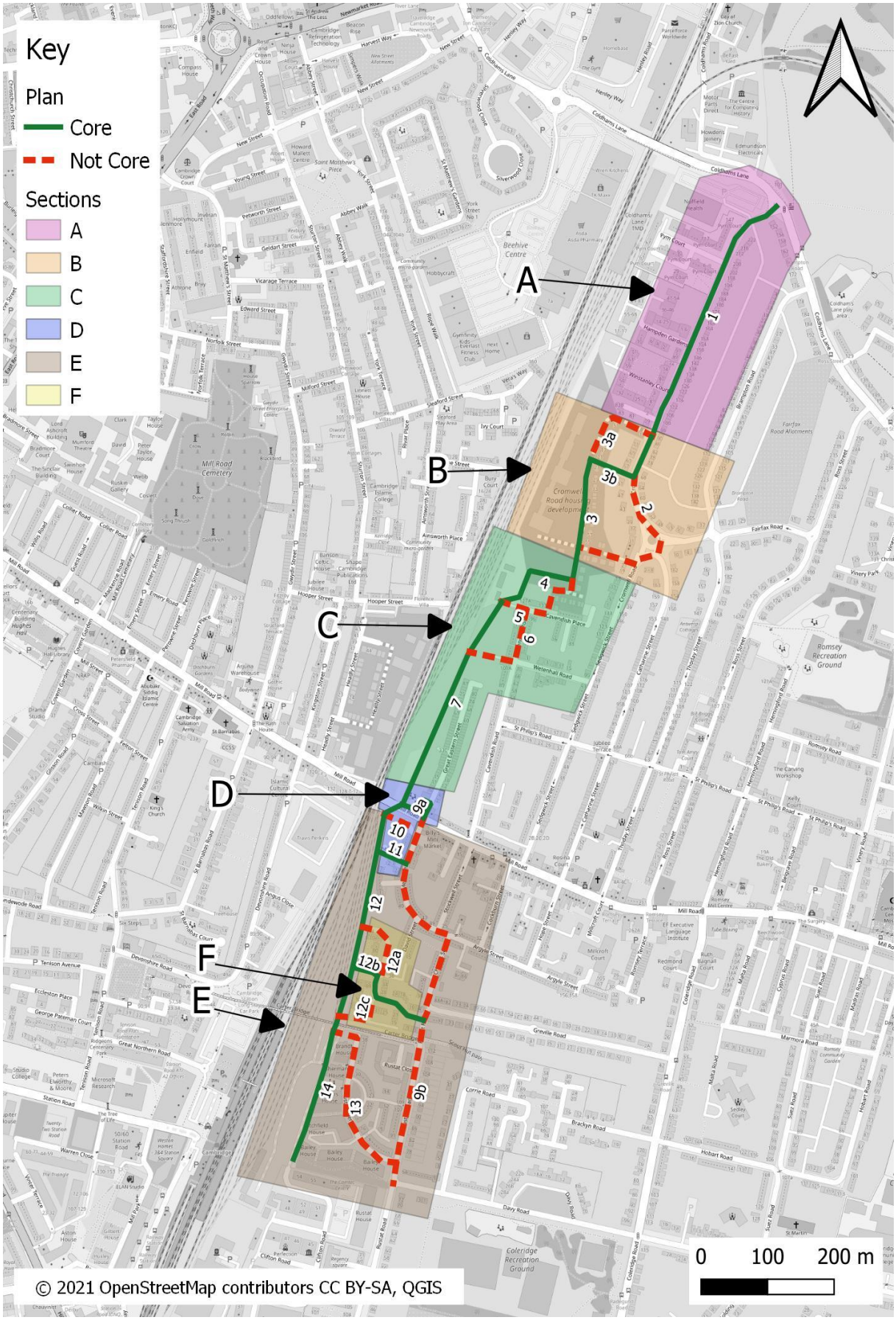
Please note that for route options which combine multiple links, the MCAF score has been averaged.

The full breakdown of the MCAF results can be found in Appendix A. The preferred options are taken forward to form the core of the trail in addition to the sections where there is only one option. The non-preferred options become complementary options and are considered for prioritisation in section 4.2.2.

Table 4-1 - Core route option MCAF results

Broad section	Location	Core option reference	Average MCAF score	Comments
A	Coldhams Lane to Timber Works housing development	1	21.0	Single option available.
B	Route through Cromwell Road housing development	3b+3	25.0	(3b + 3) is the preferred option.
		3a+3	23.5	
		2	16.0	
C	Cromwell Road housing development and the off-road cycle track	4	21.0	(4) is the preferred route, but there are significant deliverability risks. Should (4) not be deliverable in the short term, (5) could be brought forward, with the option of delivering route (4) in the future if possible.
		5	19.0	
		5+6	17.0	
D	Link between track parallel to the railway and Mill Road	9a	26	While (9a) alone scores more highly than with the addition of (11), the safety and convenience advantages of complementing with route (11) mean that it is considered worth the extra cost and the use of an on-road route.
		9a + 11	24.5	
		9a + 10	21.0	
E	Between Mill Road and Davy Road	12+14	21.0	(12 + 14), a continuous off-road cycle route parallel to the railway, is the preferred option.
		12+13	20.5	
		9b	19.0	
F	Railway path access north of Carter Bridge	12b	24.0	(12b) is the preferred option.
		12a	16.0	
		12c	16.0	

Figure 4-2 - Core route MCAF results



4.2.2. Complementary routes

Assuming that the core trail is delivered according to the recommendations in Table 4-1, Table 4-2 considers the routes which remain as possible additional, complementary options, ordered from high MCAF score to low. This includes those which were not recommended to be taken forwards as part of the preferred core trail in Table 4-1.

The complementary options which offer a moderate contribution to the scheme objectives and are judged to offer value for money are marked as “medium priority” and highlighted in orange. These are deemed worth considering as additional options for Phase 2 or at a later stage.

The complementary options which are considered to offer a minor contribution to the scheme objectives and are judged to be less good value for money are marked as “low priority”. If the budget allows, some of these options may be worth considering in Phase 2 or at a later stage.

As previously noted, should circumstances change and a preferred option become unfavourable or not possible, reconsideration of these recommendations may be required.

Table 4-2 - Complementary options

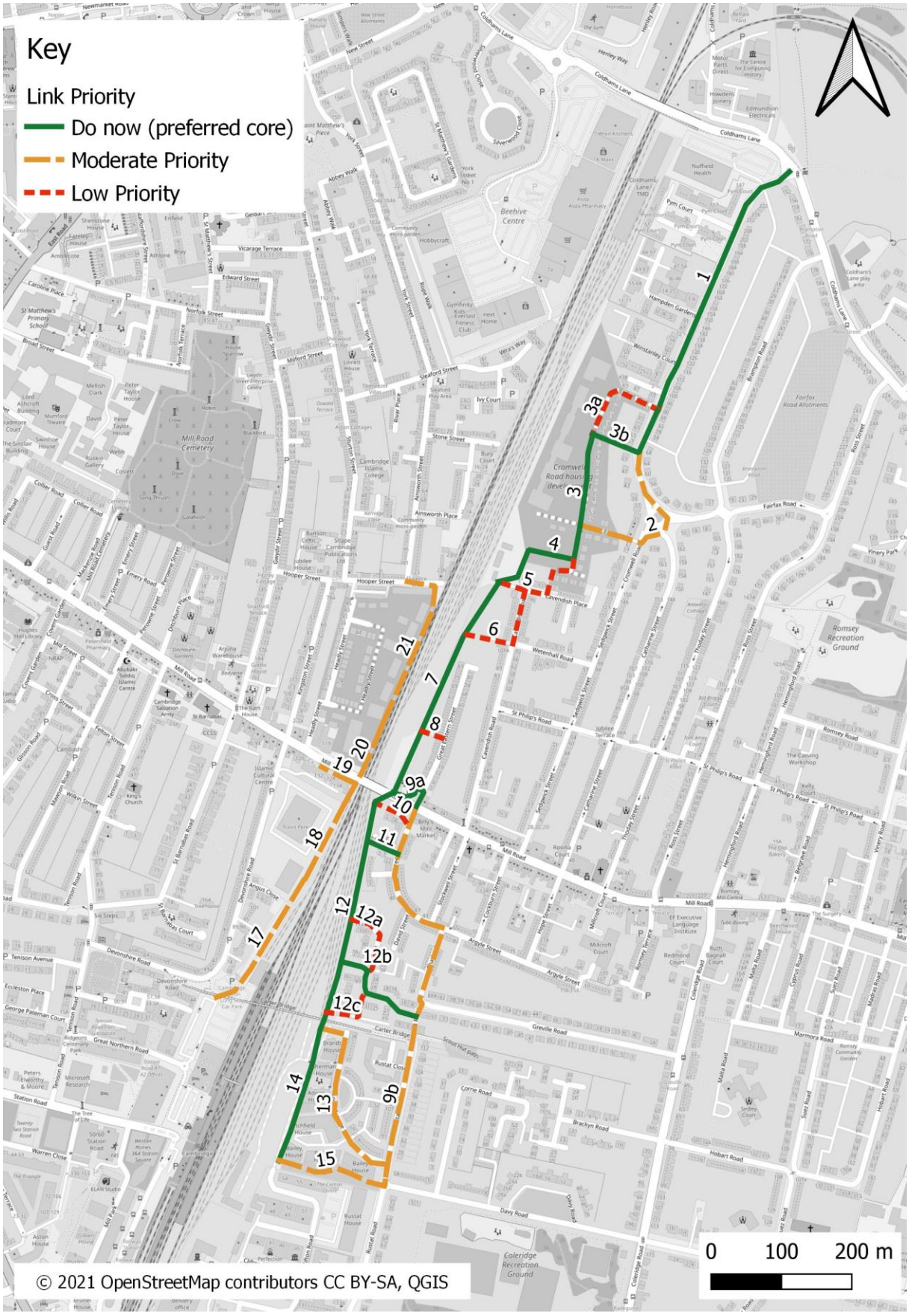
Section reference	Location	Average MCAF score	Comments	Recommendation
3a	Northern access to Cromwell Road housing development	23	Assuming (3b) is delivered, (3a) is not considered to contribute additional value so should not be prioritised	Low priority
13	Rustat Avenue	22.0	This is a quiet, spacious residential road. Minor intervention required.	Moderate priority
17 + 18 + 20 + 21	Route to west of railway	21.5	It is considered that the route to the west of the railway would add value if it could be delivered in full, despite the connectivity challenges to the north of Hooper Street. If this can be prioritised in a second phase as a combined connection, this could add significant value to the trail.	Moderate priority
15	Off-road link between Clifton Road and Davy Road	20.0	Further work required to understand design options and cost for widening.	Moderate priority
19	Link onto Mill Road from west of railway	20.0	To be considered if the route to west of railway is progressed. This would provide link to Mill Road, but further work required to understand whether this is the only option and any land take risk.	Moderate priority
9b	Argyle Street and Rustat Road	19.0	Further work required to understand to what extent intervention is needed/possible. Some existing provision, but limited road space.	Moderate priority

Section reference	Location	Average MCAF score	Comments	Recommendation
5	Link between Clara Rackham Street and track adjacent to railway via Timber Works development and Cavendish Place	19.0	If (4) is delivered as part of core trail, (5) is not considered to add significant value, particularly since a southern access to the Timber Works development is included in the developer's plans.	Low priority
8	Northern link between track on east of railway and Great Eastern Street	17.0	Assuming (9a) progressed, (8) doesn't add significant additional value. Concerns around land take risk and poor cycling environment.	Low priority
2	Southern section of Cromwell Road, linking to Clara Rackham Street via roundabout and track behind the Newsagents.	16.0	Could be worth pursuing at a later date, further design work needed, likely to be a costly intervention.	Moderate priority
10	Northern link between Argyll Street and Mill Road	16.0	Doesn't add significant value if (11) progressed.	Low priority
12a	Northern link between William Smith Close and track parallel to railway	16.0	Doesn't add significant value if (12b) progressed.	Low priority
12c	Southern link between William Smith Close and track parallel to railway	16.0	Doesn't add significant value if (12b) progressed.	Low priority
6	Link from Cavendish Road onto track parallel to railway, via route under terraced houses	15.0	Doesn't add significant value if (9a) progressed, notable land take risk, poor cycling environment.	Low priority

4.2.3. Summary of results

Figure 4-3 summarises the recommendations for the core trail, complementary options to consider and the options identified as lowest priority.

Figure 4-3 - Summary of recommendations.



5. Desktop review of previous appraisal work

In 2016, White Young Green (WYG) undertook a Cost Benefit Appraisal[7] of Phases 1 and 2 of the Chisholm Trail. Given the age of the report and subsequent changes to appraisal guidance, underlying data and existing conditions, Atkins have undertaken a desktop review of the repot to identify any significant changes that may call the value for money assessment into question. Throughout this review, Atkins aim was to understand and highlight any major issues relating to the passage of time and consider areas where further updates could be advised.

As the WYG appraisal for the Chisholm Trail assesses both Phase 1 and Phase 2 collectively through the Cost Benefit Analysis, due to the collectiveness of the data in the WYG appraisal, Atkins were unable to undertake any high-level assessments or analysis for Phase 2 in isolation. The assessment therefore must focus on the overall Value for Money position, reflecting both the costs and the benefits, and any uncertainties that may have arisen since the original report publication.

This task encompasses the following activities:

- Review the WYG report and the underlying data it references;
- Undertake a light-touch desktop review to identify if there are any major changes in the circumstances (other than generic appraisal parameters) which could call the Value for Money into question.

The review outlined below highlights areas where changes may have occurred that could affect the findings of the original report in the following areas.

- Travel demand;
- Appraisal inputs; and
- Optimism bias.

Other areas of the report have been determined not to be affected by any changes since original publication. Detailed information required to assess any changes to cost assumptions for the Phase 2 element were also not available, given that no new cost estimation has been undertaken for the current stage of scheme design for Phase 2.

5.1. Travel Demand

The WYG Appraisal states that existing and future demand was based on the 2016 Atkins report, Chesterton Bridge Demand Forecasting[8]. The demand figures in this report were derived from a spreadsheet model based on 2015 Surveys, 2011 Census Data and the 2015 National Travel Survey (NTS) data. Atkins sees this as an appropriate method for determining trips, where updates to the NTS have been considered later in the assessment.

The review found that the WYG appraisal took a conservative approach to demand forecasting, where TEMPro growth rates were applied to existing trip data. It did not consider cycling and walking trips associated with future developments. As the appraisal excluded the demand associated with future development trips, WYG considered the appraisal to be robust – a position that the Atkins assessment supports, as increased use of the trail generated by trips from those developments not included is only likely to increase the benefits afforded by the trail. Future development trips have been outlined in the 2016 Atkins report, Chesterton Bridge Demand Forecasting and there is the potential to test the effect on the Value of Money assessment at a later stage for this additional demand where some developments are now confirmed. The WYG appraisal also excluded any additional trips associated with match days at the Abbey Stadium from their demand figures, which would add to the strategic case for the scheme and offer marginal improvements to the benefits stream.

Therefore, it is likely that the appraisal underestimates the reported benefits relating to future demand, so the actual Value for Money for the trail could be higher than originally reported.

[7] White Young Green, *Abbey-Chesterton Bridge & Chisholm Trail – Cost Benefit Appraisals* (September 2016)
[8] Atkins Ltd, *Chesterton Bridge Demand Forecasting* (November 2016)

5.2. Appraisal Inputs

Since the WYG report was completed in 2016, there are instances where the guidance and reference documents have been updated. This section summarises the main updates and identifies the potential effect on the expected economic benefits.

- The WYG appraisal used TEMPro Version 7 growth factors. When comparing these to the 2021 TEMPro Version 7.2 growth factors, it was found that there has been a small increase to the yearly growth percentage since 2016, which is likely to create a small positive affect on the overall results due to marginally higher demand levels, leading to slightly higher benefits.
- To estimate the mode shift from cars, the WYG appraisal adopted the assumptions previously undertaken as part of Greater Cambridge Cycle City bid. Atkins compared these assumptions with diversion factors outlined in TAG Data Book Version 1.17 Table A5.4.7, where the latest guidance suggests a smaller mode shift to cycling and a higher mode shift to walking than the assumptions in the WYG appraisal. As the modal shift demand figures are small in magnitude compared to the overall scheme use, these differences in mode shift are unlikely to have a significant effect.
- The latest version of Active Mode Appraisal Toolkit (AMAT) released in November 2021 in line with TAG Data Book 1.17 references NTS 2018, where NTS confirms the same estimate of the percentage of trips that are part of a return journey using the same route and remains at the 90% originally tested.
- The same AMAT released in November 2021 references NTS 2018 to suggest a lower average cycling speed in comparison to the WYG appraisal. This faster cycling speed will forecast a lower journey time, meaning users would spend less time on the improved route. This would in turn estimate slightly lower journey quality and health benefits; hence the original appraisal is deemed a conservative assessment.
- To ensure the average journey length of walking and cycling remained similar to that in the WYG appraisal, Atkins compared the values to the latest NTS0303 Data Table (September 2021). It was found that there was negligible difference in walking trip length, but that the average cycling trip length has increased by approximately 1km. This small increase would result in a marginal increase in benefits.
- TAG Data Book 1.17 (September 2021) includes updates to Marginal External Costs calculations. Due to the level of demand affected by these updates, they are expected to have a minor effect on the expected benefits and are therefore not expected to have overall effect on the scheme's Value for Money.
- The decay rate for the mode shift of 10% has been used in the WYG Appraisal, in line with research such as the economic evaluation of Cycling Demonstration Towns as when the appraisal was carried out, TAG Unit A5.1 had limited guidance on how long the benefits of active mode schemes list. In the most recent May 2020 TAG Unit A5.1 guidance, the default assumption for infrastructure investments for active modes is zero decay. The WYG appraisal carried out sensitivity tests on increasing the decay rate, where the scheme was resilient due to the high level of existing users gaining an improvement in journey quality. Therefore, the WYG appraisal makes a conservative estimate which may result in the underestimation of the economic benefit of the scheme over time.

The points above highlight that the original appraisal was generally undertaken robustly and is likely to have resulted in a conservative assessment. Changes to underlying data sources subsequent to the original publication are likely to result in improved overall scheme benefits, therefore improving the overall Value for Money position for the scheme.

5.3. Optimism Bias

Atkins identified that the Optimism Bias was tested at 15% with no related sensitivity tests. The latest Active Mode Appraisal Toolkit released in November 2021, states:

"Please refer to TAG Unit A1.2 to set optimism bias, otherwise, 15% is the default assumed uplift."

This suggests that the 15% is the default value and therefore has justification for use within the original assessment. In contrast, if applying guidance from Table 7 and Table 8 in TAG Unit A1.2 (November 2021), it could be considered appropriate that Optimism Bias should have been applied as Stage 1 Road (46%). Therefore, a sensitivity test with higher values aligned to A1.2 would have been preferable to demonstrate the sensitivity of this value on the Value for Money.

To address this potential uncertainty, Atkins have undertaken a very high-level assessment of the affect in increasing the Optimism Bias to 46% in line with the current TAG Unit A1.2 (November 2021), which reduced the BCR by approximately 0.6 from the original BCR of 3.04 in the WYG assessment. However, this did still maintain the same level of Value for Money Category (High), so would not be deemed to have a significant effect on the overall Value for Money position of the scheme.

5.4. Findings

Overall, the Atkins review of the WYG Cost Benefit Appraisal report did not identify anything significant that would give rise to the Value for Money category changing from High.

Most of the affected appraisal inputs are likely to have little or no effect on the overall results and or result in an increase to the benefits stream, noting that the optimism bias uncertainty could lead to an increase in appraisal costs and reduction in Benefit Cost Ratio, although unlikely to be significant enough to change the Value for Money Categorisation. However, the appraisal does not consider the effect of future developments, where some of these developments have been granted permission and are being built to include sections of the Chisholm Trail. Assessment including this additional demand has the potential to increase the Value for Money.

6. Value for Money

This section concludes by providing a light touch qualitative Value for Money assessment, focused on any changes to the scheme and its context since the White Young Green (WYG) Cost Benefit Appraisal[7] was carried out. It aims to:

- Consider the scheme's contribution to the Chisholm Trail objectives, as well as wider GCP objectives;
- Consider the expected benefits of the scheme; and
- Provide a value for money statement for the scheme that reflects these factors.

This is a proportionate assessment at this stage with the information available, reflecting the approach to Value for Money in the latest (2021) DfT business case guidance.

6.1. Contribution to objectives

As part of this study, the options for the Chisholm Trail have been assessed and prioritised according to the scheme objectives. Primarily, the core trail on the eastern side of the railway line was selected due to its ability to provide a continuous, safe, high quality cycle route between the Phase 1 schemes and Cambridge Central Station. Options within the core trail, as well as complementary options, were then prioritised according to criteria based on the scheme objectives and key deliverability considerations.

Table 6-1 summarises how the scheme fulfils the Chisholm Trail objectives and references the relevant GCP transport aim[9] that the objective contributes to.

[9] Greater Cambridge Partnership, https://www.greatercambridge.org.uk/transport

Table 6-1 - Chisholm Trial objectives

Chisholm Trail objective	How the Chisholm Trail achieves objective	Relevant GCP transport aim
1. Safer, direct and more convenient routes for cycling and walking from Cambridge North Station to Cambridge Central Station	The core trail connects Carter Bridge and Cambridge Central Station in the south with the completed Phase 1 schemes in the north. Safety and convenience have been prioritised as part of the options assessment.	"Keep the Greater Cambridge area well connected to the regional and national transport network, opening up opportunities by working closely with strategic partners"
2. Improved access to employment areas, railway stations, retail sites, green spaces and residential centres	Providing connectivity to key locations has been prioritised as part of the options assessment. The core trail passes through the Timber Works development, and the complementary option on the west of the railway provides access to the Devonshire Gardens and Ironworks developments.	"Build an extensive network of new cycle-ways, directly connecting people to homes, jobs, study and opportunity, across the city and neighbouring villages"
3. Enhance the environment, improve air quality and reduce emissions by creating more journeys made by active modes	Journey quality (including surface quality, convenience, alignment with desire lines, wayfinding, continuity) has been a key consideration when prioritising the options, since a high-quality route is more likely to provide a competitive alternative to motorised modes and therefore encourage more journeys to be made via walking and cycling.	"Ease congestion and prioritise greener and active travel, making it easier for people to travel by bus, rail, cycle or on foot to improve average journey time"
4. Enhance streetscape making junctions and highway more user friendly and safer to active modes	The safety of cyclists, particularly with regards to their interaction with motorised vehicles, has formed a central part of option prioritisation, giving preference to routes where cyclists can be segregated from general traffic.	

6.2. Scheme benefits

This section summarises the anticipated changes to the scheme benefits since the WYG Cost Benefit Appraisal was carried out in 2016.

Economic benefits

Section 4 of this report explores the findings of the 2016 WYG Cost Benefit Appraisal in detail and seeks to identify any significant changes that may call the Value for Money assessment into question.

The WYG appraisal concluded that the Chisholm Trail Phase 1 & Phase 2 scheme provides a BCR of 3.04, where the DfT's Value for Money Assessments guidance considers schemes with a BCR of 2.0 to 4.0 to have High Value for Money. The scheme benefits almost entirely related to an improvement in journey quality. A number of sensitivity tests were undertaken by WYG and the schemes consistently fell into the High Value for Money category, except for where a 10 year appraisal period was used. It was therefore concluded that the core scenario appraisals provided robust assessments of the schemes.

The schemes were appraised using the DfT's Active Mode Appraisal Toolkit, which considers journey time improvements, journey quality improvements and some health and environment benefits. The WYG appraisal report notes that it is not intended to be a fully TAG compliant appraisal. A review outlined in section 4 highlights areas where changes may have occurred that could affect the findings of the original report; the findings are summarised as follows.

- Travel demand – WYG took a conservative approach, not considering trips from future housing developments or additional trips associated with match days at the Abbey Stadium. Additional demand from these trip generators is likely to give rise to an improved Value for Money position;
- Appraisal inputs – using new versions of TEMPro growth factors, TAG and National Travel Surveys is likely result in minor increases in expected scheme benefits

- Optimism bias – WYG did not carry out sensitivity tests relating to optimism bias, so a decision to increase the optimism bias uplift could lead to an increase in appraisal costs, reducing the BCR. This reduction however is not estimated to be significant enough to reduce the Value for Money category that the scheme sits within.

It is also important to note that the 2016 WYG Cost Benefit Appraisal for the Chisholm Trail assesses both Phase 1 and Phase 2 collectively in the Cost Benefit Analysis. Due to the amalgamated data reported in the WYG appraisal, Atkins were unable to undertake any assessments or analysis for Phase 2 in isolation of Phase 1.

Similarly, while this study has undertaken prioritisation of the Phase 2 core trail options and complementary options, high-level quantitative comparisons of these different option packages has not been possible. It is expected that focusing on the core trail alone would result in an increased Value for Money, as delivery of the core elements is likely to provide the overwhelming majority of the benefits through maintaining continual connectivity and quality, but with a more significant reduction to the scheme cost.

This assessment has therefore necessarily focused on the overall Value for Money position of the entire Chisholm Trail and any uncertainties that may have arisen since the original report publication.

Additional benefits

The social benefits of the Chisholm Trail scheme remain largely unchanged in that the scheme will improve accessibility and connectivity for residential areas, public transport connections, facilities, leisure and employment opportunities. Since 2016, construction has commenced at the Timber Works and Ironworks housing development sites, increasing the certainty around the benefit of providing a cycle route through these areas, which would further increase the Value for Money position.

Furthermore, the Chisholm Trail Phase 1 schemes opened for public use in 2021. This strengthens the strategic case for the Phase 2 schemes, as delivering the southern part of the Chisholm Trail will unlock some more of the benefits of the Phase 1 scheme and would then provide the continuous link between Cambridge North Station and Cambridge Station.

There are also more opportunities for connections with the LCWIP schemes and Greenways as these schemes develop further, increasing wider connectivity across the city, enhancing the strategic justification for Phase 2 of the scheme.

6.3. Value for Money summary

The Chisholm Trail is a strategic transport project that will provide a largely off-road foot and cycle link between the existing railway stations (Cambridge North and Cambridge), where Phase 1 has already been delivered and was opened for public use on 23rd December 2021. Atkins have provided services to assess and support the next phases of delivery for Phase 2 of the Chisholm Trail. Numerous options for Phase 2 of the Chisholm Trail have been assessed and prioritised according to the scheme objectives to produce a core trail, and the complementary options where the aim is to connect people with work, education and leisure opportunities and link into other active travel projects being developed.

As the WYG appraisal for the Chisholm Trail assesses both Phase 1 and Phase 2 collectively, it was not possible to undertake any high-level assessments or analysis for Phase 2 in isolation. The assessment therefore focussed on the overall Value for Money position, reflecting both the costs and the benefits, and any uncertainties that may have arisen since the original report publication.

In the review of the appraisal, minor changes were found within the appraisal inputs, which could result in some increases in scheme benefits, improving the Value for Money position. A more significant uncertainty is around the level of optimism bias detailed in section 4, where an increase could lead to an increase in appraisal costs, reducing the BCR. A full review of the costs of the Phase 2 elements has not been possible, as no detailed cost estimation has been undertaken at this stage of development of Phase 2.

Due to the conservative approach to trip demand used by WYG, there is also potential for greater demand to use the scheme than forecast. This combined with the prioritisation of scheme elements gives the opportunity to increase the Value for Money position as well, through higher levels of use of the scheme and reduced expenditure for limited reduction in scheme benefits.

In addition, the delivery of Phase 1 provides certainty over the delivery of a portion of the overall scheme and also reduces the risk of Phase 2. Phase 2 also compliments Phase 1 and allows for the realisation of further benefits in the Phase 1 area.

At this stage, based on the option work and appraisal assessment that Atkins had undertaken, nothing was identified to be significant enough that would give rise to the Value for Money category changing from High, or

would call in to question the decision to proceed with Phase 2. It is therefore recommended that Phase 2 is progressed further and that the programme of work is established initially prioritising the identified core elements of the trail.

Greater assurance of the Value for Money position for Phase 2 on its own could be developed through a revised appraisal undertaken at the start of the Phase 2 development. This assessment would focus on the core elements as identified in this phase of work to provide greater evidence and assurance of the benefits of Phase 2.

Appendix A. Multicriteria Assessment Framework (MCAF)

Ref	Location	Scheme Description	Interdependencies - Essential core / core option / complementary	Quality of proposed route	Rationale	Existing alternative route (obj 1) (1 highest quality of existing route to 3 lowest)	Rationale	Safety (obj 1)	Rationale	Connectivity to developments, facilities, services, and existing routes (obj 2)	Rationale	Interaction with motorised vehicles (obj 4)	Rationale	Deliverability	Rationale	Cost rating (1 high cost to 3 low cost)	Rationale	Stakeholder acceptability (1 least acceptable to 3 most acceptable)	Rationale	Land take risk (1 high risk, 3 low risk)	Rationale	Score	Comments
1	Cromwell Road (up to first entrance to development)	Junction upgrades at Coldhams Lane, shared use footway with Copenhagen crossings	Core route	3	Shared use path, but high quality	2	Current non-segregated cycle track with faded white line	3	Off road route with Copehagen crossings. Shared with pedestrians	3	Connects directly with development	3	Junction rejigged, priority over traffic at side roads	2	Converting to shared use path is straight forward. Junction at the north end of Cromwell Rd would have more challenges	1	Junction works could be expensive	2	Shared use path should be non-controversial, junction works could cause temporary disruption	2	Mostly highway land, interaction with developers for Copenhagen junctions	21	
2	Cromwell Road (from second entrance to development, through roundabout and down the cut through next to the Newsagents)	Cycle provision through roundabout (not sure what exactly), and off road link into development via path next to Newsagents	Core option - alternative to 3+3a / 3+3b	2	Less direct than alternative options, roundabout could be awkward to navigate	3	Current route has non-segregated cycle track with faded white line. Southbound only. Requires navigation of roundabout	1	Potential conflicts on roundabout / shared use path / shops / parked cars	3	Connects Cromwell Road housing development and to east	1	Potential conflicts on roundabout / shared use path / shops / parked cars	1	Works to roundabout could be challenging, location of parking to consider, interaction with businesses	1	high cost due to works to roundabout and new surface on proposed off road section	2	Located next to shop, could impact access to staff parking/delivery area	2	Development in construction - would require liaison with developer and business owners. Ownership of off road section unknown	16	
3	Cromwell Road housing development (Clara Rackham Street)	Cycle provision (either on-road or shared use path) and signage through housing development	Core option - alternative to 2, would need either 3a or 3b	3	Low traffic, quiet residential area	3	Current route has non-segregated cycle track with faded white line. Southbound only. Requires navigation of roundabout	2	Vehicle access but fairly quiet	3	Housing development	2	Potential conflicts with cars accessing residential area	3	Likely to be straight forward as the development is already under construction	3	Low cost - only requires signage	3	Minimal impact on stakeholders. Residents might not like cyclists routing through development	2	Arrangements with developer	24	
4	Link between Clara Rackham Street and track adjacent to railway - TOC sidings	Off road cycle provision and signage out of housing development	Core option - alternative to 5 / 5+6	3	Off road	3	Existing route via Segwick St - narrow, lots of parked cars	3	Off road, lighting needed	3	Access to housing development	3	Off road route	1	Issue around purchasing land from NR due to TOC lease. Likely to cause delays	2	Land costs, new surface for cut through	2	Less acceptable to NR/TOC	1	Unlikely to be able to purchase land from NR until 2026 due to TOC lease	21	
5	Link between Clara Rackham Street and track adjacent to railway - via Cromwell Road development site and Cavendish Place	Cycle provision to link existing development access and railway track via Cavendish Place - signage and removal of on-street parking	Core option - alternative to 4, could be delivered with 6	2	Includes Cavendish Place - narrow, parked cars	3	Existing route via Segwick St - narrow, lots of parked cars, likely to be busier	2	Section of route on narrow road (Cavendish Place) with lots of parked cars	3	Access to housing development	2	Section of route on narrow road (Cavendish Place) with lots of parked cars	2	Route through developemnt already in developer's plans, issues with removing parking on Cavendish Place	2	Minimal infrastructure needed, but costs relating to removing parking	1	Parking restrictions	2	Arrangements with developer	19	
6	Cavendish Road (between Cavendish Place and Wetenhall Road) and cut through	On road provision on Cavendish road, off road cut through under houses	Core option - alternative to 4, depends on 5	1	Narrow residential road, route passes under house	3	Existing route via Segwick St - narrow, lots of parked cars	1	Narrow, on road, parked cars	2	Near housing development, less direct	2	Partially on-road - narrow, parked cars, potential conflicts	2	Signage and road markings required. Sufficient space for the off road section, but concerns around purchasing land	2	Resurfacing of off road section, high cost of acquiring land	1	Possible parking restrictions, landowner unlikely to agree to selling land	1	Landowner unlikely to agree to selling land	15	
7	Track adjacent to railway (parallel to Great Eastern St)	Off road shared walking and cycle route adjacent to the railway on the eastern side	Core route	3	Off road / very quiet	3	Existing route via Segwick St - narrow, lots of parked cars	3	Off road / very quiet road. Lighting required	3	Essential for delivering north/south connectivity	3	Off road / very quiet road. Minimal risk of conflict	3	Track already exists	2	Track already exists. Signage, road marking, lighting etc required	2	Unsure about NR position	1	Unsure about NR position	23	
8	Cut through to Great Eastern St	Off road cut through to the track adjacent to the railway, under houses	Complementary	1	Route passes under house	2	Existing route via Great Eastern Street, then Sedgwick Street/Argyl St. Great Eastern St is a cul-de-sac, so no through traffic	3	Off road	1	Only connects to small residential cul-de-sac	3	Off road	2	Land negotiations required	2	Resurfacing of off road section, high cost of acquiring land	2	Landowner unlikely to agree to selling land / allowing public access	1	Landowner unlikely to agree to selling land	17	
10	Argyle Street	Link to railway path through carpark	Core option - alternative to route 11. Ideally delivered with 9a	2	Poor visibility through carpark	3	Current route via Argyl St/Sedgwick St - narrow, less direct, limited cycle provision	1	Potential conflicts in carpark, corners with poor visibility. However, allows for no right turns to get onto Mill Rd	2	Provides connection between cycle track, Mill Rd and residential area	1	Potential conflicts with cars within/ accessing carpark	2	May need to rationalise parking spaces and provide ramps/levelling	2	Road markings and signage, potential need for ramps	1	Conflicts with cars parking, possible removal of spaces	2	Land ownership of carpark unknown	16	Shortest route for those travelling northbound on trail and wanting to cross Mill Rd. Through carpark - potential safety concerns, would need very clear signage and road markings so cyclists and drivers are aware of the route. May require removal of parking spaces or reduction in space/right of way for cars - potential for stakeholder complaints. Land ownership?
11	Fletcher's Terrace	Link to railway path via Fletcher's Terrace	Core option - alternative to route 10. Ideally delivered with 9a	3	Minimal traffic, good desire and sight lines	3	Current route via Argyl St/Sedgwick St - narrow, less direct, limited cycle provision	3	Very quiet cul-de-sac, good visibility. Allows for no right turns to get onto Mill Rd	2	Provides connection between cycle track, Mill Rd and residential area	2	Potential conflicts, but very quiet road	3	Route already exists, resurfacing, signage and lighting required	2	Resurfacing, road markings and signage	2	May need to remove informal parking	3	Public road, but negotiation with NR may be required	23	Minor changes required to existing infrastructure - removal of gate, signage, possibly road markings. May need some parking rationalisation
12	Track adjacent to railway between Mill Rd and Carter Bridge	Off road cycle route	Core option, to be delivered with 13 or 14. Alternative to 9b	3	Off road	2	On road existing alternative via Argyle Street is ok	3	Off road, lighting needed	2	Convenient north-south connection	3	Off road, low risk	2	Some sections of track already exist, requires working with NR	1	Resurfacing likely to be required, cost of land	2	Positive impact for residents, unsure about NR/TOC	1	Cooperation with NR	19	
13	Rustat Avenue	On road route through development	Core option - alternative to 14 / 9b	2	Wide, quiet road, less direct north-south route	2	Existing route on Rustat Rd - one direction cycle lane	3	On road, quiet residential area	2	Connecting to trail to north	2	On road, but quiet	3	Route already exists, minimal intervention required	3	Minimal intervetion needed	3	Fine	2	Developer	22	
14	Track adjacent to railway south of Carter Bridge	Cycle route on Clifton Road	Core option - alternative to 13 / 9b	3	Off road / very quiet road, direct north-south route	2	Existing route on Rustat Rd - one direction cycle lane	3	Off road / very quiet road, lighting needed	2	Directly connecting to trail to north, limited connection to south	3	Off road / very quiet road	3	Route already exists, minimal intervention required, in conversation with developer about acquiring land	2	Land and TRO cost	3	Positive impact for residents, expected to have minimal negative impact on NR once nearby works finished	2	Council to purchase land from developer	23	
15	Link between Rustat Rd and railway track	Widened walking and cycling off road route	Complementary	3	Off road, shared use path, pleasant green area	2	Existing route on Rustat Rd - one direction cycle lane	3	Off road, track needs widening to enable shared use.	2	Connecting to trail to north and access from the south and east	3	Off road	2	Possibly need to relocate street lights	2	Possibly need to relocate street lights	2	Positive impact for residents, possible conflict with utilities	2	Requires cooperation with developer	21	
17	Carter Bridge to Devonshire Meadows	Route through NR carpark to north of station	Complementary - dependent on 18, 19, 20	2	Through middle of Network Rail (NR) carpark	3	Devonshire Lane narrow, busy, speed bumps	2	Through middle of NR carpark	3	Connects to railway station and Devonshire Meadows (if it happens)	1	Through middle of NR carpark - high risk of conflict	3	Requires road markings, signs and new entrance	2	Requires road markings, signs and new entrance, NR land costs	1	Impacts on NR carpark	1	Requires cooperation with NR	18	
18	Devonshire Meadows development	Off road route on west of railway next to/through development	Complementary - dependent on 17, 19 ,20	3	Route included within development	3	Devonshire Lane narrow, busy, speed bumps	3	Designated cycle path in development	3	Access developments on west side of railway	3	Off road cycle path	1	Relying on Devonshire Meadows development to be approved	3	As part of Devonshire Meadows development	3	Unlikely to have negative impacts on stakeholders	1	Requires cooperation with developer	23	
19	Access to off road route via CHS land	Cut through on private land	Complementary - possibly only needed if Devonshire Meadows doesn't go ahead.	2	Quiet road, poor visibility at entrance from Devonshire Road	3	Devonshire Lane narrow, busy, speed bumps	2	Quiet road but poor visibility onto Devonshire Road	3	Connects to Devonshire Meadows and Mill Road	2	Fairly quiet private road but potential for conflicts	2	Requires access to private road	2	Potential land cost	2	Requires access to private road	2	Requires cooperation with private land owner (CHS)	20	Better alternative might be to make Devonshire Road one way to make space for proper cycle provision? Depends on closure of Mill Road
20	Under Mill Road	Section of off road route under bridge	Complementary - dependent on 17, 18, 19	2	Off road route, possibly narrow in some places	3	Devonshire Lane narrow, busy, speed bumps/crossing Mill Road	3	Off road, lighting required	3	Connects Iron Works to Timber Works	3	Off road	1	Reliant on NR, existing archway	2	Lighting, surface?, pallisade fecning	3	Unlikely to have negative impacts on stakeholders	1	Cooperation with NR and possibly developers	21	
21	Through Iron Works development	Off road cycle route	Complementary - dependent on 17, 18, 20	3	Route included within new development	3	Kingston Street narrow, busy	3	Designated cycle path in development	3	Connects Iron Works to off road north south trail, and connection to Beehive (on road)	3	Off road	1	Reliant on developments	3	Included within development plans	3	Unlikely to have negative impacts on stakeholders	2	Requires cooperation with developer (Iron Works)	24	
12a	Northern access via William Smith Close	Route through residential carpark	Core option - alternative to 12b and 12c	2	Poor visibility through carpark	2	On road existing alternative via Argyle Street is narrow with parked cars	1	Poor visibility in and out of carpark, conflicts with vehicles	2	No direct link to development, connection to Carter Bridge	1	Through carpark	2	Risks around access to private land	2	Road markings, signage, carpark reconfiguration	2	Loss of spaces, might need to improve other carpark to compensate, private land?	2	Currently private road	16	
12b	Middle access via William Smith Close	Route through residential carpark	Core option - alternative to 12a and 12c	3	Good visibility and sight lines, on desire line	2	On road existing alternative via Argyle Street is narrow with parked cars	3	Good visibility, potential for path around the carpark	2	No direct link to development, connection to Carter Bridge	3	Potential for share use path	3	Minor alterations to carpark required, including signage and road markings	2	Road markings, signage, carpark reconfiguration	3	No loss of parking spaces	3	Shared path in highway boundary	24	
12c	Southern access to Clifton Road via William Smith Close	Route through residential carpark	Core option - alternative to 12a and 12b	2	Poor visibility through carpark	2	On road existing alternative via Argyle Street is narrow with parked cars	1	Poor visibility in and out of carpark, conflicts with vehicles	2	No direct link to development, connection to Carter Bridge	1	Through carpark	2	Moderate alterations to carpark required, including signage and road markings	2	Road markings, signage, carpark reconfiguration	2	Conflicts with cars parking, possible removal of spaces	2	Carpark ownership?	16	
3a	Northern access from Cromwell Road into housing development (Clara Rackham Street)	Cycle provision (either on-road or shared use path) and signage into housing development	Core option - depends on 3, alternative to 3b	2	Main traffic access to residential area, speed bump	3	Existing includes roundabout	2	Vehicular access to development but fairly quiet	3	Within housing development	2	Potential conflicts with cars accessing residential area	3	Already in developer's plans	3	Low cost - only requires signage	3	Minimal impact on stakeholders. Residents might not like cyclists routing through development	2	Arrangements with developer	23	
3b	Southern access from Cromwell Road into housing development	Off road cycle provision and signage into housing development	Core option - depends on 3, alternative to 3a	3	No traffic, quiet residential area	3	Existing includes roundabout	3	Non-trafficked apart from emergency	3	Within housing development	3	Taking cyclists away from cars	3	Already in developer's plans	3	Low cost - only requires signage	3	Minimal impact on stakeholders. Residents might not like cyclists routing through development. Removes conflict between cars and cycles, but potential conflict between peds and cycles	2	Arrangements with developer	26	
9a	Great Eastern St car park cut through	Route through residential carpark	Core option - 9a considered essential link. Ideally delivered alongside 10 or 11	3	Through back of carpark, good sight lines, separated from traffic	3	Better than Segwick St	3	Through carpark, but fair visibility and cyclists taken on route that avoids conflicts with vehicles	3	Essential connection between core off road route and bridge over railway	3	Through carpark, but fair visibility and cyclists taken on route that avoids conflicts with vehicles	3	Minor works required in carpark	2	TBC	3	Potential removal of parking spaces, but unlikely to have significant impact	3	Council ownership?	26	
9b	On road route via Argyl Street, Charles Street and Rustat Road (down to Davy Rd roundabout)	On-road cycle provision	Core option - alternative to 12+14 and 12+13	2	On road	1	This is the existing route	2	On road	2	Connects to Carter Bridge	1	On road, currently inconsistent cycle lane in one direction	2	Route already exists, minor improvements, limited space for major improvements	3	Route already exists, minor improvements	3	Route already exists, minor improvements	3	Route already exists, minor improvements on road	19	