

A428 Cambourne to Cambridge Segregated Bus Route Consideration of Green Belt Issues

August 2017

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This document has been prepared and checked in accordance with ISO 9001:2008

1.0 Introduction

1.1. Appointment and Scope

1.1.1. This study was commissioned by Cambridgeshire County Council (referred to in this report as the County) in May 2017. The study considers potential options for the alignment of a proposed segregated bus route through the Green Belt from the vicinity of Madingley Mulch Roundabout on the A428 to the western edge of Cambridge, within a 'catchment area' (the widest potential area within which any alignment may be created in the corridor(see Figure 1)) already identified by the County.

1.1.2. This proposed segregated bus route through the Green Belt forms part of a longer proposed bus route between Cambourne and Cambridge, with the section between Cambourne and the vicinity of Madingley Mulch Roundabout being largely located outside the Green Belt. 1.2-2.2km of the route immediately to the west of Long Road/ Madingley Mulch Roundabout is still located within the Green Belt but is anticipated to use the existing route of the A428.

1.1.3. A series of options for the alignment of the proposed bus route between Cambourne and Cambridge have been considered by the County. An options assessment report was prepared in October 2016. This considered five separate route options, in the form of 'catchment areas' not specific alignments. A series of tests were applied to each of the five alternative suggested routes. The approach to this testing is set out in the Technical Option Appraisal section of the October 2016 report. Option 3A was recommended. This option would provide a new offline segregated route linking Cambourne and the proposed Bourn Airfield new settlement, with a segregated route that would run alongside the old A428 to Madingley Mulch roundabout, a new segregated dedicated bus route running north of Coton and parallel to Madingley Road and Madingley Rise to new bridge over the M11. It was considered to have the following key strategic benefits:

- Capacity for higher frequency bus services due to the segregated route.
- Segregation improves the reliability of bus services against on line options.
- Segregation improves journey times by providing dedicated bus infrastructure. The recommended route would be up to 36 minutes quicker than the slowest proposal.
- Flexibility - Off line infrastructure would be integrated into online bus priority measures to allow for services to join and leave the infrastructure at different point as required.
- A highly segregated scheme is anticipated to deliver the highest level of economic benefits and coherence with the City Deal vision.
- The Recommended Option in line with local policy offers an extension of the quality interventions delivered by the Guided Busway.
- The segregated bus infrastructure offers further potential for optimisation.

1.1.4. The potential alignments, at a more detailed level, within option 3A through the Green Belt are considered in this study. This report provides an assessment of the likely effects of different route options on the essential Green Belt characteristic of openness, as well as on Green Belt purposes. It sets out the methodology used for the assessment, and provides a robust, transparent and clear understanding of both how the potential route options through the 'catchment area' perform in relation to preserving the openness of the Green Belt and not conflicting with the purposes of including land in Green Belt. A further route alignment through option 3A is currently being assessed, the findings of which will be published in a revised version of this report.

- 1.1.5. This report does not assess Green Belt considerations in relation to options other than option 3A, as recommended by the County and accepted as the preferred option by the City Deal Board. It is acknowledged that other options may be considered, which would need to be assessed in relation to Green Belt considerations if they are taken forward.
- 1.1.6. This report forms one of many considerations in assessing the various route options for the Cambourne to Cambridge Better Bus Journeys Scheme. It should be read alongside the Landscape and Visual Appraisal of the routes (Atkins, January 2017) and the Planning Appraisal (Strutt and Parker, July 2017).

1.2. Proposed Development

- 1.2.1. Cambourne to Cambridge Better Bus Journeys Scheme aims to create better bus journeys along the A428 and the A1303, through high quality public transport infrastructure. It also looks to improve the cycling and walking links between Cambourne and Cambridge. It will help connect communities with employment sites, the city and each other. It is a scheme promoted by the Greater Cambridge City Deal, an agreement set up between a partnership of local organizations and Central Government, to help secure future economic growth and quality of life in the Greater Cambridge city region.
- 1.2.2. This project aims to deliver new high-quality public transport, cycling and walking infrastructure. This would increase the number of choices people have to travel, and in turn help to reduce congestion and improve quality of life. This is needed to accommodate the planned growth in the area.
- 1.2.3. The proposed segregated bus route from Madingley Mulch Roundabout, on the A428, to the western edge of Cambridge would run through Green Belt land. The route is likely to be approximately 15m wide and consist of a hedgerow with an associated verge on either side where appropriate, an 8m wide track to accommodate buses travelling in both directions, and a 4m wide footpath and cycleway to one side of the bus route. Woodland planting could also be accommodated where appropriate along the route, as indicated by the Landscape and Visual Appraisal of the routes and emerging landscape proposals. This could widen the corridor of the route beyond 15m in some locations. It is assumed that any new hedgerows would be maintained in a similar way to existing hedgerows in the surrounding area, and allowed to grow tall rather than tightly clipped. It is also assumed that any woodland would be allowed to reach its full mature height.
- 1.2.4. It is understood that the route would be unlit except at bus stops and junctions. Within the Green Belt areas covered by this report, this would only introduce additional lighting where the route crosses Cambridge Road, Coton. It is also understood that the route would not be fenced, except in proximity to hazards such as watercourses where a timber fence would be constructed.
- 1.2.5. A new bridge will be required to cross the M11. It is anticipated that this will be a green bridge, with planting on the bridge alongside the bus route and footpath/cycleway. The bridge deck would have a width in the centre of 21m and a height above the M11 carriageway of 7m. A final design for the route will be developed at a later stage, however, these current working dimensions have been utilised for the purposes of this assessment.
- 1.2.6. Figure 1 shows the potential route options considered in this study. Option 3/3a in the October 2016 Options Assessment identified a 'catchment area' for the proposed segregated bus route, and these options identify alternative route alignments through the 'catchment area'. Whilst some minor variation to these options may occur during the detailed design of the route, these options between them cover the likely permutations of the route through

the ‘catchment area’ that would be acceptable in highways terms. In brief, the route options are as follows, with further detail provided in Section 7 of this report:

- Option A - runs south eastwards from the junction of Long Road and the A428, then eastwards around the northern edge of Coton. It tightly follows the edge of Coton in the vicinity of Cambridge Road, then runs through the orchard area to the north east of Coton and crosses the M11 via a new green bridge just north of the existing footbridge, entering the West Cambridge site and then turning south to follow existing hedgerows for the depth of one field, finally turning east to follow an existing hedgerow and then the existing edge of Cambridge along the rifle range track. Alternatively, this route could cross the M11 at an angle south of the existing footbridge, avoiding the West Cambridge development and joining the main route option to run eastwards along existing field boundaries. New hedgerow planting is proposed between the cycle/pedestrian route and the busway where it runs to the north of Coton, from the fields south of Coton Court to Cambridge Road, as well as over the green bridge and for a stretch approaching the western edge of Cambridge. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton and close to the edge of Cambridge, with a new hedgerow proposed to the north of the route for a stretch south of West Cambridge.
- Option B - follows a very similar alignment to Option A to the northern edge of Coton, before sweeping round slightly higher up the slope north of Coton than Option A. It then runs through the orchard area to the north east of Coton and crosses the M11 via a new green bridge further north of the existing footbridge than Option A. It enters the West Cambridge site and runs along Charles Babbage Road, before turning south and either following the existing Harcamlow Way/Wimpole Way cycle route along the southern edge of West Cambridge and along Adams Road, or cutting across the field south of West Cambridge, following the southern edge of the athletics ground and Herschel Road. New hedgerow planting is proposed between the cycle/pedestrian route and the busway where it runs to the north of Coton, from the fields south of Coton Court to Cambridge Road, and for the stretch of the route between West Cambridge and Adams Road/Herschel Road. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton. New tree planting is proposed along the route where it passes through West Cambridge.
- Option C – leaves the A428 further east than the other options, before turning south and then running eastwards further down the slope than Options A and B, and reaching Coton closer to its northern edge. It then sweeps slightly higher up the slope north of Coton than Option A, before running through the orchard area to the north east of Coton and crossing the M11 on a new green bridge just south of the existing footbridge, following the southern edge of West Cambridge along the route of the Harcamlow Way. There are then various options where the Harcamlow Way/Wimpole Way turns northwards, including cutting across the field north eastwards to join the Option B route along the cycleway and Adams Road, or cutting across the field south eastwards to join the Herschel Road option, the rifle range track or continuing further south east to join Cranmer Road. New hedgerow planting is proposed between the cycle/pedestrian route and the busway where it runs to the north of Coton, from the fields south of Coton Court to Cambridge Road, as well as a stretch along the southern edge of West Cambridge and the University Sports Ground. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton.

1.2.7. A further route alignment through option 3A is currently being assessed, the findings of which will be published in a revised version of this report.

1.3. Structure of the Report

- 1.3.1. Section 2 summarises the relevant policy background applicable to Green Belt openness and purposes in the Cambridge context and reviews relevant previous policy and studies that have identified specific elements or qualities of Cambridge and its surrounding landscape that are relevant to Green Belt purposes.
- 1.3.2. Section 3 outlines the overarching considerations that apply to the proposed route of the segregated bus route through the Cambridge Green Belt.
- 1.3.3. Section 4 describes the methodology used in carrying out this study.
- 1.3.4. Section 5 presents the results of baseline studies and analysis, which enable Cambridge and its surroundings to be understood in the context of Green Belt openness and purposes.
- 1.3.5. Section 6 draws out qualities of the city and its surrounding landscape that contribute to the performance of Green Belt purposes.
- 1.3.6. Section 7 introduces the sector assessments for the different sectors.
- 1.3.7. Sections 8-10 contain detailed assessments of the proposed route options through each of the Green Belt sectors, in terms of whether the routes preserve the openness of the Green Belt or would conflict with Green Belt purposes. The test of NPPF paragraph 90 is then applied to identify any potential harm to Green Belt that would arise from the different route options, before a separate judgement on the degree of any potential harm to the Green Belt for those stretches of the different route options that fail the paragraph 90 test.
- 1.3.8. Section 11 provides conclusions in relation to the route options for the segregated bus route.

2.0 Policy and Previous Studies

2.1. Green Belt Policy Tests

- 2.1.1. Paragraph 90 of the National Planning Policy Framework (NPPF) states that certain forms of development are 'not inappropriate', provided they preserve the openness of the Green Belt and do not conflict with the purposes of including land in Green Belt. These forms of development include 'local transport infrastructure which can demonstrate a requirement for a Green Belt location'. The Planning Appraisal prepared by Strutt and Parker demonstrates that a Green Belt location is required for the proposed development.
- 2.1.2. On the basis that the proposed segregated bus route would comprise 'local transport infrastructure which can demonstrate a requirement for a Green Belt location', the test under paragraph 90 is whether the scheme would preserve the openness of the Green Belt and not conflict with the purposes of including land in Green Belt. If this test cannot be met, the scheme would be 'inappropriate' development and paragraphs 87 and 88 of the NPPF would apply.
- 2.1.3. Paragraph 87 states that inappropriate development is, by definition, harmful to the Green Belt and should not be approved except in very special circumstances. Paragraph 88 states that, when considering any planning application, local planning authorities should ensure that substantial weight is given to any harm to the Green Belt. 'Very special circumstances' will not exist unless the potential harm to the Green Belt by reason of inappropriateness, and any other harm, is clearly outweighed by other considerations.
- 2.1.4. In order to address the tests in paragraphs 90, 87 and 88, this report therefore firstly considers whether the proposed route options preserve the openness of the Green Belt and avoid conflict with Green Belt purposes, in order to meet the paragraph 90 test for 'not inappropriate development'. Where the paragraph 90 test is not met, because openness is not preserved or there is conflict with any Green Belt purposes, the report identifies the degree of potential harm to the Green Belt, to assist in the application of the paragraphs 87 and 88 test. The Planning Appraisal prepared by Strutt & Parker sets out wider considerations regarding the overall planning balance of the scheme, including matters related to very special circumstances.

2.2. Openness of the Green Belt

- 2.2.1. Paragraph 79 of the NPPF states that the fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open. The essential characteristics of Green Belts are their openness and their permanence. Whilst the NPPF does not contain a definition of openness, it is usually understood to mean the absence of built development.

2.3. Green Belt Purposes

- 2.3.1. At the national level, paragraph 80 of the NPPF sets out five purposes for Green Belt. The five purposes are as follows:
 - 1. To check the unrestricted sprawl of large built-up areas
 - 2. To prevent neighbouring towns merging into one another
 - 3. To assist in safeguarding the countryside from encroachment
 - 4. To preserve the setting and special character of historic towns
 - 5. To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

- 2.3.2. These purposes are referred to in this report as the **National Green Belt purposes**. Although they are not numbered in the NPPF, they are numbered in this report for ease of reference.
- 2.3.3. National Green Belt purpose 5 appears from its wording to be equally applicable to all Green Belt land and is therefore not relevant in identifying the relative importance of different areas of Green Belt land to the performance of Green Belt purposes. In addition, the route chosen for the proposed segregated bus route does not make any difference to the degree to which this purpose is performed. Consequently, it is not considered further in this study.
- 2.3.4. At a local level, three purposes have been defined for the Cambridge Green Belt in local policy¹. They are as follows:
 - 1. Preserve the unique character of Cambridge as a compact, dynamic city with a thriving historic centre
 - 2. Maintain and enhance the quality of its setting
 - 3. Prevent communities in the environs of Cambridge from merging into one another and with the city.
- 2.3.5. These are referred to as the **Cambridge Green Belt purposes** in this report and have similarly been numbered for ease of reference, although they are unnumbered in the relevant policy documents.
- 2.3.6. The principal relationships between the Cambridge Green Belt purposes and the National Green Belt purposes are readily apparent from their wording. Cambridge Green Belt purpose 1 (character) and 2 (setting) derive from National Green Belt purpose 4. Cambridge Green Belt purpose 3 (merging) clearly relates to National Green Belt purpose 2 but, since the presence of necklace villages close to the outskirts of Cambridge is widely recognised as a key element of the city's character, it is also relevant to National Green Belt purpose 4. When the qualities that contribute to character and setting are considered in greater detail, other relationships between the Cambridge Green Belt purposes and the National Green Belt purposes become apparent. For example, various aspects of the character and setting of Cambridge also contribute to the performance of National Green Belt purposes 1, 2 and 3. These interrelationships are highlighted further in section 6 of this report, particularly within the table in section 6.1.

2.4. Previous Studies

- 2.4.1. The Cambridge Inner Green Belt Boundary Study, November 2015, was undertaken by LDA Design for Cambridge City Council and South Cambridgeshire District Council. Section 2.3 of the Study sets out a series of policy documents and previous studies that have identified relevant qualities of Cambridge and its surrounding landscape that contribute to the performance of Green Belt purposes. This study does not repeat that information, but accepts the conclusion of that chapter of the 2015 study, as follows:

“Whilst there is significant variation in the number of Green Belt qualities mentioned in the various studies and policy documents, there is notable consistency among those mentioned, with a number of substantively the same qualities mentioned in several different documents. The up to date analysis undertaken in the course of the present study largely confirms the relevance of the previously identified qualities as criteria for the Green Belt assessment.”

¹ Refer to Cambridge Local Plan 2014, Proposed Submission, July 2013, paragraph 2.50 and South Cambridgeshire Local Plan, Proposed Submission ‘with illustrated changes’, March 2014, paragraph 2.29

3.0 Overarching Green Belt Considerations

3.1. Strategic Approach to Development around Cambridge

- 3.1.1. Cambridge City Council and South Cambridgeshire District Council, under the duty to cooperate and given the interdependencies between the two Councils through the location of key employment sites, patterns of travel to work and access to services and facilities, have jointly considered the approach to sustainable development in and around Cambridge. South Cambridgeshire District set out at paragraph 2.42 of their Submission Local Plan (July 2013) that the sustainable development sequence for the two authorities is about:

“balancing the sustainability merits of land on the edge of Cambridge in terms of accessibility to services and facilities and reducing emissions with the sustainability merits of land in the Green Belt on the edge of Cambridge in terms of protecting the special characteristics of Cambridge as a compact historic city”.

- 3.1.2. Paragraph 2.44 goes on to state:

“Cambridge City Council and South Cambridgeshire District Council jointly reached the view on the extent of change on the edge of Cambridge where only minor revisions to the inner Green Belt boundary are proposed in the Local Plans”.

- 3.1.3. The Submission version of the Cambridge Local Plan (July 2013) indicates at paragraph 2.24 that the sustainable development strategy is:

“a considerable challenge for the Cambridge area. There is a need for new homes to support the jobs. The aim is to provide as many of those new homes as close to the new jobs as possible to minimise commuting and to minimise and mitigate harmful effects for the environment, climate change and quality of life. The need for jobs and homes has to be considered within the context of a tightly-drawn Green Belt, which aims to protect the unique character of Cambridge as a compact, dynamic city with a thriving historic centre, maintain and enhance the quality of the city’s setting, and prevent the city merging with the ring of necklace villages. The Green Belt and its purposes help underpin the quality of life and place in Cambridge, which are fundamental to economic success. Achieving an appropriate balance between these competing arms of sustainable development is a key objective of the development strategy for the new local plans”.

- 3.1.4. It continues at paragraph 2.26:

“The overarching development strategy for the administrative areas of both Cambridge and South Cambridgeshire for the period to 2031 follows a broadly similar sequence for the preferred location and distribution of new development as the 2006 strategy. Put simply, the preferred sequential approach for new development can be described as: (first) being within the existing urban area of Cambridge; (second) being within the defined fringe sites on the edge of Cambridge; (third) within the six small-scale Green Belt sites proposed to be released from the inner Green Belt boundary, four of which are within the city; (fourth) within existing and newly identified new settlement locations at Cambourne, Northstowe, Bourn Airfield and Waterbeach; and lastly in identified villages.”

- 3.1.5. The protection of the Green Belt on the edge of Cambridge, for the reasons identified above, has resulted in the need to develop new settlements beyond the Green Belt, such as Cambourne, and provide the necessary high quality transport infrastructure to allow sustainable travel. This provides the context for the consideration of a proposed improved bus route from Cambourne to Cambridge, of which the subject of this report, the proposed stretch of segregated bus route from Madingley Mulch Roundabout to the edge of Cambridge, would form part.

4.0 Methodology

4.1. Introduction

4.1.1. This study draws significantly from Cambridge Inner Green Belt Boundary Study (November 2015) (the 2015 study). The principal requirement of that study is to assess how land in the Inner Cambridge Green Belt performs against Green Belt purposes. Both National Green Belt purposes (with the exception of purpose 5) and Cambridge Green Belt purposes are considered, as identified in section 2.4 of this study.

4.1.2. This study is required to take the assessment process a stage further than the 2015 study and assess whether the different route options would preserve the openness of the Green Belt or conflict with the purposes of including land in Green Belt. In situations where openness is not preserved or there would be potential conflict with Green Belt purposes, the degree of harm that would result is then considered.

4.2. Methodology

4.2.1. The methodology for this study broadly follows that of the 2015 study, but as follows:

- Stage 1: Identification of sectors and sub areas within the Inner Green Belt to form the basis of the assessment;
- Stage 2: Baseline studies and analysis to inform considerations relevant to openness of the Green Belt and potential conflict with Green Belt purposes;
- Stage 3: Identification of qualities to inform the assessment of preservation of openness and the identification of any conflict with Green Belt purposes; and
- Stage 4: Assessment of sectors to identify:
 - whether the proposed route options preserve the openness of the Green Belt;
 - whether the proposed route options conflict with Green Belt purposes;
 - in situations where there is any decrease in openness or any conflict with Green Belt purposes, this is considered to result in harm to the Green Belt. In these situations, the degree of harm is then considered.

4.2.2. These stages are described in further detail below.

Stage 1: Identification of Sectors and Sub Areas within the Inner Green Belt

4.2.3. The sectors and sub areas used for the assessment are shown on Figure 2. The sectors are defined on a simple spatial basis utilising the sector identified as part of the 2015 study east of the M11 as a starting point. West of the M11 roads and watercourses are used to divide one sector from another. This provides a clear and robust structure for presentation of the assessment.

4.2.4. The definition of the sectors on a simple spatial basis, as described in the previous paragraph, does not reflect variations in land use, character or context, which occur in the majority of the sectors. All sectors are therefore divided into sub areas where there are clear changes in these characteristics that would affect the application of the assessment criteria to different areas of land. This enables a robust and transparent assessment of the various sub areas.

Stage 2: Baselines Studies and Analysis (Section 5 of this Report)

4.2.5. A series of studies were undertaken as part of the 2015 study, to build up an understanding of Cambridge and its surrounding landscape, in the context of the considerations which are

relevant to the performance of Green Belt purposes and to inform the assessment of openness. These extended out far enough to cover all of the proposed route options from Madingley Mulch Roundabout. The studies cover a range of aspects which have a bearing on how the issues raised by Green Belt purposes (sprawl, merging, encroachment, setting and character) are manifested in Cambridge and its surrounding landscape or are perceived by residents or visitors to the city. They include matters relating to the physical form and scale of the city, its historical development, its relationship to its hinterland, townscape and landscape character, the experience of approaching and arriving at the city, and how the city is perceived from the surrounding landscape.

- 4.2.6. Townscape character assessment assists not only in identifying the historic core of the city but also in identifying other areas of townscape which are distinctive to Cambridge and contribute to its particular character. Its findings reflect the historical development of the city and contribute to an understanding of the nature of the urban edges which adjoin the Green Belt. Landscape character assessment assists in identifying important components of the landscape setting of the city and the wider countryside, enabling it to be studied within its context, and the relationship between the city and its surroundings to be properly understood. These assessments are therefore of particular relevance to National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
- 4.2.7. The findings of the baseline studies, so far as relevant to the areas affected by the route options, are summarised in section 5 of this report and are taken directly from the 2015 study.
- 4.2.8. The findings of the baseline studies and analysis are presented on a series of drawings and photograph panels. Figures 3-11 show the extent of the proposed route options. Figures 12-14 illustrate the key Green Belt considerations that relate to each sector. Figures 15-20 are photograph panels that illustrate the findings of the baseline analysis.

Stage 3: Identification of Qualities Relevant to Openness and Green Belt Purposes (Section 6 of this Report)

- 4.2.9. This stage draws from the surveys and analysis work in stage 2 to identify how the 16 qualities of the city and its surrounding landscape identified in the 2015 study, which directly contribute to openness and the performance of Green Belt purposes, relate to each of the assessment sectors.

Stage 4: Assessment of Sectors (Sections 8-10 of this Report)

- 4.2.10. Sections 8-10 of this report contain detailed assessments of the proposed route options through each of the Green Belt sectors, in terms of whether the routes preserve the openness of the Green Belt or would conflict with Green Belt purposes.
- 4.2.11. Initially, the 16 qualities identified in stage 3 are used as the criteria against which the sectors and sub areas are considered to identify key considerations relevant to openness and Green Belt purposes within each sub area. The assessments are presented in a tabulated format for each sector, with summary text at the end of the table drawing out the key points from the criteria-based assessment of each sub area under the two headings of openness and Green Belt purposes.
- 4.2.12. Within each sub area, the degree to which the openness of the Green Belt would be preserved is considered for each of the different route options. This has two main aspects in relation to this assessment, the volume or physical size of the proposed development and its visual impact. Where either of these two aspects indicates a potential reduction in openness, other

aspects are considered, including the duration of the effect and the purpose of the development.

4.2.13. For the purposes of the assessment, it is considered that:

- Where the route is constructed over flat landform or across the face of a slope requiring relatively modest and balanced cut and fill to create the bus route, the necessary earthworks would not affect openness. A reduction in openness could arise where the route is significantly elevated above existing ground levels or where there is more substantial cut and fill or a significant imbalance between cut and fill.
- Where the route crosses a rural landscape and would result in visible changes such as new fences and/or hedgerows that would not result in a change to the character of the landscape, there would be no effect on openness. Where there would be a visible change to the character of the landscape, there may be a reduction in openness.
- The surface of the bus route and footway/cycleway, and the physical guides alongside the busway would not affect openness.
- Signage, lighting and road markings near road crossings would not affect openness.

4.2.14. Within each sub area, any potential conflict with Green Belt purposes as a result of the different route options is also assessed, using the 'Qualities Relevant to Openness and Green Belt Purposes' as the starting point. For the purposes of this report, any negative effect on a particular Green Belt purpose, even if only slight, is considered to be a conflict with the Green Belt purpose.

4.2.15. The assessments conclude with commentary on whether the NPPF paragraph 90 test is passed by each option, i.e. does the option preserve openness and not conflict with Green Belt purposes. This is followed by a separate judgement on the degree of any potential harm to the Green Belt for those stretches of the different route options that fail the paragraph 90 test.

5.0 Baseline Studies and Analysis

5.1. Introduction

5.1.1. As stated above, this section summaries the key findings of a series of studies undertaken in the 2015 study, which build up an understanding of Cambridge and its surrounding landscape, focussing on considerations that are relevant to the performance of Green Belt purposes. These covered a range of aspects that have a bearing on how the issues raised by Green Belt purposes are manifested in Cambridge and its surrounding landscape or are perceived by residents or visitors to the city. They include matters relating to the physical form and scale of the city, its historical development, its relationship to its hinterland, townscape and landscape character, the experience of approaching and arriving at the city, and how the city is perceived from the surrounding landscape. Whilst these studies were originally undertaken to understand the contribution of the Cambridge Green Belt to Green Belt purposes, they also inform consideration of openness.

5.1.2. The material has been checked, validated and updated as necessary for the purposes of the present study, by means of desktop studies, site survey and analysis.

5.2. Historical Development of Cambridge and the Villages

5.2.1. Key points:

- Location of Cambridge at a meeting point of several landscapes: Fens to the north and east, Claylands to the west, Chalk Ridge to the south and east.
- A small town until the 19th century.
- Substantial growth during the 19th and 20th centuries, continuing into the early 21st century.
- Little expansion west of the city, save for the University's West Cambridge site being developed in recent years.
- Varied local factors influencing the location and form of villages.
- Distinctive character of many villages and notable landscape features within them.

5.3. Environmental Designations

5.3.1. There are numerous environmental designations within Cambridge and the Green Belt, covering a range of habitats and with many different reasons for designation, which contribute to the character and setting of the city. Those within the area covered by the proposed segregated bus route are shown on Figure 3.

5.3.2. Key points:

- Relatively few environmental designations in the vicinity of the proposed route options.
- County Wildlife Sites along field boundaries east of M11.
- City Wildlife Site covering woodland east of the M11.

5.4. Cultural Designations

5.4.1. Figure 4 shows cultural designations within Cambridge and the Green Belt, which contribute to the character and setting of the city.

5.4.2. Key points:

- Conservation Area and numerous listed buildings in west side of Cambridge.
- Conservation Areas and listed buildings in Coton.
- Registered Park and Garden at Cambridge American Cemetery.

5.5. Recreational Routes and Country Parks

5.5.1. Figure 5 shows recreational routes within and through the Cambridge Green Belt, as well as the locations of country parks close to edge of Cambridge. These contribute to the character and setting of the city, and also allow access into the countryside close to the edge of the city.

5.5.2. Key points:

- Limited rural rights of way network west of M11 in the vicinity of the route options.
- Long distance footpath route through area (Wimpole/Harcamlow Way).
- Country Park in the rural landscape a short distance south of the route options.

5.6. Topography and Geology

5.6.1. Figure 6 illustrates the topography of the Cambridge Green Belt and the surrounding area.

5.6.2. Key points:

- Topography reflects the three landscapes that surround Cambridge: Fens, Claylands and Chalk Hills.
- Proposed route options run from a ridgeline of the Claylands towards the city.

5.7. Townscape Character

5.7.1. Townscape character assessment (see Figure 7) assists not only in identifying the historic core of the city but also in identifying other areas of townscape which are distinctive to Cambridge and contribute to its particular character. Its findings reflect the historical development of the city and contribute to an understanding of the nature of the urban edges which adjoin the Green Belt.

5.7.2. Key points:

- Despite significant areas of 19th century housing, the city remained very compact at the start of the 20th century.
- Limited expansion to the west, predominantly comprising development related to the University.
- Intact historic core, relatively large in proportion to the overall size of the city.
- Coton also has a relatively intact historic core, with more recent expansion predominantly to the west and to a lesser extent north and east.

5.8. Landscape Character

5.8.1. The characterisation approach adopted for the built area of Cambridge has been extended into the landscape (see Figure 8). Understanding landscape character is fundamental to understanding what gives a landscape its distinctive identity. Landscape character assessment assists in identifying important components of the landscape setting of a

settlement. It enables the settlement to be studied within its context, and the relationship between the settlement and its surroundings to be properly understood.

5.8.2. Key points:

- Diversity of landscape character areas within the three main landscapes of Fens, Claylands and Chalk Hills.
- Extensive River Valley landscapes, particularly south and south-west of the city where watercourses have eroded the higher clay and chalk land.
- Proposed route options pass through the Western Claylands and the Rhee and Bourn Valleys.

5.9. Green Corridors into Cambridge

5.9.1. Green corridors are widths of countryside or green space, with public access, penetrating from the open countryside into the urban fabric of Cambridge. They provide the settings for open approaches into the city, access for pedestrians and cyclists out into the countryside, corridors for wildlife, and a landscape setting to some edges of the city. They are shown on Figure 7.

5.9.2. Key points:

- The green corridor running into Grange Road emphasises the proximity of the countryside to the distinctive core of the city.

5.10. Visual Assessment

5.10.1. Figure 9 shows the results of a visual assessment of Cambridge, with particular emphasis on the interrelationship between the city edge and the surrounding landscape.

5.10.2. Key points:

- Various key landmarks within the city, many historic and some modern university-related buildings which strengthen the city's distinctive character.
- Key views to Cambridge from the surrounding landscape, including level views from west and longer range elevated views from west and south.
- Varying character of the urban edge as seen from the countryside, with a generally soft, green edge to the west and more mixed edges elsewhere.
- Distinctive/memorable features in the surrounding countryside.

5.11. Approaches and Gateways

5.11.1. This section describes the approaches and gateways to Cambridge shown on Figure 10. Approaches to Cambridge from the surrounding countryside generally have a rural character. Approaches to and within the urban area provide the viewpoints from which most visitors see the city and gain their perception of its scale. Distance and travel time between open countryside and Distinctive Cambridge (i.e. the historic core and areas of Distinctive townscape/landscape – see section 5.14), and the character of the approaches, play an important role in determining people's perception of the character and scale of the city. The length of approaches therefore provides a fair representation of how people perceive the scale of Cambridge, given that an important part of its character is its compactness.

Madingley Road

- 5.11.2. From the west, Cambridge is approached along the historic route, Madingley Road. The first view of the city is an elevated panoramic view just before the turn-off to Coton on Madingley Hill – until this point, the approach is strongly rural in character and well vegetated. Development has occurred up to the eastern edge of the M11, namely the University's West Cambridge site, but this development is part of Distinctive Cambridge, emphasising the quality of Cambridge as a compact city. The urban gateway is close to the gateway to Distinctive Cambridge, near the M11 and defined by the Park & Ride and British Antarctic Survey Building. The development along Madingley Road at West Cambridge is mainly large-scale University buildings such as the School of Veterinary Medicine, Laboratories and the Observatory. The approach is green and treed along the length of Madingley Road to The Backs, although new accesses into West Cambridge and the adjacent Northwest Cambridge development have created gaps in this vegetation.

Barton Road

- 5.11.3. The south western approach along Barton Road is also a rural approach with only a short distance travelled through suburban development before reaching Distinctive Cambridge, contributing positively to the perception of Cambridge as a compact city. The rural section of Barton Road is largely enclosed by tall hedgerows and has limited views into the adjacent countryside.

Harcamlow Way/Wimpole Way

- 5.11.4. The Harcamlow Way/Wimpole Way is a frequently used route to approach Cambridge from the west. It is a bridleway or along roads west of the M11, and is therefore used as a route for pedestrians, horse riders and frequently cyclists. It is not only a leisure route, but used for commuting into Cambridge by those living in villages west of the M11. The route is largely rural until it reaches the M11, where it reaches the West Cambridge site and Distinctive Cambridge.
- 5.11.5. Key points:
- Approaches from the west are generally shorter, giving a more immediate sense of arrival and the sense of a compact city. They are green or treed, making them more attractive.
 - West of the M11, the approaches are strongly rural.

5.12. Pattern of Distribution of Villages

- 5.12.1. Cambridge is surrounded by an open rural landscape containing a number of villages. Villages are scattered throughout the Green Belt of Cambridge, with patterns related to their origins and development over time. Figure 8 shows landscape types and character areas, each with their characteristic settlement pattern.
- 5.12.2. Coton forms one of the necklace villages around Cambridge and remains physically separated from Cambridge by the M11 and an area of orchards. The West Cambridge development has extended Cambridge westwards towards Coton.
- 5.12.3. Key points:
- Villages scattered throughout the Green Belt, with their distribution reflecting local landscape characteristics.
 - Presence of villages close to Cambridge contributes significantly to the quality of the setting of the city.

- Maintaining separation between Cambridge and the inner necklace villages and between the villages themselves is important to the setting of the city but is under threat in some instances.
- Coton remains separated from Cambridge by orchards and the M11, despite development at West Cambridge.

5.13. Character and Identity of Villages

- 5.13.1. Each village possesses qualities which contribute positively to their character and identity and therefore to the quality of the setting of Cambridge.
- 5.13.2. Coton forms one of the necklace villages around Cambridge. It has remained relatively compact, with some more recent development to the east and west. It retains its historic core at the centre of the village, with areas of countryside immediately adjacent to this historic core, north and south of the village.
- 5.13.3. Key points:
- Villages vary in their size, form and other qualities, so that each village has its own particular character and identity.
 - Individual identity is most intact in villages which avoided large 20th century expansion but has been diluted in those which saw significant 20th century growth.
 - Inner necklace villages enrich the setting of Cambridge and emphasise the rural character of the landscape surrounding the city.
 - Coton retains its historic core and remains relatively compact in its rural setting.

5.14. Townscape and Landscape Role and Function

- 5.14.1. The assessment of the 'function' that townscape and landscape plays in contributing to the distinctiveness of Cambridge (see Figure 11) and its setting is based on a methodology established by LDA Design, and endorsed by the Countryside Agency (The Countryside Agency and Scottish Natural Heritage, 2002). This methodology was piloted in Winchester (Landscape Design Associates, 1998) and subsequently developed on other projects relating to historic towns and cities.
- 5.14.2. Distinctive Townscape/Landscape consists of those areas that are specifically recognisable and distinctive to the city. They include townscape and landscape components such as distinctive buildings, quintessential views, the interaction of buildings forming spaces or the setting to local events, topographical features, setting and backdrops to the city, areas of rich biodiversity, historic approach routes and landmarks of distinctive character. These areas, frequently contiguous with the Historic Core, often borrow from or bestow character to it. Distinctive townscape / landscape is so distinctive to the city that similar areas or features are unlikely to be found in other historic towns and cities and it may well be unique.
- 5.14.3. Supportive Townscape/Landscape consists of those areas of townscape/landscape that support the character of the Historic Core and Distinctive areas of the city. They provide the backdrop and ambience, and bolster the sense of place of the city and its approaches. Supportive areas and features are of a kind that may be found in other towns and cities but, due to their particular location or the way they influence the character and setting of the city, they are locally distinctive, recognisable to those familiar with the city as important elements of its character and identity.
- 5.14.4. Connective Townscape/Landscape consists of those areas of townscape/landscape that are an integral part of the city and its environs, but may lack individual distinction or do not make a

significant contribution to the setting of the city. This does not signify that these areas are unimportant, or lacking in their own identity; they may have significant merit in their own right. Rather, they are often areas with little relationship to their landscape setting, or to landmarks within the Historic Core or its landscape setting. Due to their location or character, they may contribute little to views of the city or other elements of its setting. Generic development forms with little sense of place can also contribute to the loss of local identity.

5.14.5. Key points:

- Extensive areas of Distinctive townscape and landscape including the historic core, the Grange Road and West Cambridge area, and the Cam corridor.
- Supportive landscape around most of the west of the city, where the relationship of the city to the adjacent rural landscape is an important aspect of its setting.
- Areas of Connective townscape/landscape may still be important but, depending on individual circumstances, may have potential to accommodate change.

5.15. Summary of Baseline Studies and Analysis

5.15.1. The studies and analysis presented in this section enable a thorough understanding of aspects of Cambridge and its surrounding landscape that are relevant to openness and Green Belt purposes. The main findings arising from the various studies that are relevant to the 'catchment area' for the proposed segregated bus route are summarised below and lead to the identification of qualities that directly contribute to openness and the performance of Green Belt purposes. These qualities are set out in section 6.

5.15.2. The main findings drawn from the studies and analysis contained in this section are:

- From the 19th century onwards, Cambridge grew to the north, east and south but there was little expansion to the west.
- Notwithstanding the 19th and 20th century expansion, Cambridge remains a compact city focussed around its historic core.
- There are relatively few environmental and cultural designations in the vicinity of any of the proposed route options for the scheme.
- The rights of way network in the vicinity of the route options is relatively sparse, although there are still good links between the city and countryside in the form of the Harcamlow Way/Wimpole Way.
- The city has its origins at the meeting point of three landscapes which, in terms of topography and landscape character, are still readily apparent in the landscape surrounding the city at the present day. The route options are located on the higher ground of the Claylands and descend into the flatter 'bowl' in which Cambridge is located.
- Green corridors, most particularly the River Cam corridor, extending from the countryside into the city contribute significantly to the character of Cambridge. One such corridor, although not along a river, is located in the west of Cambridge.
- Key views of Cambridge from the surrounding landscape are important, particularly views across the city skyline with its distinctive landmarks. The rural landscape in the west of Cambridge forms the foreground in many views from the west, such as from Red Meadow Hill.

- Many approaches into the city centre are green, treed and characteristic. From the west in particular, approaches from the countryside to the Distinctive areas of the city are short, creating positive perceptions of the city on arrival.
- There are significant areas of Distinctive and Supportive townscape surrounding (and including) the historic core to the west of the city. There are some areas of Distinctive landscape and extensive areas of Supportive landscape surrounding the city to the west, reflecting the important role played by the landscape in the setting of the city.
- The villages surrounding Cambridge are a notable feature, with their distribution reflecting the historic qualities of the landscape, and some villages very close to the city edge. Coton remains relatively compact, with a rural setting, and separated from Cambridge by orchards and the M11.

6.0 Qualities Relevant to Openness and Green Belt Purposes

6.1. Introduction

- 6.1.1. The baseline studies and analysis summarised in section 5 were undertaken to gain a good understanding of the city and its surroundings, focussing on considerations which are relevant to the performance of Green Belt purposes and openness. From this work, it is apparent that the National Green Belt purposes, Cambridge Green Belt purposes and openness are manifested and performed in various ways specific to Cambridge and its surrounding landscape. This section draws from the 2015 study, which defined 16 qualities of Cambridge and its surrounding landscape which directly contribute to the performance of Green Belt purposes.
- 6.1.2. The 16 qualities are explained in detail in the 2015 study, which is replicated in the remainder of this section where relevant to this study. Further information that is not relevant to the areas covered by this study is provided in the 2015 study. The qualities are not listed in order of importance. They are all important and each contributes to the performance of Green Belt purposes, as well as an understanding of openness.
- 6.1.3. In terms of Green Belt purposes, the table on the following pages shows the relationship between each of the 16 qualities, the National Green Belt purposes and Cambridge Green Belt purposes. The majority of these qualities contribute to the performance of more than one Green Belt purpose. The table also identifies which qualities are relevant to each of the assessment sectors, as some of the qualities relate more specifically to the edge of the city, whilst others are more relevant in the rural areas.

As set out in the methodology in Section 4 of this report, the 16 qualities are used as the criteria for assessing the current level of openness and the contribution to Green Belt purposes of the three sectors and sub areas discussed in section 4.2 and shown on Figure 2. This forms the starting point for the assessment of any potential conflict with Green Belt purposes resulting from the different route options, which forms part of the test under paragraph 90 of the NPPF as to whether the development would be 'inappropriate'. The test relating to preservation of openness is addressed separately, as discussed in Section 4.2.

Qualities Relevant to Openness and Green Belt Purposes	National Green Belt Purposes				Cambridge Green Belt Purposes			Relevance to Green Belt Sectors		
	1. Sprawl	2. Merging	3. Encroachment	4. Setting/ Character	1. Character	2. Setting	3. Merging	Sector A	Sector B	Sector C
1. A large historic core relative to the size of the city as a whole	*			*	*			*		
2. A city focussed on the historic core				*	*			*		
3. Short and/or characteristic approaches to the historic core from the edge of the city	*			*		*		*		
4. A city of human scale easily crossed by foot and by bicycle	*			*	*			*		
5. Topography providing a framework to Cambridge				*		*		*	*	*
6. Long distance footpaths and bridleways providing access to the countryside				*		*		*	*	*
7. Key views of Cambridge from the surrounding landscape				*		*		*	*	*
8. Significant areas of Distinctive and Supportive townscape and landscape				*	*	*		*	*	*
9. A soft green edge to the city			*	*		*		*		
10. Good urban structure with well-designed edges to the city	*							*		
11. Green corridors into the city	*			*	*	*		*		
12. The distribution, physical and visual separation of the necklace villages		*		*	*	*	*	*	*	*
13. The scale, character, identity and rural setting of the necklace villages		*		*		*	*		*	*
14. Designated sites and areas enriching the setting of Cambridge				*		*		*	*	*

Qualities Relevant to Openness and Green Belt Purposes	National Green Belt Purposes				Cambridge Green Belt Purposes			Relevance to Green Belt Sectors		
	1. Sprawl	2. Merging	3. Encroachment	4. Setting/ Character	1. Character	2. Setting	3. Merging	Sector A	Sector B	Sector C
15. Elements and features contributing to the character and structure of the landscape	*			*		*		*	*	*
16. A city set in a landscape which retains a strongly rural character			*	*		*		*	*	*

6.2. Qualities

1. A Large Historic Core Relative to the Size of the City as a Whole

- 6.2.1. This quality is concerned with compactness, identified by Holford and Myles Wright in their 1950 report (The Holford Report) as being an important characteristic of the city. Cambridge Green Belt purpose 1 refers to 'a compact, dynamic city with a thriving historic centre'. In addition to being a key part of the special character of the city, it is also relevant to the issue of urban sprawl, which would reduce the relative size of the historic core in proportion to the size of the entire city.
- 6.2.2. In the case of Cambridge, its special historic character depends not only on the relatively large and intact historic core, but also on the fact that this has not been 'swamped' by more recent development. Despite the presence of business parks and post-war peripheral housing estates and other development, the scale of the historic core relative to the overall city is such that Cambridge still retains its historic character. If substantial peripheral development were to be permitted in Cambridge, more modern development would begin to dominate and, as the scale of the historic core is fixed, it would be inevitable that the overall historic character of the settlement would begin to be eroded. If Cambridge were to grow beyond a certain point, it would no longer have the character of a historic city, but rather would become merely a city with a historic core - a very different character of settlement. Development has already extended furthest from the historic core to the east and south of the city, in a largely unstructured way that gives the impression of urban sprawl.
- 6.2.3. The issue of scale is, therefore, of vital significance to the protection of the special character of Cambridge. It needs to retain the feeling of being a small city, one still dominated by its historic core, if it is to retain its special character. The Green Belt has an essential role to play in this and the prevention of sprawl.

2. A City Focused on the Historic Core

- 6.2.4. This quality is also relevant to compactness and to Cambridge Green Belt purpose 1. The study by Colin Buchanan and Partners in 2001 (The Buchanan Report) emphasised the importance of the city's historic core and associated university colleges as part of the special character of Cambridge. The buildings and historic core are also identified as Defining Character in the Cambridge Landscape Character Assessment of 2003 (CLCA).
- 6.2.5. The 2015 study describes how Cambridge did not expand much beyond its medieval limits until the 19th century. Today, despite extensive expansion since that time, Cambridge is formed of a network of neighbourhood hubs and commercial areas or developments (such as industrial development around the railway and Cambridge Science Park) located around a single core, which is focused on the medieval area. The core is a vibrant social, cultural and economic focus to the city. There are a finite number of compact, single centred historic cities in the England and this aspect of Cambridge is an important quality that should be safeguarded. The Green Belt plays an important role in this.
- 6.2.6. There is a danger that, if the city expands much beyond its current size, the existing core will not be accessible to residents of the outer areas of the city due to the distance, and inconvenience of travelling, between residential areas and the centre. This might lead to the development of alternative urban cores that provide the economic and social focus for large areas of the city, competing with the historic centre and irretrievably altering the historic form and function of Cambridge.

3. Short and/or Characteristic Approaches to the Historic Core from the Edge of the City

- 6.2.7. This quality is again associated with compactness and sprawl and is also key to the perception of Cambridge as a historic city when approaching and arriving. The Holford Report identified *'open countryside near the centre of the town on its west side'* as an important characteristic, which is reflected in short, characteristic approaches to the historic core from the west. The importance of a sense of arrival is also emphasised in the CLCA.
- 6.2.8. Approach routes into Cambridge provide the viewpoints from which most visitors see the city and gain their initial perception of it. The nature of the approach between the urban gateway and Distinctive Cambridge (for example whether it is short, attractive and characteristic of Cambridge or long and unremarkable) plays an important role in determining people's impression of the city, and whether they perceive it as a special, 'historic' city. Distance and travel time between open countryside, Distinctive Cambridge, and then the historic core, as well as the quality and character of the peripheral development passed through, contribute to people's perception of the scale of the city; whether it is a historic city dominated by the historic core, or an ordinary city with a historic core dominated by modern development.
- 6.2.9. Short and/or characteristic approaches are shown on Figure 10. The shortest and most characteristic approaches between open countryside and Distinctive Cambridge lie to the south and west. These comprise Madingley Road, Barton Road, Grantchester Road, Huntingdon Road and Trumpington Road, as well as the two rural approaches along the green Cam corridor. These routes, in particular, play an important role in the setting of the city.
- 6.2.10. The countryside around Cambridge and penetrating into urban areas is within easy access of many neighbourhood communities and the city centre. It is important that these links are preserved, and opportunities for the creation of additional links should be considered.

4. A City of Human Scale Easily Crossed by Foot and by Bicycle

- 6.2.11. This quality is also concerned with compactness and sprawl but is unrelated to Cambridge's historic character. It is concerned with how people living and working in the city perceive its compact scale in their day to day lives.
- 6.2.12. Cambridge has a tradition of cycling. Much of the population, particularly students, travel the city by foot or by bicycle. This is made possible by the relatively small size of the city. As Cambridge expands, so does the distance of travel between different parts of the city.
- 6.2.13. The centre and the west sides of Cambridge are of a small, human scale and easily crossed by foot and bicycle. This is a quality of Cambridge, in which the Green Belt plays an important part.

5. Topography Providing a Framework to Cambridge

- 6.2.14. This quality is central to understanding the setting and history of the city, reflecting Cambridge's origins and location at the meeting point of three landscapes. The significance of topography as a component of the setting of the city is recognised in the CLCA, which identifies 'high ground' as Defining Character.
- 6.2.15. The landform surrounding Cambridge is illustrated on Figure 6. The relationship of the city to the topography is one of the key defining qualities of Cambridge.

6. Long Distance Footpaths and Bridleways Providing Access to the Countryside

- 6.2.16. Once Green Belts have been defined, the NPPF states that they have positive roles to play, including “*looking for opportunities to provide access*” (paragraph 81). The accessibility of the countryside surrounding Cambridge is an important aspect of its setting, enabling people to appreciate the landscape setting and the relationship between the city and countryside.
- 6.2.17. Long distance routes, and also shorter, local footpaths and bridleways providing access into the countryside in the immediate vicinity of Cambridge, are important qualities of the setting and special character of the city that should be preserved and continue to be enhanced.

7. Key Views of Cambridge from the Surrounding Landscape

- 6.2.18. This quality is also an important element of the setting of Cambridge. Views of the historic core are one of the aspects stated in the Structure Plan 2003 to be of particular importance to the quality of the city. They are also identified as Defining Character in the CLCA and are identified in the South Cambridgeshire Core Strategy 2007 (SCCS) as an aspect of the special character of Cambridge.
- 6.2.19. There are a number of viewpoints that are important and the qualities of these views should be preserved and, where possible, enhanced. The viewpoints identified on Figure 9 are the most important on the west side of the city, as it is from these locations that people can best appreciate the various qualities of Cambridge. All viewpoints identified provide different views of landmark features or defining characteristics of the city.
- 6.2.20. Red Meadow Hill within Coton Countryside Reserve, to the west of the M11, is one of the best examples. A historic view of Cambridge in 1688 is shown on Figure 21, demonstrating the view from the west at that time. Photograph 6 on Figure 17, taken from Red Meadow Hill shows that, because development has been limited on the west side of the city, the quality of views of that side of the historic city, with open countryside and a soft green edge, and landmark historic buildings clearly visible and largely unaffected by modern development, has remained substantially intact over the last 300 years. This is the perception that many people gain of Cambridge as they pass on the M11, and is therefore of great importance. The quality of views, and of the appearance of the city from the west, is a special quality of the setting and special character of the historic city that is important to safeguard.

8. Significant Areas of Distinctive and Supportive Townscape and Landscape

- 6.2.21. The 2015 study demonstrates how areas of Distinctive and Supportive townscape and landscape contribute most strongly to the distinctiveness of Cambridge and its setting. They are, therefore, important areas to protect. However, as discussed in that study, these areas are not in every respect of greater importance than the remaining areas of influence (with the exception of Visually Detracting Townscape/Landscape), as all areas play a crucial role in the setting and perception of the city. The importance of Connective Townscape/Landscape and Outer Rural Areas lies in linking between and forming a foil to areas of Historic Core and Distinctive and Supportive townscape and landscape.
- 6.2.22. Figure 11 identifies Distinctive and Supportive townscape and landscape as the most essential areas to be safeguarded from the adverse effects of development. However, other areas should also be safeguarded from change which would cause adverse effects on the qualities of the setting and special character of Cambridge.

9. A Soft Green Edge to the City

- 6.2.23. The Buchanan Report referred to the interface between the city and the countryside as being an aspect of Cambridge's special character and the CLCA refers to edges as having the potential to be either Defining Character or Supporting Character. Soft green edges contribute significantly to the setting of the city, particularly on its west side. They also play a role in National Green Belt purpose 3 in reducing the urbanising influences of the built area on the adjacent countryside.
- 6.2.24. It is important to preserve existing soft green edges and to seek opportunities for planting to improve existing or future city edges which lack this quality.

10. Good Urban Structure with Well Designed Edges to the City

- 6.2.25. This quality is of relevance to National Green Belt purpose 1. One of the factors that contribute to urban sprawl is poorly designed urban edges which do not create a well considered long-term edge to a city. Because the city edge does not appear 'finished', it can be easy to justify greenfield development beyond the existing edge, extending the city further and creating sprawl. Many of the edges around the east side of Cambridge are poorly designed, which may lead to pressure for future development in these areas.

11. Green Corridors into the City

- 6.2.26. The Holford Report referred to '*green wedges along the river*' as being an important quality and they are also identified as such in the Buchanan Report, the City Council's 2002 Inner Green Belt Boundary Study, the Structure Plan 2003, the CLCA and the SCCS. They are key components of the character and setting of the city and also play an important role in maintaining urban structure and thus reducing sprawl. They are the only quality to be specifically mentioned in the Cambridge Local Plan 2006.
- 6.2.27. The green corridor in the west Cambridge, whilst not along a river, emphasises the proximity of countryside to the distinctive core of the city and contributes to the green edge to the city as seen from the west; it is of great importance that it is preserved.

12. The Distribution, Physical and Visual Separation of the Necklace Villages

- 6.2.28. This quality is also mentioned in the Holford Report, the Buchanan Report, the City Council's 2002 Inner Green Belt Boundary Study, the Structure Plan, the CLCA and the SCCS. It has long been regarded as an important component of the character and setting of the city and is clearly related to National Green Belt purpose 2.
- 6.2.29. It is essential to preserve the pattern of distribution of villages around Cambridge and their physical separation from other settlements. The Green Belt provides protection for the countryside around and between settlements. Although all areas of open countryside in the Green Belt play a role to a greater or lesser extent in separating settlements, those areas of land that are considered to be most critical in separating settlements within the immediate setting of Cambridge must be protected. The role of individual areas in maintaining separation between settlements requires careful consideration of topography and vegetation, which can prevent intervisibility, and of land that is perceived as being part of the setting of a particular village and thus 'belonging' to that village rather than another.

13. The Scale, Character, Identity and Rural Setting of the Necklace Villages

- 6.2.30. The Buchanan Report specifically refers to the character of the villages surrounding the city, and the qualities of setting, scale and character of the villages are also referred to in the SCCS.

The varying sizes and character of the villages, each with their own distinct identity, is an important component of the setting of the city.

- 6.2.31. It is apparent that the villages that saw significant growth in the 20th century have become more generic and are less distinctive than those that saw little growth, where the historic character and the relationship between all parts of the village and the surrounding landscape remains largely intact.
- 6.2.32. The rural setting of villages is also a fundamental component of their character. Despite the proximity of Cambridge, all the villages within the study area retain an entirely or largely rural character and it is essential that this should remain the case. The Green Belt has a critical role to play in protecting these qualities of the necklace villages.

14. Designated Sites and Areas Enriching the Setting of Cambridge

- 6.2.33. Designated sites are identified as Supporting Character in the CLCA or, in some circumstances, potentially Defining Character. The SCCS identifies them as a component of the special character of Cambridge.
- 6.2.34. All features, sites and areas covered by environmental, cultural and access designations are important elements that enrich the appearance of the landscape and people's experience of it. They are all part of the setting and special character of Cambridge that should be preserved.

15. Elements and Features Contributing to the Character and Structure of the Landscape

- 6.2.35. This quality is defined as Supporting Character or, on occasion, Defining Character in the CLCA and is identified in the SCCS as a component of the special character of Cambridge. In addition to contributing to the character and setting of the city, this quality is relevant to National Green Belt purpose 1 in that a strong landscape structure provides containment and natural barriers to inhibit urban sprawl.
- 6.2.36. There is a pattern of elements and features within the city and the landscape, ranging from large scale features such hills, rivers, woodlands and tall University buildings, to smaller scale elements such as hedgerows, farm buildings, and a network of smaller watercourses, that are fundamental to the character of different landscape character areas, and also to the setting and special character of Cambridge.

16. A City Set in a Landscape which Retains a Strongly Rural Character

- 6.2.37. The *'open countryside near the centre of the town on its west side'* is identified as important in the Holford Report, and the SCCS identifies this quality as a component of the special character of Cambridge. In addition to character and setting, it is also relevant to National Green Belt purpose 3, in that a strongly rural landscape indicates that encroachment on the countryside is being resisted, whereas countryside that is significantly affected by urban influences creates a perception of encroachment.
- 6.2.38. It is important that the landscape surrounding Cambridge retains this rural character. The rural nature of the landscape around Cambridge is a key quality of the setting and special character of the city, particularly in providing a setting to the urban form when seen from key views, in providing settings to necklace villages, and in contributing to people's perception of the city as they approach it along communication routes.

- 6.2.39. The rural landscape setting is especially apparent in the area west of the city, where the presence of agricultural land immediately adjacent to Distinctive townscape areas and extending into the city close to the historic core is particularly important.

7.0 Introduction to Sector Assessments

7.1. Introduction

- 7.1.1. The following sections of the report assess the three sectors of the Green Belt identified on Figure 2 to understand the key considerations for each sector in relation to openness and their performance in relation to Green Belt purposes, consider whether the proposed route options could be delivered whilst preserving the openness of the Green Belt, identify any potential conflicts with Green Belt purposes, whether the different route options pass or fail the NPPF paragraph 90 test and finally to identify any Green Belt harm that may arise as a result of any stretches of the proposed segregated bus route.
- 7.1.2. The sector assessments are presented in a consistent manner using a standard template. After a brief introduction giving an overview of the sector, the sector is assessed against each of the qualities identified in section 6.2, to ensure that each sector is considered in relation to all criteria which are relevant to the Green Belt openness and purposes. All sectors are divided into sub areas where the assessment of one or more criteria differs between one part of the sector and another. Sub areas are presented as separate columns within the sector assessment but, where the assessment against a particular criterion is the same for all sub areas, the columns are merged. If the proposed segregated bus route is unlikely to affect a particular sub area, assessment of that sub area has been omitted. This is the case for sub areas A.2 and C.2.
- 7.1.3. Following the criteria-based assessment, conclusions relevant to openness and Green Belt purposes are summarised, drawing out the key points from the criteria-based assessment. This is followed by assessment of the extent to which the openness of the Green Belt will be preserved by the proposals, identification of any potential conflicts with Green Belt purposes, and where necessary, identification of the degree of any potential harm to Green Belt.

7.2. Green Belt Sector Assessments

- 7.2.1. The assessment of the sectors and sub areas is set out on the following pages. The 2015 study showed that almost all areas of land within the inner Green Belt are important to Green Belt purposes but the reasons differ from one area to another. It identified that west of the city, the Inner Green Belt plays a critical role in maintaining the impression of a compact city, with countryside close to the historic core. The rural character of the land emphasises this and is seen as the foreground in views from approaches to the city, the M11 and the countryside west of the M11. The land west of the M11 extends this rural character into the wider countryside and forms the rural setting for Coton.

8.0 Assessment of Sector A: East of M11

8.1. Description of Sector

- 8.1.1. Sector A is located directly west of the historic core of Cambridge and, at 0.85km from the nearest edge, is the closest Green Belt land to the historic core. It formed Sector 3 of the 2015 study. The northern boundary is formed by the developing university buildings of West Cambridge. The eastern boundary of the sector is adjacent to the urban edge of Cambridge, which is designated as a Conservation Area and is classified as Distinctive townscape/landscape due to the presence of numerous Cambridge University Colleges, Fellows' houses and their settings. The western and southern boundaries are formed by the M11 and A603 Barton Road respectively.
- 8.1.2. Land use in most of the sector is large scale arable farmland (see Photographs 3 and 4 at Figure 16). However, there are some smaller scale areas (see Photographs 1 and 2 at Figure 15), including sports fields and rough grassland to the east and pastoral fields in the south along Barton Road. Several of the field boundary hedgerows are designated as County Wildlife Sites. The sector also includes Bin Brook, which is designated as a City Wildlife Site. A number of public footpaths cross the sector and the Harcamlow Way/Wimpole Way, which is also a well-used cycleway, is located along the northern boundary.
- 8.1.3. The sector contains a key view of several of the city's distinctive landmarks from the public footpath that passes through the south of the sector, to a footbridge over the M11. Similar views are also experienced from the western end of the Harcamlow Way in this sector. This sector is also visible in the key view from Red Meadow Hill (see Photographs 5 and 6 at Figure 17).
- 8.1.4. Three sub areas were identified within this sector in the 2015 study. Of these, the proposed segregated bus route is unlikely to affect sub area A.2, given distance from the route options and the relative enclosure of sub area A.2. Sub area A.2 is therefore not assessed below.

8.2. Baseline Assessment of Qualities Relevant to Green Belt Openness and Purposes

- 8.2.1. Figure 12 illustrates the key considerations relevant to both openness and Green Belt purposes in sector A.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
1. A large historic core relative to the size of the city as a whole	To the west of Cambridge, with the exception of the development at West Cambridge that consists of distinctive new University buildings, there has been relatively little recent development and the distinctive historic character is retained. Most of the townscape in the vicinity of this sector is judged to be Distinctive as it consists of numerous Cambridge University Colleges, Fellows' houses and their settings. The historic core remains relatively intact and the scale of the historic core relative to the whole city is clearly apparent. This is also the closest area of countryside to the historic core.	

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
	This sub area plays an important role in restricting the growth of the city in this direction.	This is the closest sub area to the historic core.
2. A city focussed on the historic core	The historic core of Cambridge remains a clear focus for this part of the city. The retention of Green Belt has prevented large urban extensions to the west of the city, which could compete with the historic core to serve the needs of the local community.	
	There is a feeling of proximity between this sub area and the historic core, due to views of distinctive landmarks from public rights of way through this arable land.	Due to the reduced level of visibility of distinctive landmarks within the historic core, this sub area is less obviously focussed on the historic core, but this is the closest area of Green Belt to the historic core and there is a sense of proximity to the historic core.
3. Short and/or characteristic approaches to the historic core from the edge of the city	Although Barton Road to the south of this sector is an important approach to Cambridge, it would not be affected by the proposed bus route. The Harcamlow/ Wimpole Way, along the northern edge of this sector, is an important approach to the city from the west for walkers and cyclists. Local footpaths also provide short approaches directly into Distinctive Cambridge and then into the historic core from countryside to the west of the city. The sector gives the approaches to the city edge a strong rural character.	

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
4. A city of human scale easily crossed by foot and by bicycle	This sector is the closest sector of Green Belt land to the historic core, and it is one of the closest areas of undeveloped land to it. Cycling and walking into the centre of Cambridge takes a short time from this sector and busy cycling and walking routes are both readily apparent and well used. Barton Road, which forms the southern boundary of the sector, has a cycle path alongside it, providing an easy walking and cycling route from the villages to the west of Cambridge into the centre. The Harcamlow Way is also a well used walking and cycling route along the northern boundary of the sector, connecting to Coton and beyond.	
5. Topography providing a framework to Cambridge	The flat arable land within this sector provides the characteristic setting to Cambridge from the west. It forms part of the lower lying bowl within which Cambridge is located, before the landform begins to rise up to the Claylands west of the M11. This flat foreground in views from the west is a key factor in the openness of the Green Belt within Sector A.	
6. Long distance footpaths and bridleways providing access to the countryside	There is a good network of footpaths through this sector that provide access to the rural setting of Cambridge and across the M11 to the wider countryside beyond. These include the Harcamlow Way/Wimpole Way footpath/cycleway along the northern boundary of the sector which is well used. A public footpath also crosses the sector from Barton road and leads to a footbridge over the M11. There is also a permissive path that runs along the southern edge of sub area A.3 and the eastern edge of sub area A.1. The network of routes link into the routes promoted by Coton Countryside Reserve and the Quarter to Six Quadrant initiative to provide access to 'Countryside on Cambridge's Doorstep' and form an important part of the setting and special character of the western part of Cambridge.	

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
7. Key views of Cambridge from the surrounding landscape	<p>There is a key view of the historic core of Cambridge from Red Meadow Hill within Coton Countryside Reserve to the west of the M11. In addition, there are further views from Grantchester Road (from Coton) as it passes over the M11, as well as low level views from the western end of Barton Road, the Harcamlow Way and local footpaths to the east of the M11. This sector forms the foreground of Cambridge from these key and more local views, showing the rural landscape abutting the edge of Distinctive Cambridge. This flat foreground with a rural character in views from the west is a key element of the openness of the Green Belt within Sector A. These views pick up many of the key landmarks (University Library, King's College Chapel etc.) within the centre of the historic core. Many of the other special qualities are also apparent in these views, including the soft edge to the city and significant areas of Distinctive townscape and, from more elevated viewpoints, the compact scale of the city and the Gog Magog Hills south of the city are apparent.</p>	
8. Significant areas of Distinctive and Supportive townscape and landscape	<p>The M11 corridor is identified as being visually detracting and influencing the western boundary of the sector.</p> <p>This sub area is considered to be Supportive landscape. It forms the rural landscape setting to Cambridge in views from the west and provides separation between the edge of Cambridge and the M11, which is a characteristic feature of the settlement edge to the west of Cambridge.</p>	<p>This sub area is considered to be Distinctive landscape due to the unique relationship of the rural landscape running right into the distinctive core of the city.</p>

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
9. A soft green edge to the city	From this sub area, the distinctive densely treed appearance of Cambridge is apparent. Tall distinctive landmarks within the historic core are visible above the treed edge to the city, but the rest of the urban area is lost amongst trees, with the exception of some newer urban development at West Cambridge.	The Grange Road area is well treed, making this sub area a particularly soft green edge to the city. The college buildings with their mature, well vegetated grounds contribute to the distinctiveness of this part of Cambridge.
10. Good urban structure with well-designed edges to the city	The majority of the western edge of Cambridge adjacent to this sector is identified as having Distinctive townscape, including the new development at West Cambridge. The presence of colleges and Fellows' houses in the area to the east of this sector creates an unusual urban structure and the strongly vegetated edge to the city, although not designed as such, creates a high quality boundary between the city and the countryside. To the north of the sector, the boundary with the West Cambridge development is much less vegetated.	
11. Green corridors into the city	The majority of this sector does not contribute to any of the green corridors from the countryside into the heart of Cambridge. The eastern edge of the sector, predominantly formed by sub area A.3, provides a partial green corridor into the city. This is formed by small fields and sports pitches, but is not as distinctive as the river corridors and areas of common that create green fingers elsewhere in the city.	
12. The distribution, physical and visual separation of the necklace villages	This sub area plays a key role in the separation between Cambridge and Coton, with the M11 forming part of the separation, although relatively well vegetated for stretches of its route.	This sub area plays a more limited role in the visual separation between Cambridge and Coton, due to the greater level of enclosure by vegetation. However, it does contribute to the physical separation provided by sub area A.1 between Cambridge and Coton.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
14. Designated sites and areas enriching the setting of Cambridge	A number of the hedgerows within this sub area are County Wildlife Sites and enrich the setting of Cambridge, as well as people's experience of this setting.	Bin Brook through this sub area is a City Wildlife Site. The sub area also abuts the West Cambridge Conservation Area and contains Protected Open Spaces in the form of university sports grounds.
15. Elements and features contributing positively to the character and structure of the landscape	Important landscape elements within this sector include the pattern of hedgerows and tree belts, which largely run east to west, and contain many hedgerow trees. Drainage ditches and watercourses also flow through the sector. These include Bin Brook, which flows past Coton and under the M11 before crossing the sector, then running along Barton Road before turning north and crossing the sector again. Bin Brook in particular is also well vegetated. Views of the landmark buildings in the historic core of Cambridge also contribute positively to the landscape setting of the city.	
	This sub area is separated from part of sub area A.3 by a wide tree belt. This provides a notable visual barrier between the two sub areas.	The collection of small fields within this sub area, which include areas of arable land and rough grassland as well as sports pitches, form a distinctive part of the immediate setting of Cambridge to its west.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area A.1 - Larger arable fields	Sub Area A.3 - Mixed small parcels of land in east
16. A city set in a landscape which retains a strongly rural character	This sector generally retains a strongly rural character, although there is some influence from the newer university development at West Cambridge to the north and some sports uses within sub area A.3. The M11 affects the tranquillity of the sector but transport routes, including motorways, are a feature of many areas of countryside and do not in themselves diminish rurality. The sector is the closest area of 'rural feeling' Green Belt land to the historic core of Cambridge, with the rural landscape abutting the edge of Distinctive Cambridge. The vegetated edge of Cambridge and the extent of tree coverage inside the city help to reduce visibility of the mass of the urban area, whilst retaining a strong visual connection to a number of the landmark features in the historic core.	
	This sub are adjoins the southern edge of West Cambridge to the north. Sub area A.3 separates the sub area from the remainder of the nearby edge to Cambridge. There is no existing built development within this sub area. West Cambridge has some urbanising influence on the northern part of the sub area, but the sub area nevertheless retains a strongly rural character. The M11 affects the tranquillity of the sub area.	This sub area is immediately adjacent to the existing settlement edge. This sub area contains the development associated with the sports pitches in the north west of the sub area, including the university sports pavilion. It also obtains part of its character from its relationship with the built development on the edge of Cambridge.

8.3. Key Considerations Relevant to Green Belt Openness

- 8.3.1. Within Sector A, the landscape forms the flat foreground in views towards the city from the west. These views are often elevated, but also include lower level views from the M11 and from public rights of way within the sector. In all of these circumstances, the flat landform and the uninterrupted rural landscape of fields and hedgerows form key considerations in relation to the openness of the Green Belt within sector A.

8.4. Key Considerations Relevant to Green Belt Purposes

- 8.4.1. This sector plays a key role in the setting of the west of Cambridge, ensuring that the city remains compact, that the historic core remains large in comparison to the size of the city as

a whole and that the city is focussed on that historic core. This also results in short and characteristic approaches to Distinctive Cambridge and then the historic core from the edge of the city, and the sector gives the approaches to the city edge a strong rural character.

- 8.4.2. Views towards Cambridge from the west are some of the most distinctive and characteristic available, with the rural landscape of the sector forming the foreground in those views. There are also significant areas of Distinctive and Supportive townscape and landscape within this sector, with the Distinctive landscape and townscape in the east and Supportive landscape in the west.
- 8.4.3. The Green Belt in this sector retains open countryside, of a strongly rural character, close to the centre of the city and prevents the sprawl of built development as far as the M11, retaining the distinctive rural separation between the edge of the city and the M11. This is in sharp contrast to the relationship of the city edge with the A14 to the north of Cambridge. This also contributes to maintaining separation between Cambridge and the necklace villages, particularly Coton in this case.

8.5. Proposed Segregated Bus Route Options through the Sector

- 8.5.1. Option A – Crossing the M11 just north of the existing footbridge by a new green bridge, entering the West Cambridge site and then turning south to follow existing hedgerows for the depth of one field, finally turning east to follow an existing hedgerow and then the existing edge of Cambridge along the rifle range track. Alternatively, this route could also cross the M11 at an angle south of the existing footbridge, avoiding the West Cambridge development and joining the main route option to run eastwards along existing field boundaries. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. The route is likely to be located to the south of existing hedgerows in the east of this sector, and to the north further west. New woodland and tree planting is proposed along the route closer to the edge of Cambridge, with a new hedgerow to the north further west.
- 8.5.2. Option B - Crossing the M11 further north of the existing footbridge than Option A by a new green bridge, entering the West Cambridge site and running along Charles Babbage Road, before turning south and either following the existing cycle route along the southern edge of West Cambridge and along Adams Road, or cutting across the field south of West Cambridge, following the southern edge of the athletics ground and following Herschel Road. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. New tree planting is proposed along the route where it passes through West Cambridge.
- 8.5.3. Option C - Crossing the M11 just south of the existing footbridge by a new green bridge, following the southern edge of West Cambridge along the route of the Harcamlow Way/Wimpole Way. There would then be various options where the Harcamlow Way/Wimpole Way turns northwards, including cutting across the field north eastwards to join the Option B route along the cycleway and Adams Road, or cutting across the field south eastwards to join the Herschel Road option, the rifle range track option or continuing further south east to join Cranmer Road. Current proposals suggest that the cycle/pedestrian route would be located to the north of the bus route for this option. New hedgerow planting is proposed between the cycle/pedestrian route and the busway at various locations within sector A, but not to the south of the route.

8.6. Preservation of Green Belt Openness

Route Options

- 8.6.1. The stretches of each of the route options that pass through West Cambridge or along Adams Road, Herschel Road and Cranmer Road would be located outside of the Green Belt and would therefore preserve the openness of the Green Belt.
- 8.6.2. Option A would predominantly cross undeveloped countryside from the point that it exits West Cambridge or crosses the M11, dependent on the alternative utilised. Given that this area is relatively flat, there would be minimal requirement for cut and fill operations, meaning that there would be no significant volume of development to affect the openness of the Green Belt. The bus route would be constructed at grade, minimising the visual effect of the proposals. This is considered to preserve the openness of the Green Belt in sub areas A.1 and A.3.
- 8.6.3. Option B could predominantly run through West Cambridge and then utilise an existing cycleway as the basis of the route, for the stretch where it would be located within the Green Belt, following the edge of the existing built up area. This would be a relatively small increase in infrastructure, through a largely flat area and therefore unlikely to require cut and fill operations. This would result in no significant volume of additional development and very limited additional visual effect on the Green Belt. This option would preserve the openness of the Green Belt.
- 8.6.4. Where Option C would run along the edge of the West Cambridge development, the effects would be similar to those described above for Option B, where it runs along the edge of the Green Belt. Where Option C would run across undeveloped fields, effects would be as described for Option A. Consequently, all of the alternatives for Option C would preserve the openness of the Green Belt.

Green Bridge Options

- 8.6.5. The ramp of the green bridge over the M11 for the southern option of route A, where this grades down to existing levels, could require substantial earthworks as the M11 is at grade, rather than being in cutting, to the south of West Cambridge. The green bridge itself would fall within sector B. The earthworks for the ramp would result in a physical volume of new development, which would also be visually prominent in the flat open fields to the south of West Cambridge. This would cause a reduction in the openness of the Green Belt within part of sub area A.1. Any ramp required for the green bridge for the northern option of Option A would be located outside the Green Belt.
- 8.6.6. For Option B, any ramp required for the green bridge would again be located outside the Green Belt and would consequently preserve the openness of the Green Belt.
- 8.6.7. For Option C, the exact positioning and design of the ramp for the green bridge over the M11 would dictate whether Green Belt openness could be preserved. If the design requires substantial earthworks within the Green Belt, this would result in a large volume of earth works with a notable visual presence in the Green Belt. This would cause a reduction in the openness of the Green Belt within part of sub area A.1.

8.7. Potential for Conflict with Green Belt Purposes

Route Options

- 8.7.1. As indicated above in relation to openness, the stretches of each of the route options that pass through West Cambridge or along Adams Road, Herschel Road and Cranmer Road

would be located outside of the Green Belt and there would be no conflict with any Green Belt purposes.

- 8.7.2. Option A would run across undeveloped countryside, and would consequently affect the sense of undisturbed countryside that is found in sub areas A.1 and A.3 by introducing an element of transport infrastructure into the undeveloped countryside that is of a clearly different nature to the existing fields and hedgerows. It would also affect the closest area of countryside to the historic core of Cambridge, with open countryside running into the city being a key characteristic of the west of Cambridge, and be visible in the characteristic views towards Cambridge from the west. In addition, this route option would pass through areas of Distinctive and Supportive landscape and townscape, which are an important quality in sector A, introducing a new element that would detract from the distinctiveness of the area. Although largely following existing hedgerows, and therefore reflecting the current pattern and grain of the landscape, the potential width of the route would not relate well to the scale of the landscape. Where the proposed route passes through areas of Distinctive landscape, there would be conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 1, as effects would relate to the character of Cambridge. Where the proposed route passes through areas of Supportive landscape, there would be conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2, as effects would relate to the setting of Cambridge. In both circumstances, this conflict would not reduce over time as the interruption to the flow of countryside up to the edge of Cambridge would be permanent.
- 8.7.3. Option B would result in some change of character within the undeveloped countryside in sub areas A.1 and A.3, through areas of Distinctive and Supportive landscape and townscape if it were to run along the southern edge of West Cambridge. As for Option A, where the proposed route passes through areas of Distinctive landscape, there would be conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 1, as effects would relate to the character of Cambridge. Where the proposed route passes through areas of Supportive landscape, there would be conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2, as effects would relate to the setting of Cambridge. However, if the route of Option B runs across open fields, the design of the route would help the proposed segregated bus route fit into the landscape in the longer term. Running the segregated bus route along the existing cycle route, to the north of the existing University Sports Ground, could minimise conflict with Green Belt purposes. A hedgerow along the southern edge of the route where it adjoins farmland, although not currently proposed, could help to contribute to the soft green edge of the city and provide integration of the route, reducing conflict with Green Belt purposes over time.
- 8.7.4. Should Option B run across the field south of West Cambridge and along Herschel Road, instead of along the existing cycleway, effects would start to become more in line with those of Option A where it runs across undeveloped fields. The tighter the proposed route can run to the edge of existing development, such as the athletics track, or the edge of the Green Belt, the smaller the conflict with Green Belt purposes would be. However, where the route crosses open fields, the degree of conflict with Green Belt purposes would not decrease over time as the flow of countryside into the city would be permanently disrupted.
- 8.7.5. Conflict with Green Belt purposes resulting from Option C would be similar to those described for parts of Options A and B, depending on the specific alignment. The alternative that would utilise Cranmer Road, furthest to the south, is therefore likely to conflict with Green Belt purposes to a greater extent than other options, given that it would run through the greatest amount of undeveloped land, but the route options joining up with Herschel Road and the rifle range track would also conflict with Green Belt purposes.

Green Bridge Options

- 8.7.6. The ramp of the green bridge over the M11 for the southern route of Option A, where this grades down to existing levels, could require substantial earthworks as the M11 is at grade to the south of West Cambridge. This would alter the appearance of part of an area of Supportive landscape, as well as affecting the strongly rural character of the landscape and potentially leading to the removal of hedgerows and woodland that contribute positively to the character and structure of the local landscape. There would be some conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2, on a permanent basis.
- 8.7.7. Any ramp required for the green bridge for the northern alternative of Option A or for Option B would be located outside the Green Belt and would not conflict with Green Belt purposes.
- 8.7.8. For Option C, the exact positioning and design of the ramp for the green bridge over the M11 would dictate whether there would be any conflict with Green Belt purposes. If the design requires substantial earthworks within the Green Belt, this would introduce a similar level of permanent conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2 as the southern route of option A.

8.8. Application of NPPF Paragraph 90 Test

Route Options

- 8.8.1. The openness of the Green Belt would be preserved by all route options through sector A.
- 8.8.2. For those stretches of any of the route options that would pass through the Green Belt, there would be conflict with Green Belt purposes. Therefore, the following stretches of the routes through sector A would fail the NPPF paragraph 90 test and constitute inappropriate development within the Green Belt:
 - The stretches of Option A located south of West Cambridge and therefore within the Green Belt.
 - The stretch of Option B that would run along the southern edge of West Cambridge, up to the point where it would meet Adams Road.
 - The stretch of Option B that would cross open fields and then run along Herschel Road.
 - The stretches of Option C located south of West Cambridge and therefore within the Green Belt.

Green Bridge Options

- 8.8.3. The northern route of Option A and Option B would be located outside the Green Belt and would consequently preserve the openness of the Green Belt. Those Options for the bridge ramp that would be located within the Green Belt would create a volume of new development with a permanent visual effect on the openness of the Green Belt.
- 8.8.4. Those Options for the bridge ramp that would be located within the Green Belt would also cause conflict with Green Belt purposes.
- 8.8.5. Therefore, the following bridge options within sector A would fail the NPPF paragraph 90 test and constitute inappropriate development within the Green Belt:
 - The ramp of the southern route of Option A.
 - Potentially the ramp of Option C, dependent on precise location.

8.9. Degree of Green Belt Harm for Purposes of NPPF Paragraphs 87 and 88 Test

Route Options

8.9.1. For those stretches that constitute inappropriate development within the Green Belt, the anticipated degree of harm as a result of conflict with Green Belt purposes of the nature described above would be as follows:

- The stretches of Option A located south of West Cambridge and therefore within the Green Belt would result in a high degree of harm to the character and setting of Cambridge and thus a high degree of harm to Green Belt, arising from a conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
- The stretch of Option B that would run along the southern edge of West Cambridge, up to the point where it would meet Adams Road would result in a low degree of harm to the character and setting of Cambridge and thus a low degree of harm to Green Belt arising from a conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
- The stretch of Option B that would cross open fields and then run along Herschel Road would result in a high degree of harm to the character and setting of Cambridge and thus a high degree of harm to Green Belt arising from a conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
- The stretches of Option C located south of West Cambridge and therefore within the Green Belt would result in a varying degrees of harm to the character and setting of Cambridge and thus to Green Belt arising from a conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2. The degree of harm would become greater the further from the existing edge of West Cambridge the route was located, ranging from a moderate-low degree of harm for the northernmost option along the edge of West Cambridge and along Adams Road, to a high degree of harm for those further south, with the connection linking to Cranmer Road being the highest.

Green Bridge Options

8.9.2. For those stretches that constitute inappropriate development within the Green Belt, the anticipated degree of harm as a result of conflict with Green Belt purposes would be as follows:

- The ramp of the southern route of Option A would result in low degree of harm as a result of the impact on openness and conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2 resulting from changes to the character and setting of Cambridge. This relates to the localised extent of the effects and the existing presence of infrastructure associated with the M11 in the vicinity.
- The ramp of Option C, dependent on precise location, could result in the same degree of harm as the southern route of Option A, for the same reasons.

9.0 Assessment of Sector B: North of Coton

9.1. Description of Sector

- 9.1.1. Sector B is located directly west of, and including part of the corridor of, the M11 and to the north of Coton, abutting the northern end eastern edges of the necklace village. The northern boundary follows the route of the A1303 and the eastern boundary corresponds with the top of the eastern M11 cutting slope. The southern boundary of the sector follows the Green Belt boundary along the northern edge of Coton and then a track that forms part of the Harcamlow Way to the east of the village. The western boundary follows the boundary of the gardens to Coton Court and some reservoirs to the north of Coton, at the transition between a small scale landscape and the larger scale arable fields of sector C.
- 9.1.2. Land use in the sector varies east and west of Cambridge Road, which runs between the A1303 and Coton. To the east of the road, the land use is predominantly orchards (see Photograph 7 at Figure 18) and a Garden Centre, along with the grounds to Rectory Farm. This area is largely enclosed by vegetation and visually contained. To the west of Cambridge Road, there is a mixture of small scale paddocks, arable fields and private gardens (see Photographs 8 and 9 at Figures 18 and 19).
- 9.1.3. The historic core of Coton, focused around the junction of Cambridge Road and the High Street, is designated as a Conservation Area. The Harcamlow Way recreational route passes through Coton, to the south of this sector. There is also a public footpath from the A1303 to the northern edge of Coton. Coton Countryside Reserve is also located to the south of the sector, with the historic parkland of the Cambridge American Cemetery located to the north of the sector, on the opposite side of the A1303.
- 9.1.4. Two sub areas have been identified within this sector. All of the options for the proposed segregated bus route would run through both sub areas, therefore they are both considered in the following table.

9.2. Baseline Assessment of Qualities Relevant to Green Belt Openness and Purposes

- 9.2.1. Figure 13 illustrates the key considerations relevant to both openness and Green Belt purposes in sector B.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area B.1 – Orchards and Garden Centre in east of sector	Sub Area B.2 - Mixed small parcels of land in west of sector
5. Topography providing a framework to Cambridge	Both sub areas are located on the south facing slopes of a clay ridgeline to the west of Cambridge. This is one of a series of ridgelines within the Claylands landscape to the west of Cambridge, which form a key element of the topographic bowl in which Cambridge is located. This provides physical and visual containment to the west of the city in a marked contrast to the lower lying ground on which Cambridge is located and the Fen landscape to the north and east of the city, physically manifesting the underlying geology.	

Qualities Relevant to Green Belt Openness and Purposes	Sub Area B.1 – Orchards and Garden Centre in east of sector	Sub Area B.2 - Mixed small parcels of land in west of sector
	This sub area slopes less steeply than sub area B.2 and forms more of a transition from the Claylands to the flatter landscape immediately around Cambridge. The M11, on the eastern edge of this sub area, is located within a cutting, which has interrupted the underlying topography and has affected the openness of the Green Belt.	The sloping topography within this sub area makes it highly visible from the south and consequently contributes to the openness of the Green Belt in this location.
6. Long distance footpaths and bridleways providing access to the countryside	There is no public access to or through this sub area, but the Harcamlow Way/Wimpole Way, which runs along the southern boundary of the sub area, is an important footpath/cycleway route connecting Cambridge to Coton and the surrounding countryside.	There is a limited network of footpaths through this sub area, with a single public footpath running from the A1303 into Coton and joining the Harcamlow Way/Wimpole Way, which runs along the boundary of the sub area, linking into the wider network of rights of way.
7. Key views of Cambridge from the surrounding landscape	From Red Meadow Hill there is a key view east towards the city. From some locations on Red Meadow Hill, it is possible to also see Sector B to the north, in a separate part of the view to the landmarks within the historic core of Cambridge. This is a less strong visual relationship than for sectors A and C.	

Qualities Relevant to Green Belt Openness and Purposes	Sub Area B.1 – Orchards and Garden Centre in east of sector	Sub Area B.2 - Mixed small parcels of land in west of sector
	A key view from the A1303 towards Cambridge looks along the northern edge of this sub area. However, in general, views through or into this sub area are not possible. The M11 corridor within this sub area is relatively visually contained due to its location in cutting and the wooded nature of the cutting slopes.	There are no key views in or through this sub area, although the key view towards Cambridge from the A1303 is located on the northern boundary of this sub area. The sloping topography within this sub area makes it highly visible from the south and consequently contributes to the openness of the Green belt in this location.
8. Significant areas of Distinctive and Supportive townscape and landscape	The northern edge of the whole sector, on the highest ground, forms part of the Supportive landscape associated with the approach to Cambridge on the A1303 and around Madingley Woods. The remainder of the sub area is Connective landscape, forming part of the landscape setting to Cambridge.	
12. The distribution, physical and visual separation of the necklace villages	Coton is one of the necklace villages surrounding Cambridge. Whilst the sector contributes to the physical separation between Coton and Madingley, there are existing transport corridors that provide physical and visual separation at present, alongside existing vegetation and the ridgeline along which the proposed segregated bus route would run.	
	This sub area plays a key role in the separation between Cambridge and Coton, with the M11 lying within the area of separation, although relatively well vegetated for stretches of its route and therefore adding visual as well as physical separation. This sub area is the only remaining separation between West Cambridge and Coton.	This sub area plays a more limited role in the separation between Cambridge and Coton, given its location more to the north of the village and the role played by sub areas B.1.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area B.1 – Orchards and Garden Centre in east of sector	Sub Area B.2 - Mixed small parcels of land in west of sector
13. The scale, character, identity and rural setting of the necklace villages	This sub area has historically comprised orchards associated with the village. The historic core reaches to the edge of the village in some areas adjacent to the sub area, which could be as a result of the presence of the orchards preventing expansion north eastwards. The orchards form part of the character and identity of the village, and form part of its rural setting. The M11, with its heavy traffic, infrastructure and location within a linear corridor, is very separate from the village and its setting. Although the sub area is in close physical proximity to the edge of Coton, its wooded nature limits visual connectivity with the settlement edge.	This sub area contains smaller scale parcels of land that relate well to the scale of the village. Their presence has largely prevented the sprawl of the village to the north, meaning that the historic core reaches to the edge of the village in some areas adjacent to the sub area. The smaller fields form part of the rural setting to Coton. This sub area is adjacent to the edge of the village and has a strong visual connection to the village. The settlement edge has limited vegetation along it in some locations, allowing views into the sub area.
14. Designated sites and areas enriching the setting of Cambridge	Both of the sub areas within this sector abut short sections of the Coton Conservation Area. There are no other environmental or cultural designations within the sector.	
15. Elements and features contributing positively to the character and structure of the landscape	The orchards form a distinctive part of the character of the local landscape, defining its structure and creating localised containment. These orchards and other woodland within this sub area reduce the visual openness of the Green Belt within this sub area. The M11 does not contribute positively to this sub area at present, other than	Areas of woodland and tree belts through the centre of this sub area and along the A1303 provide a structure to the landscape, providing both visual and physical containment. However, the majority of this sub area is open or contains lower hedgerows, allowing views both in and out, and contributing to the visual

Qualities Relevant to Green Belt Openness and Purposes	Sub Area B.1 – Orchards and Garden Centre in east of sector	Sub Area B.2 - Mixed small parcels of land in west of sector
	through the vegetation on its cutting slopes but is visually contained by its location in cutting.	openness of the Green Belt.
16. A city set in a landscape which retains a strongly rural character	Externally, this sub area appears largely wooded and therefore retains a strong rural character, with the exception of the entrance area to the garden centre, off Cambridge Road. The M11 has interrupts the flow of the rural landscape in to Cambridge, creating some separation and impacting on the openness of the Green Belt. Whilst both the M11 and the A1303 are well wooded, traffic noise affects the tranquillity of the area.	This sub area is largely rural in character, but there are a number of features that impact on that rural character. These include existing covered reservoirs, which although grass covered are obvious man-made features when viewed from some locations. There are also a series of individual properties along the southern edge of the A1303, on the high ground. Coton, as a nucleated village with relatively little modern sprawl, does not detract from the rural character of the sub area.

9.3. Key Considerations Relevant to Green Belt Openness

- 9.3.1. Within sub area B.2 the sloping landform and relative lack of vegetation are key considerations in relation to openness. The orchard area and woodland within sub area B.1 is visually contained and has limited visual openness in Green Belt terms. The M11 corridor is also visually contained, being located within a cutting and having heavily vegetated cutting slopes.
- 9.3.2. The M11 corridor has historically interrupted the openness of the Green Belt within its corridor. Not only did it introduce traffic and infrastructure associated with the route, such as the footbridge over the motorway, but it also interrupted the flow of the rural landscape up to the edge of Cambridge.

9.4. Key Considerations Relevant to Green Belt Purposes

- 9.4.1. This sector plays an important role in the wider setting of the west of Cambridge, located on a Claylands ridgeline that forms part of the backdrop to views out from Cambridge in this direction. The landform forms part of the edge to the bowl landscape within which Cambridge is set, providing a framework to the city. It is also visible in views from the south, such as from Red Meadow Hill.

- 9.4.2. The sector also forms a key part of the rural setting to Coton, maintaining the rural character north of the village and preventing sprawl of the village northwards and eastwards. The landscape setting of Coton as a necklace village forms part of the character and wider setting of Cambridge. The area of orchards is a distinctive characteristic associated with Coton and contributes positively to the structure of the landscape. Limited development already exists within the sector, but is often screened from view by existing vegetation and landform features.

9.5. Proposed Segregated Bus Route Options through the Sector

- 9.5.1. Option A – Running along the slope mid way between the A1303 and the northern edge of Coton, before sweeping round to tightly follow the edge of Coton in the vicinity of Cambridge Road, then running through the orchard area to the north east of Coton and crossing the M11 just north of the existing footbridge. Alternatively, this route could also cross the M11 at an angle south of the existing footbridge. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. New hedgerow planting is proposed between the cycle/pedestrian route and the busway at various locations within sector B, including over the green bridge. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton.
- 9.5.2. Option B - Running along the slope mid way between the A1303 and the northern edge of Coton, before sweeping round slightly higher up the slope north of Coton than Option A, then running through the orchard area to the north east of Coton and crossing the M11 further north of the existing footbridge than Option A. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton.
- 9.5.3. Option C - Running along the slope closer to Coton than Options A and B, then running roughly parallel to the northern edge of Coton before sweeping round and crossing Cambridge Road at roughly the same point as Option B, before running through the orchard area to the north east of Coton and crossing the M11 just south of the existing footbridge, following the southern edge of West Cambridge along the route of the Harcamlow Way. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. New hedgerow planting is proposed between the cycle/pedestrian route and the busway at various locations within sector B. Tree and hedgerow planting is also proposed in locations adjacent to the northern edge of Coton.

9.6. Preservation of Green Belt Openness

Route Options

- 9.6.1. The stretches of any of the route options that pass through the area of orchards to the north east of Coton (sub area B.1) would be largely screened from view from the surrounding area. Option A passes through an area of grassland immediately to the west of the M11, but this area is also visually well contained by woodland and tree belts. This area is also less steeply sloping than sub area B.2 and would require less cut and fill operations. All of the route options would preserve the openness of the Green Belt as a consequence.
- 9.6.2. Given the sloping landform within sub area B.2, there will be a requirement for cut and fill operations to ensure a level route for all options, which will result in a small volume of development within the Green Belt. Whilst the sloping landform also increases the visibility of the route, the cut and fill required would be relatively modest and could be balanced with careful design. Consequently, the openness of the Green Belt within sub area B.2 will be preserved.

Green Bridge Options

- 9.6.3. The creation of the ramp for the green bridge over the M11 would require earthworks. The presence of these earthworks would in themselves mean that there would be a volume of new development within sub area B.1. However, given that this volume of development would be relatively small, would not be seen from the surrounding area due to the vegetated character of the sub area and the purpose of the development can be considered not inappropriate development within the Green Belt, it is considered that on balance the openness of the Green Belt would be preserved by the creation of the ramp.
- 9.6.4. In addition, as long as the crossing of the M11 is contained within the wooded stretch of the M11 from the A1303 bridge to just south of West Cambridge, effects would be broadly similar for all options and have a minimal effect on the visual openness of the Green Belt. The construction of the physical structure of the bridge would lead to the creation of a volume of new development. However, the green bridge would partially reinstate the flow of the landscape across the M11, which is already in cutting in this vicinity and has affected the openness of the Green Belt. Consequently, it is considered that the openness of the countryside would be preserved by the construction of the Green Bridge.

9.7. Potential for Conflict with Green Belt Purposes

Route Options

- 9.7.1. As mentioned above, the stretches of any of the route options that pass through sub area B.1 would be largely screened from view from the surrounding area. As a result, they would have no impact on the setting of Coton and there would be no conflict with Green Belt purposes.
- 9.7.2. In addition, as long as the route options connect to a bridge over the M11 that is contained within the wooded stretch of the M11 between the A1303 bridge and just south of West Cambridge, effects will be broadly similar for all options.
- 9.7.3. All of the route options would run in broadly similar positions on the slope in the western part of sub area B.2, but there would be some relatively minor differences between the options in the vicinity of Cambridge Road. All of these options would run through undeveloped countryside and would have some effect on the character of the area in terms of the setting of the village and consequently the setting of Cambridge. Given the small-scale nature of sub area B.2, the removal of any elements of the landscape, such as hedgerows and trees, would have a greater effect on this rural character than they would in sector C, which is more open.
- 9.7.4. Where the three proposed routes are located close to the village, there would be effects on the setting of Coton when considered from within the village. The route options would be visible from within the village, particularly towards the northern edge, affecting the character of the landscape. There would also be effects on the setting of the village when approaching from the north along Cambridge Road. As these routes would be close to the village, it is likely that there would be a permanent loss of agricultural land adjacent to the edge of the village, between the proposed segregated bus route and the settlement. However, conversely, where the existing village edge is poorly defined there is an opportunity to provide enhancements to the edge and improve this definition. There would be some conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4.

- 9.7.5. This conflict would be long-term, as the change in character of the rural setting of the village could not be fully offset by planting works and the setting of the village would be permanently altered by the potential loss of arable land adjacent to the village edge.
- 9.7.6. All of the route options will need to cross Cambridge Road at some point. This will create a localised area where conflict with Green Belt purposes is greater than other stretches of the route through sub area B.2, due to the change in character of the approach to the village resulting from the physical structures and re-grading of the route that will be required, as it is assumed that there will need to be a signalised crossing. The junction would also be lit, for a short stretch of both the road and the busway either side of the junction. Cambridge Road is already lit in this location, so there would be a small additional amount of lighting. It is also assumed that there may be a requirement to introduce some fencing along the edge of Coton for all options.

Green Bridge Options

- 9.7.7. The containment of the ramp and green bridge itself within wooded areas and adjacent to/above the existing M11 would ensure that they would have no impact on the setting of Coton and there is no conflict with Green Belt purposes within sector B as a result of the bridge or the ramp to access it.

9.8. Application of NPPF Paragraph 90 Test

Route Options

- 9.8.1. The openness of the Green Belt would be preserved by all route options through sector B.
- 9.8.2. There would be no conflict with Green Belt purposes for any of the routes through sub area B.1. Where the routes pass through sub area B.2, there would be conflict with Green Belt purposes for all options.
- 9.8.3. Therefore, all of the route options passing through sub area B.2 would fail the NPPF paragraph 90 test in terms of conflict with purposes, and constitute inappropriate development within the Green Belt.

Green Bridge Options

- 9.8.4. All of the green bridge options would create a volume of new development within the Green Belt, both in terms of the bridge itself and the ramps. However, visual effects on openness would be relatively limited due to the visual containment of the M11 corridor and the existing visual effects of the M11, with the green bridge restoring the flow of countryside over the motorway for a localised area. The purpose of the proposed development can also be considered not inappropriate development within the Green Belt. It is considered that, on balance, the green bridge would preserve the openness of the Green Belt within sector B.
- 9.8.5. There would be no conflict with Green Belt purposes from the proposed green bridge and the ramp, within sector B.
- 9.8.6. Therefore, all of the bridge options would pass the NPPF paragraph 90 test, and would not constitute inappropriate development within the Green Belt within sector B.

9.9. Degree of Green Belt Harm for Purposes of NPPF Paragraphs 87 and 88 Test

Route Options

9.9.1. There would be no Green Belt harm as a result of effects on openness from the route options within Sector B.

9.9.2. The conflict with Green Belt purposes in sub area B.2 would result in a moderate degree of harm to the setting of Cambridge resulting from changes to the character and setting of Coton as a necklace village. There would thus be a moderate degree of harm to Green Belt arising from al conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4. .

Green Bridge Options

9.9.3. The green bridge itself and the ramp leading to it would not result in harm to Green Belt as openness would be preserved and there would be no conflict with Green Belt purposes.

10.0 Assessment of Sector C: West of Coton

10.1. Description of Sector

- 10.1.1. Sector C is located to the north west of Coton, abutting the northern and western edges of the necklace village. The northern boundary follows the A1303. The eastern boundary coincides with the boundary of sector B, and follows the boundary of the gardens to Coton Court and some reservoirs to the north of Coton, at the transition between a small scale landscape and larger scale arable fields. The southern boundary follows the course of Bin Brook, with the western boundary following the linear alignment of Long Road.
- 10.1.2. Land use in most of the sector is large scale arable farmland (see Photographs 10-12 at Figures 19 and 20). However, there are some smaller scale areas to the south of the Harcamlow Way/Wimpole Way, adjacent to Bin Brook. The larger arable fields are steeply sloping and contain limited hedgerows. Other than the Harcamlow Way/Wimpole Way, there are no public rights of way through this sector.
- 10.1.3. Two sub areas have been identified within this sector. Of these, the proposed segregated bus route is unlikely to affect sub area C.2, given distance from the route options and the relative enclosure of sub area C.2. Sub area C.2 is therefore not assessed below.

10.2. Baseline Assessment of Qualities Relevant to Green Belt Openness and Purposes

- 10.2.1. Figure 14 illustrates the key considerations relevant to both openness and Green Belt purposes in sector C.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area C.1 – Large sloping arable fields
5. Topography providing a framework to Cambridge	This sub area is located on the south facing slopes of a clay ridgeline to the west of Cambridge. This is one of a series of ridgelines within the Claylands landscape to the west of Cambridge, which form a key element of the topographic bowl in which Cambridge is located. This provides physical and visual containment to the west of the city in a marked contrast to the lower lying ground on which Cambridge is located and the Fen landscape to the north and east of the city, physically manifesting the underlying geology. The sloping topography within this sector makes it highly visible from the south and consequently contributes to the openness of the Green Belt in this location.
6. Long distance footpaths and bridleways providing access to the countryside	There is a limited network of footpaths through this sub area, with limited access through the rural setting west of Coton. The exception to this is the Harcamlow Way/Wimpole Way, which is a bridleway in this location and runs along the boundary between sub areas C.1 and C.2, from the western edge of Coton to Long Road.

Qualities Relevant to Green Belt Openness and Purposes	Sub Area C.1 – Large sloping arable fields
7. Key views of Cambridge from the surrounding landscape	There are no key views in or through this sub area. However, there are occasional panoramic views into the sub area, across open countryside, from the A1303. There are also occasional glimpsed views of some of the landmark features in the historic core of Cambridge when approaching Coton from the west on the Harcamlow Way/Wimpole Way. From Red Meadow Hill there is a key view east towards the city. From some locations, it is possible to also see Sector C from Red Meadow Hill, in a separate part of the view to the landmarks within the historic core of Cambridge. There are also additional locations on Red Meadow Hill that have clear views towards sector C, where there is a stronger visual relationship than with sector B. The sloping topography within this sub area makes it highly visible from the south and consequently contributes to the openness of the Green Belt in this location.
8. Significant areas of Distinctive and Supportive townscape and landscape	The northern edge of the sub area, on the highest ground, forms part of the Supportive landscape associated with the approach to Cambridge on the A1303 and around Madingley Woods. Most of the remainder of the sub area is Connective landscape, forming part of the wider landscape setting to Cambridge.
12. The distribution, physical and visual separation of the necklace villages	Coton is one of the necklace villages surrounding Cambridge. However, the location of this sub area to the west of the village means that it makes no contribution to the physical and visual separation between Coton and Cambridge. Whilst the sub area provides some physical separation between Coton and Madingley, there are existing transport corridors that provide physical and visual separation at present, alongside existing vegetation and the ridgeline along which the proposed segregated bus route would run.
13. The scale, character, identity and rural setting of the necklace villages	The western part of Coton is predominantly post-war suburban housing and not as historic as areas towards the centre of the village. This sector provides part of the rural setting of the village to the north and west. Its relationship with Bin Brook is also a key part of its identity, with the village located on the lower ground in the valley of the brook and the large, sloping arable fields forming containment and a rural setting to the village. This sector is immediately adjacent to the existing edge of Coton. From the west, existing vegetation on the edge of the

Qualities Relevant to Green Belt Openness and Purposes	Sub Area C.1 – Large sloping arable fields
	village screens views of the edge of the village. From the north, a single hedgerow runs along the edge of the village, allowing a stronger visual relationship between the settlement and the adjacent countryside.
14. Designated sites and areas enriching the setting of Cambridge	This sub area does not adjoin the Coton Conservation Area. There are no environmental or cultural designations within the sub area.
15. Elements and features contributing positively to the character and structure of the landscape	There are relatively few hedgerows through the sub area. Those that do occur are low, clipped features, running north-south down the slope. There are tree belts along Long Road to the west and the A1303 to the north that create physical and visual containment to the landscape. However, the majority of this sub area is open or contains lower hedgerows, meaning that there is very little physical or visual containment to the east or south, contributing to the visual openness of the Green Belt. An existing mast is located on high ground in the north west corner of this sub area. It forms a prominent feature on the high ground that does not contribute positively to the character of the landscape.
16. A city set in a landscape which retains a strongly rural character	This sector as a whole retains a rural character, with only occasional glimpses of any features identifying the close proximity of Cambridge to the sub area. There are a series of individual properties and a small business park along the A1303, on the high ground on the north edge of the sub area. Coton, as a nucleated village with relatively little modern sprawl, does not detract from the rural character of the sub area.

10.3. Key Considerations Relevant to Green Belt Openness

- 10.3.1. The sloping landform and relative lack of vegetation within sector C are key considerations in relation to openness within this sector. It has a rural character, despite the presence of road infrastructure to the north and west. There is limited built development within sector C, which consists predominantly of open farmland with occasional individual properties and a small business park along the A1303 to the north of the sector and the existing mast in the north west corner of the sector.

10.4. Key Considerations Relevant to Green Belt Purposes

- 10.4.1. This sector plays an important role in the wider setting of the west of Cambridge, located on a Claylands ridgeline that forms part of the backdrop to views out from and across

Cambridge in this direction. The landform forms part of the edge to the bowl landscape within which Cambridge is set, providing a framework to Cambridge. It is also visible in views from the south, such as from Red Meadow Hill.

- 10.4.2. The sector also forms a key part of the rural setting to Coton, maintaining the rural character north of the village and preventing sprawl of the village north and westward. Woodland belts along the northern and eastern boundaries of the sector are important to the wooded character of the local landscape, and form a positive feature. Development within the sector is restricted to isolated properties along the ridge line and the existing mast that is also located on the higher ground.

10.5. **Proposed Segregated Bus Route Options through the Sector**

- 10.5.1. Options A – Entering sector C in its north west corner before running south eastwards towards the break of slope and continuing eastwards to enter sector B mid way between the A1303 and the northern edge of Coton. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. No planting is currently proposed within this sector.
- 10.5.2. Option B – Follows a very similar alignment to Option A, sometimes slightly above it and sometimes slightly below on the slope. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. No planting is currently proposed within this sector.
- 10.5.3. Option C – Entering sector C further east than the other options, before turning south and then running eastwards further down the slope than the other options and entering sector B closer to Coton than Options A and B. Current proposals suggest that the cycle/pedestrian route would be located to the south of the bus route for this option. No planting is currently proposed within this sector.

10.6. **Preservation of Green Belt Openness**

- 10.6.1. Given the sloping landform with sub area C.1, for all options there will be a requirement for cut and fill operations to ensure a level route, which will result in a small volume of development within the Green Belt. Whilst the sloping landform also increases the visibility of the route, the cut and fill required would be relatively modest and could be balanced with careful design. Consequently, the openness of the Green Belt within sub area C.1 will be preserved.

10.7. **Potential for Conflict with Green Belt Purposes**

- 10.7.1. All of the route options would run in broadly similar positions on the slope through sector C, with Option C located slightly lower down the slope than the other options. All of these options would run through undeveloped countryside. The landform and the angle of view towards the proposed route of the segregated bus route would reduce the visibility of these route options higher up the slope, as the foreground landform would screen some views of route. Careful design of the route and the vegetation associated with it should ensure that the route fits within the landscape in the longer-term. Locating the routes higher up the slope would mean that they are more visible when viewed from the key elevated viewpoint at Red Meadow Hill to the south. As long as the route sits below the break of slope when viewed from the north, this would also minimise visibility from the A1303. There would be some conflict with Cambridge Green Belt purpose 2, which also equates to effects on National Green Belt purpose 4. This conflict would reduce further west as the route becomes further from the edge of Coton, until there would be no conflict within approximately the western half of sub area C.1 due to the distance from the edge of Coton.

- 10.7.2. If the proposed routes were located further down the slope, and therefore closer to the village, there would be greater effects on the setting of Coton when considered from within the village. The route options would be more visible from within the village, particularly towards the northern edge, and from the Harcamlow Way/Wimpole Way, affecting the character of the landscape. Again, there would be some conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4.
- 10.7.3. These effects could be shorter term than the effects described in relation to sector B, as the effects on the setting of the village could be addressed over time by appropriate planting to integrate the scheme into the landscape. This planting is not currently proposed as part of the scheme design, but linear hedgerow features would be in keeping with the landscape pattern. These should, as far as possible, reflect the pattern and grain of the surrounding landscape and relate to the existing hedgerows that run down the slope. Woodland planting in field corners could also be appropriate.

10.8. Application of NPPF Paragraph 90 Test

- 10.8.1. The openness of the Green Belt would be preserved by all route options through sector C.
- 10.8.2. Where the routes are located in relatively close proximity to Coton, for approximately the eastern half of the sector, there would be conflict with Green Belt purposes for all options. This conflict would not exist in the western half of the sector due to distance from the edge of Coton.
- 10.8.3. Therefore, within the eastern half of the sector all of the route options would fail the NPPF paragraph 90 test in terms of conflict with Green Belt purposes, and constitute inappropriate development within the Green Belt.

10.9. Degree of Green Belt Harm for Purposes of NPPF Paragraphs 87 and 88 Test

- 10.9.1. There would be no Green Belt harm as a result of effects on openness from the route options within Sector C.
- 10.9.2. The conflict with Green Belt purposes in sub area C.1 would result in a moderate degree of harm, in close proximity to Coton, to the setting of Cambridge resulting from changes to the character and setting of Coton as a necklace village. There would thus be a moderate degree of harm to Green Belt, arising from a conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4. The degree of harm would reduce further west, until there is no harm for approximately the western half of the sector.

11.0 Conclusions

- 11.1.1. A further route alignment through option 3A is currently being assessed, the findings of which will be published in a revised version of this report.
- 11.1.2. The following sections of the proposed route options would not reduce openness and would not conflict with Green Belt purposes under paragraph 90 of the NPPF:
- Within sector A, the stretches of each of the route options that pass through West Cambridge or along Adams Road, Herschel Road and Cranmer Road would be located outside of the Green Belt and would therefore preserve the openness of the Green Belt and not conflict with Green Belt purposes.
 - Within sector B, the openness of the Green Belt would be preserved and there would be no conflict with purposes for any of the routes through sub area B.1.
 - Within sector B, the openness of the Green Belt would be preserved and there would be no conflict with purposes from the proposed green bridge and the associated ramp within sub area B.1.
 - Within sector C, the openness of the Green Belt would be preserved and there would be no conflict with purposes for any of the routes through approximately the western half of sub area C.1.
- 11.1.3. The following stretches of the proposed options for the segregated bus route would fail the NPPF paragraph 90 test and constitute inappropriate development within the Green Belt:
- Within sector A, the stretches of Option A located south of West Cambridge and therefore within the Green Belt, due to conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2. This conflict that would not reduce over time.
 - Within sector A, the stretch of Option B that would run along the southern edge of West Cambridge, up to the point where it would meet Adams Road, due to conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.. Running the segregated bus route along the existing cycle route, to the north of the existing University Sports Ground, could minimise conflict with Green Belt purposes. A hedgerow along the southern edge of the route, although not currently proposed, could help to contribute to the soft green edge of the city and provide integration of the route, reducing conflict with Green Belt purposes over time.
 - Within sector A, the stretch of Option B that would cross open fields and then run along Herschel Road, due to conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
 - Within sector A, the stretches of Option C located south of West Cambridge and therefore within the Green Belt, due to conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2.
 - Within sector A, the bridge ramp of the southern route of Option A would result in a physical volume of new development, which would also be visually prominent in the flat open fields to the south of West Cambridge. This would cause a reduction in the openness of the Green Belt within part of sub area A.1. There would also be some conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2, on a permanent basis.
 - Within sector A, potentially the bridge ramp of Option C, dependent on precise location. This could cause a reduction in the openness of the Green Belt within part of sub area A.1

and could introduce a level of permanent conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2.

- Within sector B, where the routes pass through sub area B.2, there would be conflict with Green Belt purposes for all options, but openness would be preserved. This would be conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4.
- Within sector C, the stretches of all route options within approximately the eastern half of the sector would result in some conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4.

11.1.4. For those stretches of the proposed route Options where the paragraph 90 test cannot be met, the scheme would be 'inappropriate' development and paragraphs 87 and 88 of the NPPF would apply. 'Very special circumstances' will therefore need to be demonstrated for these stretches of the route Options and any harm weighed against them. The degree of harm for each of the stretches of the proposed routes that do not pass the paragraph 90 test is as follows:

- Within sector A, the stretches of Option A located south of West Cambridge and therefore within the Green Belt would result in a high degree of harm to Green Belt as a result of the conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2 resulting from changes to the character and setting of Cambridge.
- Within sector A, the stretch of Option B that would run along the southern edge of West Cambridge, up to the point where it would meet Adams Road, would result in a low degree of harm to Green Belt as a result of the conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2 resulting from changes to the character and setting of Cambridge.
- Within sector A, the stretch of Option B that would cross open fields and then run along Herschel Road would result in a high degree of harm to Green Belt as a result of the conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2 resulting from changes to the character and setting of Cambridge.
- Within sector A, the stretches of Option C located south of West Cambridge and therefore within the Green Belt would result in a varying degrees of harm to Green Belt as a result of the conflict with National Green Belt purpose 4 and Cambridge Green Belt purposes 1 and 2 resulting from changes to the character and setting of Cambridge. The degree of harm would become greater the further from the existing edge of West Cambridge the route was located, ranging from a moderate-low degree of harm for the northernmost option along the edge of West Cambridge and along Adams Road, to a high degree of harm for those further south, with the connection linking to Cranmer Road being the highest.
- The bridge ramp of the southern route of Option A would result in a low degree of harm as a result of the impact on openness and conflict with National Green Belt purpose 4 and Cambridge Green Belt purpose 2 resulting from changes to the character and setting of Cambridge. This relates to the localised extent of the effects and the existing presence of infrastructure associated with the M11 in the vicinity.
- The bridge ramp of Option C, dependent on precise location, could result in the same degree of harm as the southern route of Option A, for the same reasons.
- Within sector B, the conflict with Green Belt purposes in sub area B.2 would result in a moderate degree of harm, due to the potential conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4. This would

be due to the changes in the setting of Cambridge that result from changes to the character and setting of Coton as a necklace village.

- The conflict with Green Belt purposes in sub area C.1 would result in a moderate degree of harm in close proximity to Coton, due to the potential conflict with Cambridge Green Belt purpose 2, which also equates to conflict with National Green Belt purpose 4. This would be due to the changes in the setting of Cambridge that result from changes to the character and setting of Coton as a necklace village. The degree of harm would reduce further west, until there is no harm for approximately the western half of the sector.

11.1.5. The outcomes of the assessment of the various route options are summarised in the table on the following pages.

Route Option	Preservation of Openness	Conflict with Purposes	Paragraph 90 Test	Degree of Harm
Sector A				
Option A – through West Cambridge	Yes	No	N/A	N/A
Option A –south of West Cambridge	Yes	Yes	Inappropriate development	High
Option B– through West Cambridge	Yes	No	N/A	N/A
Option B –along southern edge of West Cambridge	Yes	Yes	Inappropriate development	Low
Option B –across open fields and then along Herschel Road	Yes	Yes	Inappropriate development	High
Option C	Yes	Yes	Inappropriate development	High to Moderate-low
Option A – bridge ramp – northern option	Yes	No	N/A	N/A
Option A – bridge ramp – southern option	No	Yes	Inappropriate development	Low
Option B – bridge ramp	Yes	No	N/A	N/A

Route Option	Preservation of Openness	Conflict with Purposes	Paragraph 90 Test	Degree of Harm
Option C – bridge ramp	Potentially no, dependent on precise location	Potentially yes, dependent on precise location	Potentially inappropriate development	Low (if harm arises)
Sector B				
All Options – within sub area B.1	Yes	No	Not inappropriate development	N/A
All Options – within sub area B.2	Yes	Yes	Inappropriate development	Moderate
All Options – bridge ramp and green bridge	Yes	No	Not inappropriate development	N/A
Sector C				
All Options – within eastern half of sector	Yes	Yes	Inappropriate development	Moderate, reducing to the west
All Options – within western half of sector	Yes	No	Not inappropriate development	N/A