South Cambridgeshire District Council and Cambridge City Council

Greater Cambridge Local Plan strategic spatial options assessment

Sustainability Appraisal (November 2020)

Final report

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Contents

Chapter 1
Executive Summary

Introduction

1.1 This Sustainability Appraisal (SA) Report has been prepared by LUC on behalf of South Cambridgeshire District Council and Cambridge City Council (the Councils) as part of the Sustainability Appraisal (incorporating Strategic Environmental Assessment, Health Impact Assessment and Equalities Impact Assessment) of their Local Plan.

1.2 This report is part of a wider Sustainability Appraisal process, which began in 2019 with the production of a Scoping Report[1]. The Scoping Report set out the existing baseline in the plan area for a range of sustainability topics, identified plans, policies and programmes relevant to the SA and the Local Plan, identified key sustainability issues in Greater Cambridge and described the appraisal methodology for the remaining stages of the SA.

1.3 The Issues and Options set out in the Greater Cambridge Local Plan 'First Conversation' Issues and Options 2020 document were subject to SA and the result of this were published in the SA of Issues and Options[2] (2019). This document uses the same methodology as previous assessments and draws on the findings of the SA of Issues and Options, where relevant.

1.4 This document presents the findings of the SA of strategic spatial options being considered by the Councils. It will help to inform the Councils' decision making regarding which of the strategic spatial options to take forward in the next stage of preparation of the Greater Cambridge Local Plan.

Summary of findings

1.5 The eight strategic spatial options have been subject to Sustainability Appraisal, including their effects at different levels of growth. With regards to levels of growth, the minimum growth scenario tends to have the least negative effects, as a lower level of growth is likely to put less pressure on local services and environmental resources. However, the maximum scenario tends to include larger developments, which are likely to have greater scope for providing new services and facilities and for being designed in a way that encourages healthy lifestyles and environmental enhancements.

1.6 Option 1 'Densification of existing urban areas' performs very well, as focusing growth in and around Cambridge, means development is likely to have good access to existing services and

[1] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal Scoping Report. Available at: https://www.greatercambridgeplanning.org/media/1306/greater-cambridge-local-plan-sustainability-appraisal-scoping-report-2019.pdf
[2] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal of Issues and Options. Available at: https://www.greatercambridgeplanning.org/media/1164/sustainability-appraisal.pdf

facilities, although these could become overwhelmed by increased demand. Development in and around Cambridge would likely have good access to jobs, as well as supporting the city's economy. In addition, larger developments, such as North East Cambridge and Cambridge Airport are likely to provide new services, facilities and green infrastructure.

1.7 Option 2 ‘Edge of Cambridge – outside Green Belt’ performs quite well when fully built out, although not as well within the plan period. Growth around Cambridge would be well located for services and facilities. This option includes additional sources of supply, including new settlements. Whilst new settlements are likely to bring sustainability benefits in the long term, they may experience lower levels of accessibility and generate higher carbon emissions in the short term.

1.8 Option 3 ‘Edge of Cambridge – Green Belt’ in some respects is expected to perform similarly to Option 2 as it would result in greater accessibility to existing services and facilities and therefore lower levels of car use. Effects will be dependent on the size of particular developments, as larger developments are more likely to include new services and facilities and integrate green infrastructure and active travel networks.

1.9 Option 4 ‘Dispersal – new settlements’ performs very well when fully built out, although not as well within the plan period. It performs particularly well against the social SA objectives, as all new settlements are expected to be of a size that provides for the day to day needs of residents and can incorporate good design principles. However, these benefits may not be realised until new settlements are fully built out.

1.10 Option 5 'Dispersal – villages' performs least well as it is likely to lead to scattered development that is likely to have poorer access to services, facilities and jobs. It is unlikely to provide the critical mass of development at any particular location to provide new services and facilities or environmental enhancements.

1.11 Option 6 'Public transport corridors' performs well, particularly when fully built out. This option is expected to provide good access to existing services and facilities via public transport, therefore helping to minimise carbon emissions and air pollution. However, this option could result in development in areas with higher environmental sensitivity, depending on the exact location of development.

1.12 Option 7 ‘Supporting a high-tech corridor by integrating homes and jobs’ performs very well, particularly when fully built out, as locating homes in this area will enable easy access to jobs, as well as fairly good access to existing services, facilities and employment opportunities in Cambridge itself. It is also expected to provide some new facilities at a new settlement. However, there are sensitive environmental features in this area that could be adversely affected by development. This option, like most, performs better when fully built out than within the plan period, as supporting infrastructure is more likely to be delivered in full at that point.

1.13 Option 8 'Expanding a growth area around transport nodes' performs very well when fully built out, but less well within the plan period. This option presents the opportunity to build on the existing settlement at Cambourne and expand its offer. However, the positive effects recorded are largely dependent on strategic sustainable transport infrastructure projects, which are unlikely to come forward in the short term.

1.14 Note that all options are expected to result in a mix of positive and negative effects. These will vary according to the growth scenario and their timing. The effects within the plan period can differ from the effects beyond the plan period when the developments are fully built out. Some of the differences between sustainability implications of different options are minimal and therefore the assessments in this report should be read in full, in order to fully understand the potential effects of each option. In addition, the options assessed are high-level, strategic options that are not site specific. Many impacts will be dependent on the exact location and design of development, which have not therefore been identified and addressed in this Report..

Chapter 2
Introduction

2.1 South Cambridgeshire District Council and Cambridge City Council (the Councils) have commissioned LUC to undertake a Sustainability Appraisal (SA) (incorporating Strategic Environmental Assessment (SEA), Health Impact Assessment (HIA) and Equalities Impact Assessment (EqIA)) of their Local Plan.

2.2 The Councils are required by law to carry out both SEA and SA of the Greater Cambridge Local Plan. The Councils have appointed LUC to do this on their behalf. SEA assesses the likely environmental effects of a plan, whereas SA builds on this to assess economic and social effects as well. The SA also includes a Health Impact Assessment to determine the impacts of the Local Plan on people's health and well-being, and an Equality Impact Assessment to identify if any groups of people with 'protected characteristics' within Greater Cambridge may be disproportionately affected.

2.3 The purpose of this document is to assess the likely impacts of the strategic spatial options on the SA objectives. It will help to inform the Councils' decision making regarding which of the strategic spatial options to take forward in the next stage of preparation of the Greater Cambridge Local Plan.

Initial findings

2.4 The SA process began in 2019 with the production of a Scoping Report[3]. The Scoping Report set out the existing baseline in the plan area for a range of sustainability topics, identified plans, policies and programmes relevant to the SA and the Local Plan, identified key sustainability issues in Greater Cambridge and set out the appraisal methodology for the remaining stages of the SA, including this report.

2.5 The Issues and Options set out in the Greater Cambridge Local Plan 'First Conversation' Issues and Options 2020 document were subject to SA and the result of this were published in the SA of Issues and Options[4] (2019).

2.6 This document uses the same methodology as previous assessments and draws on the findings of the SA of Issues and Options, where relevant.

[3] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal Scoping Report. Available at: https://www.greatercambridgeplanning.org/media/1306/greater-cambridge-local-plan-sustainability-appraisal-scoping-report-2019.pdf

[4] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal of Issues and Options. Available at: https://www.greatercambridgeplanning.org/media/1164/sustainability-appraisal.pdf

Assessment of strategic (non-site specific) spatial options

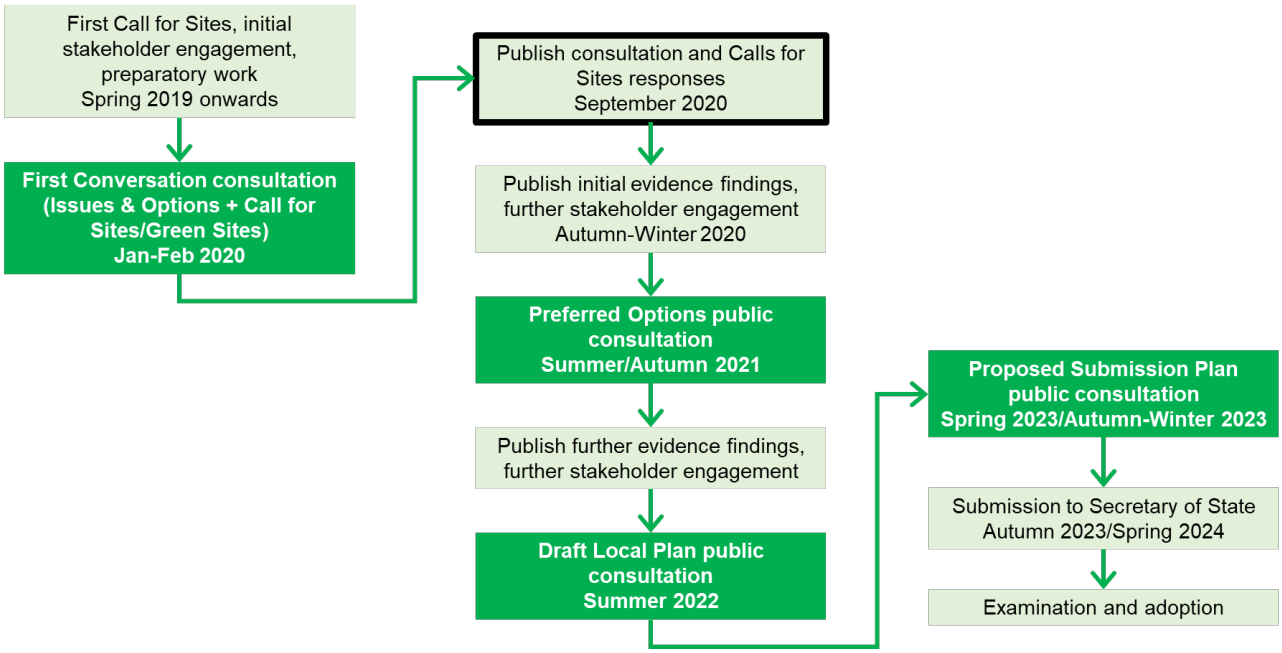
2.7 The Councils completed public consultation on the Greater Cambridge Local Plan First Conversation (Issues and Options) in early 2020. Building on the initial options set out in the First Conversation, the Councils have identified three growth level options for homes and jobs and eight strategic (non-site specific) spatial options for testing. A description of the options and explanation of how they were developed is set out in the Greater Cambridge Local Plan: strategic spatial options for testing – methodology document.

2.8 The Councils have asked consultants producing Local Plan evidence studies, including the Sustainability Appraisal, to assess the strategic options with regard to their initial evidence findings. This report forms one element of that assessment.

2.9 The initial evidence findings will be reported to the Joint Local Plan Advisory Group in autumn 2020, and will help to inform further engagement with stakeholders.

2.10 Preferred Options public consultation is planned for summer/autumn 2021, including a preferred strategy and draft allocations. The process of Local Plan preparation is set out below.

Process of Local Plan preparation



The strategic options

2.11 The three growth level options tested through this report are:

- Minimum – Standard Method homes-led
- Medium – central scenario employment-led

- Maximum – higher employment-led

2.12 The spatial scenarios tested through this report are:

1. Densification of existing urban areas
2. Edge of Cambridge – outside the Green Belt
3. Edge of Cambridge – Green Belt
4. Dispersal – new settlements
5. Dispersal – villages
6. Public transport corridors
7. Supporting a high-tech corridor by integrating homes and jobs
8. Expanding a growth area around transport nodes

Methodology

2.13 The assessment methodology used in this SA Report reflects that set out in the SA Scoping Report[5] and used in the previous stage of SA, the SA of Issues and Options[6]. This is set out below.

SA, SEA, HIA and EqIA

Sustainability Appraisal

2.14 Sustainability Appraisal is a statutory requirement of the Planning and Compulsory Purchase Act 2004. It is designed to ensure that the plan preparation process maximises the contribution that a plan makes to sustainable development and minimises any potential adverse impacts. The SA process involves appraising the likely social, environmental and economic effects of the policies and proposals within a plan from the outset of its development.

Strategic Environmental Assessment

2.15 Strategic Environmental Assessment (SEA) is also a statutory assessment process, required under the SEA Directive7, transposed in the UK by the SEA Regulations (Statutory Instrument 2004, No 1633). The SEA Regulations require the formal assessment of plans and programmes which are likely to have significant effects on the environment and which set the framework for future consent of projects requiring Environmental Impact Assessment (EIA)[8].

[5] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal Scoping Report. Available at: https://www.greatercambridgeplanning.org/media/1306/greater-cambridge-local-plan-sustainability-appraisal-scoping-report-2019.pdf
[6] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal of Issues and Options. Available at: https://www.greatercambridgeplanning.org/media/1164/sustainability-appraisal.pdf
[7] SEA Directive 2001/42/EC
[8] Under EU Directives 85/337/EEC and 97/11/EC concerning EIA.

The purpose of SEA, as defined in Article 1 of the SEA Directive is "to provide for a high level of protection of the environment and to contribute to the integration of environmental considerations into the preparation and adoption of plans….with a view to promoting sustainable development".

2.16 SEA and SA are separate processes but have similar aims and objectives. Simply put, SEA focuses on the likely environmental effects of a plan whilst SA includes a wider range of considerations, extending to social and economic impacts. National Planning Practice Guidance shows how it is possible to satisfy both requirements by undertaking a joint SA/SEA process, and to present an SA Report that incorporates the requirements of the SEA Regulations. The SA/SEA of the Greater Cambridge Local Plan is being undertaken using this integrated approach and throughout this report the abbreviation 'SA' should therefore be taken to refer to 'SA incorporating the requirements of SEA'.

Health Impact Assessment

2.17 Health Impact Assessment (HIA) aims to ensure that health-related issues are integrated into the plan-making process. HIA of the Greater Cambridge Local Plan has been integrated into the SA. SA objective 4 considers impacts on health.

Equality Impact Assessment

2.18 The requirement to undertake formal Equalities Impact Assessment (EqIA) of plans was introduced in the Equality Act 2010, but was abolished in 2012. Despite this, authorities are still required to have regard to the provisions of the Equality Act, namely the Public Sector Duty which requires public authorities to have due regard for equalities considerations when exercising their functions. The SA considers whether the Local Plan is likely to disproportionately affect any groups with particular 'protected characteristics' under the Equality Act, as well as whether the Local Plan may disproportionately affect any other groups, such as different socio-economic groups. A separate EqIA has been undertaken of the strategic spatial options. SA objective 3 considers impacts on equalities.

SA Framework

2.19 An SA framework was developed as part of the SA Scoping report, setting out the SA objectives against which options and subsequently policies will be appraised. The SA framework provides a way in which the sustainability impacts of implementing a plan can be described, analysed and compared. It comprises a series of sustainability objectives and associated sub-questions that can be used to 'interrogate' options and draft policies during the plan-making process. During the SA, the performances of the plan options (and later, policies) are assessed against these SA objectives and sub-questions. A small number of updates have been made to the SA framework since the Scoping Report and Issues and Options SA, to reflect consultation responses received in relation to those documents. The SA objectives themselves have not changed, but some of the sub-questions have been refined. These changes are as follows:

- Question 12.4 has been amended from 'Does the Plan support public transport?' to 'Does the Plan support the growth of public transport networks, modal shift away from private cars and onto public transport, and access to public transport options?'.
- Question 14.5 has been amended from 'Does the Plan support stronger links to the wider economy of the Oxford-Cambridge Arc?' to 'Does the Plan support stronger links to the wider economy of, and contribute to meeting the enhanced level of growth envisaged across, the Oxford-Cambridge Arc?'.

2.20 The SA framework is presented below.

SA Objective 1: Housing

To ensure that everyone has the opportunity to live in a decent, well-designed, sustainably constructed and affordable home.

Appraisal questions

- SA 1.1: Does the Plan provide for the local housing need of Greater Cambridge?
- SA 1.2: Does the Plan deliver the range of types, tenures that Greater Cambridge needs over the plan period?
- SA 1.3: Does the Plan increase the supply of affordable homes in both urban and rural areas?
- SA 1.4: Does the Plan provide for the housing needs of both an ageing and young population based on locational needs?
- SA 1.5: Does the Plan provide for specialist housing needs, including that of the student population and Gypsies and Travellers?

SA Objective 2: Access to services and facilities

To maintain and improve access to centres of services and facilities including health centres and education.

Appraisal questions

- SA 2.1: Does the Plan support the existing city, district, local, neighbourhood, rural and minor rural centres?
- SA 2.2: Does the Plan provide for sufficient local services and facilities to support new and growing communities (e.g. schools, employment training and lifetime learning facilities, health facilities, sport and recreation, accessible green space and services in local centres)?

- SA 2.3: Does the Plan provide for development within proximity to existing or new services and facilities that are accessible for all?

SA Objective 3: Social Inclusion and Equalities

To encourage social inclusion, strengthen community cohesion, and advance equality between those who share a protected characteristic (Equality Act 2010) and those who do not.

Appraisal Questions

- SA 3.1: Does the Plan facilitate the integration of new neighbourhoods with existing neighbourhoods?
- SA 3.2: Does the Plan promote developments that benefit and are used by existing and new residents in Greater Cambridge, particularly for Greater Cambridge's most deprived areas?
- SA 3.3: Does the Plan meet the needs of specific groups in Greater Cambridge, including those with protected characteristics and the needs of a growing and ageing population?
- SA 3.4: Does the Plan promote the vitality and viability of Greater Cambridge's city, district, local, neighbourhood, rural and minor rural centres through social and cultural initiatives?
- SA 3.5: Does the Plan help to support high levels of pedestrian activity/ outdoor interaction, where people mix?
- SA 3.6: Does the Plan remove or reduce disadvantages suffered by people due to their protected characteristics?

SA Objective 4: Health

To improve public health, safety and wellbeing and reduce health inequalities.

Appraisal questions

- SA 4.1: Does the Plan promote health and wellbeing and encourage healthy lifestyles by maintaining, connecting, creating and enhancing multifunctional open spaces, green infrastructure, and recreation and sports facilities and by providing access to recreational opportunities in the countryside?

- SA 4.2 Does the Plan promote healthy lifestyle choices by encouraging and facilitating walking and cycling, including provision of dedicated cycleways, as well as permeable and legible streets?
- SA 4.3: Does the Plan safeguard human health and well-being by promoting climate change resilience through sustainable siting, design, landscaping and infrastructure, particularly green infrastructure?
- SA 4.4: Does the Plan provide sufficient access to local health services and facilities (e.g. health centres and hospitals)?
- SA 4.5: Does the Plan encourage local food growing?
- SA 4.6: Does the Plan promote mental wellbeing through the design of attractive places and opportunities for social interaction?
- SA 4.7: Does the Plan promote principles of good urban design to limit the potential for crime in Greater Cambridge?
- SA 4.8: Does the Plan contribute to a reduction in the fear of crime?

SA Objective 5: Biodiversity and geodiversity

To conserve, enhance, restore and connect wildlife, habitats, species and/or sites of biodiversity or geological interest.

Appraisal questions

- SA 5.1: Does the Plan avoid adverse effects on internationally and nationally designated biodiversity and geodiversity assets within and outside Greater Cambridge?
- SA 5.2: Does the Plan avoid adverse effects on locally designated biodiversity and geodiversity assets within and outside Greater Cambridge, including ancient woodland?
- SA 5.3: Does the Plan seek to protect and enhance ecological networks, including opportunity areas (buffer and stepping stone opportunities) identified through biodiversity opportunity mapping, promoting the achievement of biodiversity net gain, whilst taking into account the impacts of climate change?
- SA 5.4: Does the Plan provide and manage opportunities for people to come into contact with wildlife whilst encouraging respect for and raising awareness of the sensitivity of biodiversity?

SA Objective 6: Landscape and townscape

To conserve and enhance the character and distinctiveness of Greater Cambridge's landscapes and townscapes, maintaining and strengthening local distinctiveness and sense of place.

Appraisal questions

- SA 6.1: Does the Plan protect and enhance Greater Cambridge's sensitive, special landscapes, such as fens, and historic settlements?
- SA 6.2: Does the Plan protect and enhance Greater Cambridge's natural environment assets (including parks and green spaces, common land, woodland and forest reserves) and public realm?
- SA 6.3: Does the Plan protect the setting of the city of Cambridge, including key views into and out of the city?

SA 7: Historic environment

To conserve and/or enhance the qualities, fabric, setting and accessibility of Greater Cambridge's historic environment.

Appraisal questions

- SA 7.1: Does the Plan conserve and enhance Greater Cambridge's designated heritage assets, including their setting and their contribution to wider local character and distinctiveness?
- SA 7.2: Does the Plan conserve and enhance Greater Cambridge's non-designated heritage assets, including their setting and their contribution to wider local character and distinctiveness?
- SA 7.3: Does the Plan safeguard, and where possible enhance, the historic fabric of the city of Cambridge?
- SA 7.4: Does the Plan provide opportunities for improvements to the conservation, management and enhancement of Greater Cambridge's heritage assets, particularly heritage at risk?
- SA 7.5: Does the Plan promote access to, as well as enjoyment and understanding of, the local historic environment for Greater Cambridge's residents and visitors?

SA 8: Efficient use of land

To make efficient use of Greater Cambridge's land resources through the re-use of previously developed land and conserve its soils.

Appraisal questions

- SA 8.1: Does the Plan maximise the provision of housing and employment development on previously developed land?
- SA 8.2: Does the Plan ensure contaminated land is remediated where appropriate?
- SA 8.3: Does the Plan minimise the loss of best and most versatile agricultural land to development?

SA 9: Minerals

To conserve mineral resources in Greater Cambridge.

Appraisal questions

- SA 9.1 Does the Plan ensure that unnecessary or unjustified sterilisation of mineral resources is prevented?

SA 10: Water

To achieve sustainable water resource management and enhance the quality of Greater Cambridge's waters.

Appraisal questions

- SA 10.1: Does the Plan ensure there is sufficient water to serve new growth for the lifetime of the development in a changing climate without negatively impacting on the environment?
- SA 10.2: Does the Plan seek to improve the water quality of Greater Cambridge's rivers and water bodies?
- SA 10.3: Does the Plan minimise inappropriate development in Source Protection Zones?
- SA 10.4: Does the Plan ensure there is sufficient waste water treatment infrastructure and environmental capacity to accommodate the new development in a changing climate?

- SA 10.5: Does the Plan promote development which would avoid water pollution due to contaminated runoff from development?
- SA 10.6: Does the Plan support efficient use of water in new developments, including the recycling of water resources, promoting water stewardship and water sensitive design where appropriate?

SA 11: Adaptation to climate change

To adapt to climate change, including minimising flood risk.

Appraisal questions

- SA 11.1: Does the Plan minimise inappropriate development in areas prone to flood risk and areas prone to increasing flood risk elsewhere, taking into account the impacts of climate change?
- SA11.2: Does the Plan promote the use of Natural Flood Management schemes, SuDS and flood resilient design?
- SA11.3: Does the Plan promote design measures in new development and the public realm to respond to weather events arising from climate change, such as heatwaves and intense rainfall?
- SA 11.4: Does the Plan provide, enhance and retrofit green infrastructure?

SA 12: Climate change mitigation

To minimise Greater Cambridge's contribution to climate change

Appraisal questions

- SA 12.1: Does the Plan promote energy efficient design?
- SA 12.2: Does the Plan encourage the provision of energy from renewable sources?
- SA 12.3: Does the Plan promote the use of locally and sustainably sourced, and recycling of, materials in construction and renovation?
- SA 12.4: Does the Plan support the growth of public transport networks, modal shift away from private cars and onto public transport, and access to public transport options?
- SA 12.5: Does the Plan create, maintain and enhance attractive and well-connected networks of public transport and active travel, including walking and cycling?

- SA 12.6: Does the Plan support development which is in close proximity to city, district and rural centres, services and facilities, key employment areas and/or public transport nodes, thus reducing the need to travel by car?
- SA12.7: Does the Plan address congestion hotspots in the road network?

SA 13: Air quality

To limit air pollution in Greater Cambridge and ensure lasting improvements in air quality.

Appraisal questions

- SA 13.1: Does the Plan avoid, minimise and mitigate the effects of poor air quality?
- SA 13.2: Does the Plan promote more sustainable transport and reduce the need to travel?
- SA 13.3: Does the Plan contain measures which will help to reduce congestion?
- SA 13.4: Does the Plan minimise increases in traffic, particularly non-electric vehicles, in Air Quality Management Areas?
- SA 13.5: Does the Plan facilitate the take up of low / zero emission vehicles?

SA 14: Economy

To facilitate a sustainable and growing economy.

Appraisal questions

- SA 14.1: Does the Plan provide for an adequate supply of land and the delivery of infrastructure to meet Greater Cambridge's economic and employment needs?
- SA 14.2: Does the Plan support opportunities for the expansion and diversification of businesses?
- SA 14.3: Does the Plan provide for start-up businesses and flexible working practices?
- SA 14.4: Does the Plan support the prosperity and diversification of Greater Cambridge's rural economy?
- SA 14.5: Does the Plan support stronger links to the wider economy of, and contribute to meeting the enhanced level of growth envisaged across, the Oxford-Cambridge Arc?

- SA 14.6: Does the Plan support the growth of the knowledge, science, research and high tech sectors?

SA 15: Employment

To deliver, maintain and enhance access to diverse employment opportunities, to meet both current and future needs in Greater Cambridge.

Appraisal questions

- SA 15.1: Does the Plan provide for employment opportunities that are easily accessible, preferably via sustainable modes of transport?
- SA 15.2: Does the Plan support equality of opportunity for young people and job seekers?

Appraisal Methodology

2.21 The findings of the SA are presented as colour coded symbols showing a score for each option against each of the SA objectives along with a concise justification for the score given, where appropriate. The use of colour coding and symbols allows for likely significant effects (both positive and negative) to be easily identified, as shown in Figure 2.1 below.

Figure 2.1: Key to symbols and colour coding used in the SA of the Greater Cambridge Local Plan

++	Significant positive effect likely
++/-	Mixed significant positive and minor negative effects likely
+	Minor positive effect
+/- or ++/--	Mixed minor effects likely or mixed significant effects likely
-	Minor negative effect likely
--/+	Mixed significant negative and minor positive effects likely
--	Significant negative effect likely
0	Negligible effect likely
?	Likely effect uncertain

2.22 Due to the high level nature of options assessed at this stage, all potential effects identified are uncertain. Where this uncertainty is considered to be particularly significant, a question mark is added to the relevant score (e.g. +? or -?) and the score has been colour coded as per the potential positive, negligible or negative effect (e.g. green, blue, orange, etc.).

2.23 The likely effects of options need to be determined and their significance assessed, which inevitably requires a series of judgments to be made. The appraisal has attempted to differentiate between the most significant effects and other more minor effects through the use of the symbols shown above. The dividing line in making a decision about the significance of an effect is often quite small. Where either (++) or (--) has been used to distinguish significant effects from more minor effects (+ or -) this is because the effect of an option on the SA objective in question is considered to be of such magnitude that it will have a noticeable and measurable effect taking into account other factors that may influence the achievement of that objective. However, scores are relative to the scale of proposals under consideration.

2.24 Despite the broad nature of the strategic spatial options, the assessment has sought to bring out differences between them, where possible. However, as explained below in 'Difficulties Encountered', the options overlap in terms of sources of supply. The assessment has taken a fairly precautionary approach, in that if negative effects are identified in relation to a particular source of supply, this has been reflected in the overall score for the option. In addition, whilst many of the negative effects identified could potentially be partially or fully mitigated, mitigation measures have not been taken into account, due to the uncertainty at this stage of such measures coming forward and in order to highlight likely negative effects that the plan should address through policy. Nevertheless, the assessment has also sought to highlight the potential opportunities sources of supply could bring, e.g. it has been assumed that larger developments have more scope for incorporating green infrastructure. For each SA objective we have sought to identify a best performing option.

2.25 The SA has also drawn on LUC's work on sustainable settlement sizes to help distinguish between options. We have assumed that developments nearing the minimum size for a new settlement to be sustainable (around 4,500 homes) are likely to provide new services and facilities. We have also assumed that if those developments will not reach such a size within the plan period, only limited provision of new services and facilities may be made until the sources of supply are fully built out.

2.26 The SA has sought to distinguish between effects occurring within the plan period and when sites are fully built out. However, for Options 3 (Edge of Cambridge – Green Belt) and 5 (Dispersal – villages), there will be no further planned development beyond the plan period, i.e. sources of supply will be fully built out within the plan period. As such, no assessment of these was made or scores recorded for the 'all time' scenario. However, this does not mean that development will not take place beyond the plan period, but decisions about how much and where this development would be left to future reviews of the Local Plan.

2.27 The SA has been informed by a review of the options by those preparing other evidence base documents, where appropriate. This includes taking into account comments relating to the following:

- Greater Cambridge Local Plan strategic spatial options assessment: Water Management (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Habitats Regulations Assessment (HRA) (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Landscape (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Employment (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Housing Delivery (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Infrastructure (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Transport (November 2020).

- Greater Cambridge Local Plan strategic spatial options assessment: Green Infrastructure (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Equalities Impact Assessment (EqIA) (November 2020).
- Greater Cambridge Local Plan strategic spatial options assessment: Zero Carbon Study (November 2020).

2.28 From here on, these documents are referred to as the 'Water Management Study', 'HRA Study', 'Landscape Study' and so on

Difficulties Encountered

2.29 It is a requirement of the SEA Regulations that consideration is given to any data limitations or other difficulties that are encountered during the SA process. The strategic spatial options are fairly broad options regarding the spatial distribution of development and do not allocate particular sites for development. As such, this document has sought to flag where these options have potential to result in significant effects, but the actual effects will depend on the exact location, layout and design of developments. Once the Councils have identified more detailed site and policy options it will be possible to draw more certain conclusions about their likely sustainability effects. Note that the preferred option may take elements from a number of these strategic spatial options.

2.30 Because many effects of development are dependent on the exact location, layout and design of development, it may be possible to mitigate some of the effects highlighted in this SA. However, given the inherent uncertainties about these details at this strategic stage of planning and assessment, the SA focuses on identifying potential significant effects of the options considered, whilst making no assumptions about detailed design or mitigation matters.

2.31 Many of the strategic spatial options cannot meet the full housing need through the focus source of supply (identified by the name of the spatial option) and therefore require additional sources of supply. This has led to substantial overlap between some of the options. For example, many include at least one new settlement and this has therefore resulted in similar effects being identified in relation to this.

2.32 The SA of the options has been undertaken using available evidence. There may be gaps in this evidence base that, where possible, will be filled as information and data to inform the Local Plan preparation process continues. For example:

- The need for further investment in infrastructure (e.g. transport, water), services and facilities are likely to be identified in more detail once options for development are firmed up, which may address some of the issues identified in the SA at this early stage of the process.
- There could be undiscovered archaeological features at any location within Greater Cambridge. For the purposes of this SA, we have focused on assessing the likely effects of development on known heritage assets, but further archaeological work may be necessary prior to any development in order to avoid loss of archaeological resources.

- The rate at which emissions from private vehicles will change over the course of the plan period as a result of technological improvements cannot be predicted or realistically factored into judgements about air quality.

Chapter 3
Assessment of Strategic Spatial Options

Introduction

3.1 This chapter presents the SA findings of the strategic spatial options set out in the document 'Greater Cambridge Local Plan: strategic spatial options for testing – methodology' (the methodology document). The assessments focus on the description of options set out in section 3 of the methodology document. There are eight options in total:

1. Densification of existing urban areas
2. Edge of Cambridge - outside the Green Belt
3. Edge of Cambridge – Green Belt
4. Dispersal - new settlements
5. Dispersal - villages
6. Public transport corridors
7. Supporting a high-tech corridor by integrating homes and jobs
8. Expanding a growth area around transport nodes

3.2 Note that Options 1 to 6 were assessed at a high level in the SA of Issues and Options[9] (2019). At the time of the Issues and Options assessment, options did not include as much detail regarding sources of supply and additional sources of supply had not been identified. As such, assessment was limited to the principles of distributing development according to each option.

3.3 For each option, there are three growth scenarios: minimum, medium, maximum.

A summary of each option is provided in the box below

[9] LUC (2019) Greater Cambridge Local Plan, Sustainability Appraisal of Issues and Options. Available at: https://www.greatercambridgeplanning.org/media/1164/sustainability-appraisal.pdf

Spatial option 1: Densification of existing urban areas

This option focuses new homes within Cambridge, the main sources of supply are the brownfield site at North East Cambridge and development within the urban area which would meet the minimum needs. To meet the medium growth figures density would increase in the urban area and additional sites including Cambridge Airport and a site/broad location in the Green Belt would be required. To meet the maximum growth figures development within the urban area and at North East Cambridge and Cambridge Airport would be developed at higher densities and delivery rates.

Spatial option 2: Edge of Cambridge - outside Green Belt

This option focuses new homes in extensions on the edge of Cambridge at Cambridge Airport. North East Cambridge and one village site are required to make up the balance to meet the minimum growth figure. To meet the medium growth figure there needs to be additional development of two smaller new settlements on public transport corridors and growth at a range of rural centres and minor rural centres outside the Green Belt. To meet the maximum growth figures, the Airport will come forward at higher delivery rates, together with North East Cambridge and two new settlements (one smaller, one large) on public transport corridors also at increased delivery rates.

Spatial option 3: Edge of Cambridge - Green Belt

This option focuses new homes in extensions on the edge of the city and will involve the release of Green Belt land. To meet the minimum need three sites/broad locations would be required. To meet the medium growth figures, five edge of Cambridge sites/broad locations would be required together with additional limited development within the Cambridge urban area. To meet the maximum growth figures, five edge of Cambridge sites/broad locations are required all to be delivered at high delivery rates.

Spatial option 4: Dispersal - new settlements

This option establishes new towns and villages providing homes, jobs and associated infrastructure. To meet the minimum need two smaller settlements on public transport corridors are required. To meet the medium growth figures two larger new settlements and one smaller new settlement are required on public transport corridors and a further smaller new settlement on the road network. To meet maximum growth figures the same as the medium scenario is required but delivered at higher delivery rates.

Spatial option 5: Dispersal - villages

This option spreads new homes to the villages. To meet the minimum, medium and maximum need, growth will be distributed as follows:

- 40% at Rural Centres
- 40% at Minor Rural Centres
- 17% at Group villages
- 3% at infill villages

Spatial option 6: Public transport corridors

This option focuses homes along public transport corridors around transport hubs. The supply to meet the minimum needs are North East Cambridge, a small new settlement on a public transport corridor, and the balance spread across 18 villages sited long existing or proposed public transport corridors. To meet the medium growth figures, North East Cambridge, and a large new settlement on a public transport corridor is required, with the balance again spread across the 18 villages. To meet the maximum growth figures the distribution is the same as medium except all delivered at higher delivery rates.

Spatial option 7: Supporting a high-tech corridor by integrating homes and jobs (southern cluster)

This option focuses new homes close to existing and committed jobs around the south of Cambridge. The sources of supply to meet the minimum needs are one smaller new settlement on a public transport corridor within the southern cluster and the balance equally distributed between the five villages in the core southern cluster and also on a public transport corridor. To meet medium growth figures the distribution is as above with further villages included that are within the Southern Cluster but not in public transport corridors. To meet the maximum growth figures one large new settlement on a public transport corridor in the south is required with less growth spread equally across the five southern villages. This option then adds the Airport and North East Cambridge to make up the numbers all of which are provided at higher delivery rates.

Spatial option 8: Expanding a growth area around transport nodes

This option focuses homes at Cambourne and along the A428 public transport corridor as a response to a new East West Rail station and Cambridge Autonomous Metro. To meet the minimum needs Cambourne will be expanded by equivalent of a small new settlement (4,500 total, when fully built out), and the balance spread across three villages on the A428. To meet medium growth figures a further four minor rural centres/group villages within 5km of Cambourne are required. In addition, North East Cambridge will also be developed. To meet the maximum growth figures there will be greater expansion of Cambourne by the equivalent of a larger new settlement (9,000 total, when fully built out) together with growth spread across three villages on A428, one Minor Rural Centre and three Group villages within 5km of Cambourne all at higher delivery rates. In addition, Cambridge Airport and North East Cambridge are required at higher delivery rates.

3.4 Elements of a number of these options could be taken forward when developing a preferred option. However, as this is uncertain, each has been appraised on its own merits, against each SA objective.

3.5 For each SA objective, the likely effects of each option under minimum, medium and maximum scenarios has been assessed with regards to both the level of development likely to come forward within the plan period ('Housing provision between 2020-2041') and when development sites are fully built out ('Housing provision when fully built out ('all time')').

3.6 The SA does not, at this stage, identify or evaluate the potential effects of relocating Cambridge Airport. It is possible that that the current airport activity could be transferred to another operational airport elsewhere, possibly outside the Greater Cambridge area. Similarly, the SA does not identify or evaluate the potential effects of relocating the wastewater treatment works at North East Cambridge. It is likely that this will be relocated within South Cambridgeshire, but the exact location is unknown. The provision of a new treatment works will be considered through the Development Consent Order process.

Appraisal Results

SA Objective 1: To ensure that everyone has the opportunity to live in a decent, well-designed, sustainably constructed and affordable home

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal - new settlements	5. Dispersal - villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/-?	++?	++?	+?	++?	++?	++?	++?
Medium Growth	++?	++?	++	+?	++?	++?	++?	++
Maximum Growth	++?	++?	++?	+?	++?	++?	++?	++?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal - new settlements	5. Dispersal - villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/-?	++?		++?		++?	++?	++?
Medium Growth	++	++		++		++	++	++
Maximum Growth	++	++		++		++	++	++

3.7 It is noted that the options have been compiled to ensure that sufficient housing would be provided under each of the minimum, medium and maximum growth scenarios.

1. Densification of existing urban areas

3.8 Option 1 would result in an increase in the density of development, particularly within Cambridge, where demand is high – especially from young professionals, and North East Cambridge. This could involve the development of taller buildings, as well as the development of underused land or possibly open space. However, this may result in a high proportion of flats and therefore may not provide as large a range of housing types. The Housing Delivery Study – Interim Findings and Spatial Options Commentary also notes that there is a risk to rely on delivery from North East Cambridge during the middle part of the plan period, given uncertainties surrounding the relocation of the wastewater treatment works. This is particularly true for the minimum scenario. As the medium and maximum scenarios would provide housing from Cambridge Airport, and for the medium scenario one edge of Cambridge Green Belt site, they could include larger developments with a greater range of housing types. However, those additional sources of supply, such as edge of Cambridge sites and committed new settlements, could result in a lower level of affordable housing provision due to greater costs to deliver additional infrastructure. The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests the maximum growth scenario may not be deliverable within the plan period, resulting in uncertainty for this scenario.

3.9 Overall, mixed significant positive and minor negative effects are expected for the minimum growth scenario, whereas significant positive uncertain effects are expected for the medium and maximum growth scenarios.

3.10 When fully built out, scores are expected to remain the same, although any uncertainty is removed because the full housing requirement will be delivered. Uncertainty is recorded for the minimum growth scenario as it does not reflect the outcome of economic forecasting in the Employment Land Review. .

2. Edge of Cambridge – outside the Green Belt

3.11 The focus of this option is Cambridge Airport, which could provide a substantial number of homes (although additional sources of supply are needed to meet housing needs) but is unlikely to be delivered until after 2030. Nevertheless, the additional sources of supply, such as North East Cambridge, a village site for the minimum growth scenario and rural centres and minor rural centres for the medium growth scenario, could come forward earlier in the plan period. As such, significant positive effects are expected under the minimum growth scenario.

3.12 For the medium and maximum growth scenarios, additional sources of supply include new settlements (along with growth in North East Cambridge and in the rural centres and minor rural centres for medium growth). This could result in a lower level of affordable housing provision due to greater costs to deliver additional infrastructure and would likely have a substantial lead in time. The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests the maximum growth scenario may not be deliverable within the plan period, resulting in uncertainty for this scenario.

3.13 The Housing Delivery Study – Interim Findings and Spatial Options Commentary also notes that there is a risk to rely on delivery from North East Cambridge during the middle part of the plan period, given uncertainties surrounding the relocation of the wastewater treatment

works. As such, significant positive uncertain effects are recorded against these two scenarios. Uncertainty is recorded for the minimum growth scenario as it does not reflect the outcome of economic forecasting in the Employment Land Review. .

3.14 When fully built out, scores are expected to remain the same, although uncertainty is removed for the medium and maximum growth scenarios, because the full housing requirement will be delivered.

3. Edge of Cambridge – Green Belt

3.15 Option 3 would provide sufficient housing and may lead to a more diverse range of housing types than Option 1, due to the larger area available for development at edge of Cambridge sites in the Green Belt. However, this option could result in a lower level of affordable housing provision due to the costs required to deliver upfront infrastructure (although this would not apply to growth in the Cambridge urban area, which is included in the medium growth scenario). As such, significant positive effects are expected for all scenarios. Uncertainty is recorded for the minimum growth scenario as, if the Councils' plans for minimum growth but the economy grows faster than accounted for, there may be a shortfall in housing provision. Uncertainty is also recorded for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period.

3.16 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.17 Option 4 could result in a lower level of affordable housing provision due to the costs required to deliver upfront infrastructure. In addition, the development of new settlements is likely to have a long lead-in time, meaning the full housing requirement may not be delivered until later in the plan period. Relying solely on new settlements to provide housing could risk shortfalls in housing coming forward over the plan period. The minimum growth scenario has additional uncertainty as it does not reflect the outcome of economic forecasting in the Employment Land Review. . Additional uncertainty is also identified for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period.

3.18 As such, minor positive uncertain effects are expected for all options for 2020-2041.

3.19 When fully built out, all options are expected to have significant positive effects as it is expects housing needs would be met at this point.

5. Dispersal - villages

3.20 Option 5 may be less likely to deliver affordable housing or a range of housing types because of the smaller scale of the schemes involved affecting viability, although this depends on the size of any developments coming forward under this option, as mid-sized schemes are often more able to provide affordable housing. Development may come forward more quickly than other options, due to the shorter lead in times associated with smaller scale development.

Additional uncertainty is identified for the minimum growth scenario as it does not reflect the outcome of economic forecasting in the Employment Land Review. Additional uncertainty is also identified for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period. As such, significant positive uncertain effects are expected for all growth scenarios.

3.21 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.22 All growth scenarios include growth at North East Cambridge, a new settlement on a public transport corridor and growth at additional villages. New settlements may provide less affordable housing, due to upfront infrastructure costs, and will have a longer lead in time, leading to some uncertainty earlier in the plan period. However, as the options also include growth at North East Cambridge and villages, this is likely to be somewhat balanced out by the other sources of supply. The Housing Delivery Study – Interim Findings and Spatial Options Commentary also notes that there is a risk to rely on delivery from North East Cambridge during the middle part of the plan period, given uncertainties surrounding the relocation of the wastewater treatment works. Additional uncertainty is identified for the minimum growth scenario as it does not reflect the outcome of economic forecasting in the Employment Land Review. Additional uncertainty is also identified for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period.

3.23 As such, significant positive effects with uncertainty are expected for all options.

3.24 When fully built out, scores are expected to remain the same, although uncertainty is removed for the medium and maximum options because the full housing requirement will be delivered.

7. Supporting a high-tech corridor by integrating homes and jobs

3.25 All growth scenarios include a new settlement along with development at a number of villages. New settlements may provide less affordable housing, due to upfront infrastructure costs, and will have a longer lead in time, leading to some uncertainty earlier in the plan period. However, providing the balance of development at southern villages (and partly at North East Cambridge and Cambridge Airport, for the high growth scenario) may somewhat balance this. The Housing Delivery Study – Interim Findings and Spatial Options Commentary notes that there is a risk to rely on delivery from North East Cambridge during the middle part of the plan period, given uncertainties surrounding the relocation of the wastewater treatment works. The minimum growth scenario has additional uncertainty as it does not reflect the outcome of economic forecasting in the Employment Land Review. Additional uncertainty is also identified for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period.

3.26 All scenarios are expected to have significant positive effects, with uncertainty.

3.27 When fully built out, scores are expected to remain the same, although any uncertainty is removed for the medium and maximum scenarios because the full housing requirement will be delivered.

8. Expanding a growth area around transport nodes

3.28 This option is expected to result in large-scale growth at Cambourne, along with some smaller development. For the minimum growth scenario, development is expected to be focused primarily at a large-scale development, which may provide less affordable housing, due to upfront infrastructure costs, and will have a longer lead in time, leading to some uncertainty earlier in the plan period. All scenarios also include some growth at more rural settlements, which may help ensure some growth comes forward earlier in the plan period. The medium and maximum growth scenarios also include large-scale growth at Cambourne, but also include North East Cambridge, which adds another source of growth and may therefore be more likely to provide sufficient housing earlier in the plan period. The Housing Delivery Study – Interim Findings and Spatial Options Commentary also notes that there is a risk to rely on delivery from North East Cambridge during the middle part of the plan period, given uncertainties surrounding the relocation of the wastewater treatment works. However, the maximum scenario also includes Cambridge Airport, which is not likely to come forward until after 2030.

3.29 The minimum growth scenario has additional uncertainty as it does not reflect the outcome of economic forecasting in the Employment Land Review. Additional uncertainty is also identified for the maximum growth scenario as The Housing Delivery Study – Interim Findings and Spatial Options Commentary suggests this scenario may not be deliverable within the plan period. Overall, significant positive effects are expected for all growth scenarios, with uncertainty related to the minimum and maximum growth scenarios.

3.30 When fully built out, scores are expected to remain the same, although uncertainty is removed for the maximum growth scenario, because the full housing requirement will be delivered.

Best performing option

3.31 As all growth scenarios are expected to deliver the full housing need within the plan period, it is not possible to distinguish a best performing option. Options that include a more diverse range of housing supply are associated with more certainty, as it is less likely that housing delivery will be skewed towards the end of the plan period. The minimum growth scenario for Option 1 'Densification of existing urban areas' and all growth scenarios for Option 4 'Dispersal – new settlements' perform least well, as they may not result in the necessary range of housing types or sufficient housing coming forward until later in the plan period. This is particularly the case for Option 4, given its reliance solely on new settlements to deliver housing supply.

3.32 The Housing Delivery Study – Interim Findings and Spatial Options Commentary raises particular uncertainty around the maximum growth scenario, as it suggests this scenario may not be deliverable within the plan period. The minimum growth scenario has additional uncertainty as, it does not reflect the outcome of economic forecasting in the Employment Land Review.

SA objective 2: To maintain and improve access to centres of services and facilities including health centres and education

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+	+	+?	+/-?	--/+	+/-	+/-?	+?
Medium Growth	+/-	+/-?	+/-?	+/-?	--/+	+/-	+/-?	+/-?
Maximum Growth	++/-	+/-?	++/-?	++/-?	--/+?	++/-	++/-?	++/-?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++	++		++		++/-	++/-?	++?
Medium Growth	++/-	++/-?		++		++/-	++/-?	++/-?
Maximum Growth	++/-	++/-?		++		++/-	++/-	++/-?

1: Densification of existing urban areas

3.33 Option 1 would result in an increase in the density of development, particularly within Cambridge. There are already a number of services and facilities in Cambridge; therefore new development is more likely to be in close proximity to these. However, an increase in the density of the city could place increased strain and pressure on these services and facilities, as they may not have capacity to accommodate the additional growth, reducing people's overall accessibility to them. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity.

3.34 The minimum growth scenario includes North East Cambridge, which will provide new services and facilities, as well as low growth in the urban area. As such, this scenario will put less pressure on existing services and facilities. The medium and maximum growth scenarios also include North East Cambridge but may put more pressure on local services and facilities, due to the increased density of development in the Cambridge urban area. In addition, growth on the edge of Cambridge (including Cambridge Airport for both the medium and maximum scenarios and an edge of Cambridge Green Belt site for the medium scenario) would be well-located for (although potentially put pressure on) accessing services and facilities within the city. Whilst both are also likely to include larger developments that may provide new services and facilities, these would be located outside of Cambridge and therefore would not be able to fully mitigate the effects of higher densities in the urban area.

3.35 The Infrastructure Study suggests that large sites such as North East Cambridge and Cambridge Airport will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.36 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities at North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport.

3.37 For 2020-2041, the minimum growth scenario is expected to result in minor positive effects and the medium growth scenario is expected to result in mixed minor positive and minor negative effects. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities.

3.38 The maximum growth scenario is expected to have mixed significant positive and minor negative effects for both the plan period and when fully built out.

2: Edge of Cambridge – outside the Green Belt

3.39 Option 2 focuses on development of Cambridge Airport, which is expected to be of sufficient scale to provide a mixed development incorporating a good range of services and

facilities. It also has good accessibility to the city and nearby suburbs (e.g. Cherry Hinton), where additional services and facilities are located, although the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity. All growth scenarios also include North East Cambridge, which is also expected to provide new services and facilities.

3.40 The medium and maximum growth scenarios include development of new settlements, which are expected to provide new services and facilities, particularly larger settlements. However, all new settlements are expected to be of a size where they are largely self-sufficient for meeting people's day to day needs. Phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, which could lead to challenges in terms of deliverability. The minimum growth scenario includes a village site and the medium growth scenario includes development at rural centres and minor rural centres, which may help ensure the continued vitality and viability of these centres, although there is a risk that a larger amount of development at any one rural settlement could lead to increased pressure on services and facilities.

3.41 The Infrastructure Study suggests that large sites such as new settlements, North East Cambridge and Cambridge Airport will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.42 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities at new settlements North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport or the new settlements.

3.43 For 2020-2041, the minimum growth scenario is expected to result in minor positive effects and the medium and maximum growth scenarios are expected to result in mixed minor positive and minor negative uncertain effects. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities.

3. Edge of Cambridge – Green Belt

3.44 Option 3 would see the creation of new homes and jobs in extensions on the edge of Cambridge, which is likely to result in provision of new services and facilities, although the range of services and facilities provided at particular development locations will likely depend on the size of the extension. Smaller extensions, which are more likely to come forward under the minimum and medium growth options, due to the lower level of overall growth, may provide a more limited range of services and would place greater reliance on existing services and facilities in the city, but, as with Option 1, could lead to existing facilities becoming over-capacity, or may not be well located to existing services and facilities. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity. This is likely to be a lower risk in the minimum growth scenario (depending on the services and facilities provided at urban extensions), due to the lower level of growth on the edge of Cambridge. The medium scenario includes a small level of growth in the Cambridge urban area,

which would be well located for accessing services and facilities and, due to the low level of growth may not put much additional pressure on these. However, both medium and maximum growth scenarios are more likely to put pressure on existing facilities due to utilising all estimated capacity on the edge of Cambridge. In addition, phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, which could lead to challenges in terms of deliverability.

3.45 For 2020-2041, the minimum growth scenario is expected to have minor positive uncertain effects, the medium growth scenario is expected to have mixed minor positive and minor negative uncertain effects and the maximum growth scenario is expected to have a mixed significant positive and minor negative effect with uncertainty.

3.46 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.47 The creation of new settlements as set out in Option 4 provides an opportunity for significant new infrastructure to be delivered, such as schools, health facilities, local centres and green spaces, but it would be starting from scratch. Phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, which could lead to challenges in terms of deliverability.

3.48 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, at least some of the new settlements are likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.49 The Infrastructure Study suggests that large sites such as new settlements will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.50 For 2020-2041, the minimum and medium growth scenarios are expected to result in mixed minor positive and minor negative uncertain effects and the maximum growth scenario is expected to result in mixed significant positive and minor negative uncertain effects. Significant positive effects are expected for all scenarios when fully built out, as they are expected to provide services and facilities to meet day-to-day needs of residents.

5. Dispersal – villages

3.51 Option 5 would result in an increase in development at villages across Greater Cambridge. This increase would support existing services and facilities at these villages, but could also place increased pressure on them, as they may not have capacity to accommodate the additional growth, reducing people's overall accessibility to them in the long-run. Indeed, villages are likely to have a more limited range of facilities than the city centre or new settlements.

3.52 Therefore, Option 5 is expected to have a mixed minor positive and significant negative effect against this objective for all growth scenarios. There is uncertainty associated with the maximum scenario, as development, particularly in the rural centres, may reach a critical mass at which it will result in provision of some new services and facilities.

3.53 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.54 Option 6 would result in development along key public transport corridors. This development could have good access to services and facilities elsewhere, due to their proximity to public transport hubs.

3.55 All growth scenarios include development at North East Cambridge, which will provide new services and facilities, as well as being in close proximity to existing facilities within Cambridge city. In addition, provision of a small amount of additional housing at 18 villages may help ensure the viability of existing services and facilities in those villages. However, development at villages could also place increased pressure on them, as they may not have capacity to accommodate the additional growth, reducing people's overall accessibility to them in the long-run. The creation of new settlements would also likely require supporting transport infrastructure that connected it to Cambridge, which would require large-scale investment and time to implement. Phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, which could lead to challenges in terms of deliverability.

3.56 The Infrastructure Study suggests that large sites such as new settlements and North East Cambridge will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.57 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered at new settlements and at North East Cambridge between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario however, growth at these locations is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.58 For 2020-2041, the minimum and medium growth scenarios are expected to result in mixed minor positive and minor negative effects and the maximum growth scenario is expected to result in mixed significant positive and minor negative effects. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities..

7. Supporting a high-tech corridor by integrating homes and jobs

3.59 This option will help to ensure housing is well-located with regard to existing centres of employment. In addition, all scenarios include some growth at the Southern Cluster villages, which have some services and facilities, including schools and doctors surgeries, particularly in

Great Shelford, Sawston and Linton, although it is uncertain what capacity these have to accommodate growth.

3.60 All growth options include a new settlement (the minimum and medium growth scenarios in particular would deliver a high proportion of growth through a new settlement). New settlements provide an opportunity for significant new infrastructure to be delivered. Phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, which could lead to challenges in terms of deliverability or services and facilities not coming forward until later in the plan period. It is noted that these new settlements and growth at villages is to be focused along public transport corridors, which is likely to help residents access a greater range of services and facilities within Cambridge. The medium and maximum growth scenarios also include North East Cambridge and the maximum growth scenario includes Cambridge Airport, which are also expected to provide new facilities.

3.61 The Infrastructure Study suggests that large sites such as new settlements, North East Cambridge and Cambridge Airport will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.62 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario however, growth at new settlements is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option. In addition, growth at North East Cambridge in the maximum scenario is likely to be of a scale to provide services and facilities to meet day to day needs, although there is a less certainty on this with regards to Cambridge Airport.

3.63 For 2020-2041, the minimum and medium growth scenarios are expected to result in mixed minor positive and minor negative effects and the maximum growth scenario is expected to result in mixed significant positive and minor negative uncertain effects. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities.

8. Expanding a growth area around transport nodes

3.64 This option focuses on expanding Cambourne in anticipation of a new railway station and the Cambridgeshire Autonomous Metro. However, it is uncertain whether these will come forward within the plan period, particularly the railway link. Cambourne already includes a number of services and facilities to meet day to day needs, and further large-scale development is likely to support provision of additional services and facilities. Delivery of a new rail station and Cambridge Autonomous Metro at Cambourne would provide good access to Cambridge and also likely other large settlements outside Greater Cambridge, therefore giving access to a wider range of services and facilities. However, there is some uncertainty regarding when these will come forward, which could leave residents with less access to services and facilities further afield, at least early in the plan period.

3.65 The medium and maximum growth scenarios both North East Cambridge and the maximum scenario includes growth at Cambridge Airport, which will themselves provide new

services and facilities and are in relatively close proximity of existing facilities within Cambridge. However, all options also include some development distributed between villages along the A428 and, for the medium and maximum scenarios, minor rural centres/group villages, which are likely to have a lower level of access to services and facilities.

3.66 The Infrastructure Study suggests that large sites such including large-scale growth at Cambourne, North East Cambridge and Cambridge Airport will be better able to provide new social infrastructure on-site, resulting in more certainty about their delivery.

3.67 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered to meet the needs of the large expansion of Cambourne (and, for the medium scenario, at North East Cambridge) between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, large-scale growth at Cambourne and North East Cambridge is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option, although this is less certain for Cambridge Airport.

3.68 For 2020-2041, the minimum growth scenario is expected to have minor positive uncertain effects. The medium growth scenario is expected to result in mixed minor positive and minor negative uncertain effects and the maximum growth scenario is expected to result in mixed significant positive and minor negative uncertain effects. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities.

Best performing option

3.69 Those options that are expected to result in larger developments, such as new settlements (included in Options 2 ‘Edge of Cambridge – Green Belt’, 4 ‘Dispersal – new settlements’, 6 ‘Public transport corridors’ and 7 ‘Supporting a high-tech corridor by integrating homes and jobs‘) perform well, particularly when fully built out, as they are expected to provide new services and facilities to meet development needs. Option 8 ‘Expanding a growth area around transport nodes’ also performs well when fully built out, as it includes extensions to Cambourne of an equivalent size to a new settlement, which will likely provide new services and facilities as well as having access to existing infrastructure in Cambourne. Options including development in and around Cambridge, including Options 1 ‘Densification of existing urban areas’, 2 ‘Edge of Cambridge – Green Belt’ and 3 ‘Edge of Cambridge – Green Belt’) are expected to have good accessibility to existing services and facilities within Cambridge, although they could also put pressure on these beyond their capacity. The minimum growth scenario and maximum growth scenario generally perform better than the medium scenario, as the minimum scenario will put less pressure on existing facilities whereas the maximum scenario is more likely to result in the critical mass of development required to provide new services and facilities.

3.70 Option 5 'Dispersal – villages' performs least well as this option is most likely to put pressure on existing services and facilities and result in development that is less likely to provide new services and facilities, whilst being more distant from larger centres.

SA Objective 3: To encourage social inclusion, strengthen community cohesion, and advance equality between those who share a protected characteristic (Equality Act 2010) and those who do not.

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/-	+/-	+/-	+/-	+/-?	+?	+	+?
Medium Growth	+/-	+/-	+/-	+/-	+/-?	+?	+	+?
Maximum Growth	+/-	++/-	++/-	++/-?	+/-?	++?	++?	+?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/-	++		++/-		++?	++	++?
Medium Growth	++/-	++		++/-		++?	++	++?
Maximum Growth	++/-	++/-		++/-		++?	++	++?

1. Densification of existing urban areas

3.71 Option 1 would result in an increase in the density of development in Cambridge, and therefore an increase in population. Residents would have good access to services and facilities, which would improve equalities by benefitting those with protected characteristics (Equality Act 2010), particularly those who are less mobile, such as the elderly or disabled, and could strengthen inclusivity and community cohesion. However, the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity Development in the urban area is also likely to mean housing is closer to facilities such as nurseries, schools and places of worship. However, concentrating development in urban areas could benefit younger people, who tend to live in the urban area, rather than older people, who tend to live in more rural parts of the plan area, as there would be limited investment in services and facilities in more rural areas. The EqIA states that growth in and around urban areas may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes.

3.72 All growth scenarios include North East Cambridge, which includes one of the most deprived areas in Greater Cambridge, Development at this location would invest in this area and may help improve access to employment, facilities and services for those living there. Large scale development at North East Cambridge also provides an opportunity to design buildings and streetscapes suitable for all.

3.73 The minimum growth scenario includes development at a lower density within Cambridge and the development of North East Cambridge, which is expected to provide some new services and facilities. As such, the minimum growth scenario is expected to maximise access to services and facilities, resulting in mixed significant positive and minor negative effects both within the plan period and beyond.

3.74 The medium and maximum growth scenarios may put more pressure on local services and facilities, due to the increased density of development in the Cambridge urban area, therefore limiting their accessibility to local people. Both the medium and maximum scenarios also include larger developments (namely Cambridge Airport and, for the medium scenario, an edge of Cambridge Green Belt site) that may provide new services and facilities, which could help to ensure easy access to services and facilities for the less mobile, without having to travel into the city centre. In addition, facilities provided may include community meeting space and/or places of worship, which could help ensure the needs of specific groups are met, through providing space for faith groups, pre-/ante-natal groups etc. and helping to foster a sense of community.

3.75 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities at North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period, therefore the needs of some groups may not be met within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport.

3.76 As such, mixed minor positive and minor negative effects are expected for the medium and maximum growth scenarios within the plan period, whilst mixed significant positive and minor negative effects are expected when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.77 Development at Cambridge Airport, the focus source of supply for this option, is likely to be of sufficient scale to create a new cohesive community with its own identity, as well as deliver a range of homes, jobs, services and facilities to meet different needs. It is also well located to the existing urban area, and therefore creates opportunities to be integrated with, and also serve, existing communities, although there could be disruption whilst it is developed. All options will contribute positively to equalities by taking this land out of use as an airport, which is likely to be used by a limited number of people, and release it to provide housing and benefit a wider number and range of people. The EqIA states that growth in and around urban areas may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes.

3.78 All growth scenarios also include North East Cambridge, which is also expected to provide new services and facilities, and therefore contribute positively to addressing equalities. North East Cambridge includes one of the most deprived areas in Greater Cambridge, Development at this location would invest in this area and may help improve access to employment, facilities and services for those living there.

3.79 The medium and maximum growth scenarios include development of new settlements, which are expected to provide new services and facilities, particularly larger settlements. Phasing of the delivery of services and facilities would require significant up-front investment if they are to meet the needs of residents in the early years of development, or there may be a delay to provision of these services. As such, this may limit the ability of some, particularly those less mobile, to access services and facilities as they would have to travel to other centres, such as Cambridge city and therefore these groups may be disadvantaged in the earlier years of the plan.

3.80 Large scale development at new settlements, North East Cambridge and Cambridge Airport also provides an opportunity to design buildings and streetscapes suitable for all.

3.81 The minimum growth scenario includes development of a village site and the medium growth scenario includes development at rural centres and minor rural centres, which may help ensure the continued vitality and viability of these centres, therefore helping to continue service provision for the older generation more likely to be living at these locations.

3.82 Whilst the minimum and medium growth scenarios are more likely to help support more rural communities, they are unlikely to provide the full range of services and facilities at new, settlements North East Cambridge and Cambridge Airport between 2020 and 2041, which may disadvantage the less mobile in terms of their access to services, facilities and jobs. As such, mixed minor positive and minor negative effects are expected for these scenarios within the plan period. The minor positive effects are expected to become significant when fully built out, as a wider range of services and facilities will be accessible to the whole community in the longer term. This also reflects that a sense of community is more likely to develop in the longer term.

3.83 Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport or the new settlements.

3.84 As such, the minimum and medium growth scenarios are expected to have mixed minor positive and minor negative uncertain effects from 2020-2041, whilst the maximum growth scenario is expected to have mixed significant positive and minor negative effects. When fully built out, all growth scenarios are expected to have significant positive effects, but for the maximum scenario this is still mixed with minor negative effects, due to giving less support to those in more rural areas.

3. Edge of Cambridge – Green Belt

3.85 This option could see the creation of new infrastructure, such as schools, local centres and green spaces, which could act as a focal point of community life. The range of services and facilities provided at particular development locations will likely depend on the size of the extension and may be more limited in the minimum and medium scenarios, although development at the edge of Cambridge is also likely to have good access to existing services and facilities in the city, and public transport links into the city centre, therefore benefitting the less mobile, such as the elderly and disabled. However, the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity.

3.86 The EqIA states that growth in and around urban areas may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes. Large scale development at urban extensions also provides an opportunity to design buildings and streetscapes suitable for all.

3.87 Whilst an urban extension can achieve its own sense of place, integration with the existing urban areas and communities will be important if negative effects on existing communities are to be avoided. None of the examples include development to support existing rural communities, which generally have an older population, and therefore could disadvantage older people (and possibly also the less mobile) due to a lack of investment in rural services and facilities. The medium growth scenario also includes development in the Cambridge urban area, which may help promote equalities, as services, facilities and public transport are more likely to be readily accessible in the urban area, which could be beneficial for less mobile groups, such as older and disabled people. The minimum and medium growth scenarios are expected to have mixed minor positive and minor negative effects, whereas the maximum scenario is expected to have mixed significant positive and minor negative effects.

3.88 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.89 This option would see the creation of new infrastructure, such as schools, local centres and green spaces, which could act as a focal point of community life at new settlements. It can take many years for the delivery of new settlements and to achieve a scale and critical mass that generate a strong sense of community. They involve building new communities from scratch which can prove challenging and cohesiveness can depend upon both the quality and design of

development, and its delivery to schedule. In addition, it may be more difficult, or take time, to establish a good level of local services and facilities, which could make it challenging for less mobile people, such as the elderly and disabled, to access services and facilities as they would have to travel to larger centres, particularly in the early years of the plan. It is noted that these new settlements and growth at villages is to be focused along public transport corridors, which is likely to help residents access a greater range of services and facilities within Cambridge. The EqIA states that growth at new settlements and along transport corridors may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes, at least in the long term. However, reliance on public transport may not be an affordable choice for those on low incomes or those not of working age. Large scale development at new settlements also provides an opportunity to design buildings and streetscapes suitable for all.

3.90 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, at least some of the new settlements are likely be of a scale to ensure more extensive provision of sufficient new services and facilities, and possible a greater sense of community, due to the higher build out rates under this option.

3.91 In addition, this option does not include growth at rural centres. The lack of investment in existing rural centres could make it difficult for older people, who generally live in the more rural parts of Greater Cambridge, to access services and facilities.

3.92 As such, the minimum and medium growth scenarios are likely to have mixed minor positive and minor negative effects for between 2020 and 2041, but mixed significant positive and minor negative effects when fully built out. The maximum growth scenario is expected to have mixed significant positive effects for both the 2020-2041 period and when fully built out, although the positive effects will be more certain when fully built out. The minor negative effects relate to a lack of growth at existing settlements.

5. Dispersal – villages

3.93 Option 5 would result in an increase in development at villages across Greater Cambridge, which could help support the vitality and viability of these villages and help to support community cohesion. However, more dispersed development could place increasing pressure on existing services and facilities within these villages if sufficient investment to maintain and improve them is not forthcoming. In addition, the EqIA recognises that it may be difficult for residents to access employment, services and facilities elsewhere, particularly if good public transport links do not exist, which could disadvantage the less mobile or those who cannot drive, such as young people, or those who cannot afford a car. Car-dependent development could also disadvantage pregnant women and others who need to regularly access healthcare services. As such, mixed minor positive and minor negative uncertain effects are expected for all growth scenarios.

3.94 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.95 An increase in development along key public transport corridors with good access to Cambridge may benefit those who are less mobile, with a positive effect on inclusivity. This option is also likely to lead to growth at rural communities, and may therefore help ensure the vitality and viability of local services and facilities at those locations, which will benefit the less mobile and older population who are likely to live there. However, it may be more challenging for development along public transport corridors to achieve a coherent sense of community and place, depending upon where particular developments come forward under this option and their relationship to existing communities.

3.96 Development at North East Cambridge (all growth scenarios) is expected to provide new services and facilities, as well as having good access to facilities within Cambridge itself, although integration with the existing urban areas and communities will be important if negative effects on existing communities are to be avoided. North East Cambridge includes one of the most deprived areas in Greater Cambridge, Development at this location would invest in this area and may help improve access to employment, facilities and services for those living there.

3.97 Whilst new settlements (all growth scenarios) would provide new services and facilities and can form new communities, this will require large-scale investment. It is noted that these new settlements and growth at villages (all growth scenarios) are to be focused along public transport corridors, which is likely to help residents access a greater range of services and facilities within Cambridge.

3.98 The EqIA states that growth at new settlements and along transport corridors may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes, at least in the long term. However, reliance on public transport may not be an affordable choice for those on low incomes or those not of working age and may not be an option for some people with disabilities. Furthermore, large scale development at new settlements and North East Cambridge also provides an opportunity to design buildings and streetscapes suitable for all.

3.99 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered at new settlements and at North East Cambridge between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario however, growth at these locations is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.100 For 2020-2041, the minimum and medium growth scenarios are expected to result in minor positive effects with uncertainty, whereas the maximum scenario is expected to have significant positive effects with uncertainty. When fully built out, all scenarios are expected to have significant positive effects with uncertainty, as at this point a wider range of services and facilities are likely to be accessible at North East Cambridge and new settlements, and propose transport schemes are more likely to have come forward (although some uncertainty remains regarding this).

7. Supporting a high-tech corridor by integrating homes and jobs

3.101 This option will help to ensure housing is well-located with regard to existing centres of employment. In addition, the Southern Cluster villages (all growth scenarios) have some services and facilities, including schools and doctors surgeries, particularly in Great Shelford, Sawston and Linton. Development at these villages may help to boost the vitality and viability of village services and facilities, which is particularly likely to benefit older people and the less mobile, although growth may also put pressure on the capacity of existing services. This option would concentrate development to the south of Cambridge. It is not known if the demographics of this area differ substantially from other areas, but this should be considered further if this option is pursued.

3.102 All growth options include a new settlement. It is noted that these new settlements and growth at villages are to be focused along public transport corridors, which is likely to help residents access a greater range of services and facilities within Cambridge. New settlements may not be able to provide a full range of services and facilities, particularly in the earlier years of the plan period, which could disadvantage the less mobile, such as the elderly or disabled. The EqIA states that growth at new settlements may be more inclusive to all age groups and abilities, given the greater accessibility to services and facilities by non-car modes, at least in the long term. However, reliance on public transport may not be an affordable choice for those on low incomes or those not of working age.

3.103 The maximum growth scenario also includes Cambridge Airport and North East Cambridge, which are also expected to provide new facilities and would be well located to access existing services and facilities and/or public transport within Cambridge. North East Cambridge includes one of the most deprived areas in Greater Cambridge, Development at this location would invest in this area and may help improve access to employment, facilities and services for those living there. Development at Cambridge Airport will contribute positively to equalities by taking this land out of use as an airport, which is likely to be used by a limited number of people, and release it to provide housing and benefit a wider number and range of people.

3.104 Large scale development at new settlements, North East Cambridge and Cambridge Airport also provides an opportunity to design buildings and streetscapes suitable for all.

3.105 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario however, growth at new settlements is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option. In addition, growth at North East Cambridge in the maximum scenario is likely to be of a scale to provide services and facilities to meet day to day needs, although there is a less certainty on this with regards to Cambridge Airport.

3.106 For 2020-2041, the minimum and medium growth scenarios are expected to result in minor positive effects, whereas the maximum growth scenario is expected to have significant positive uncertain effects. When fully built out, all scenarios are expected to have significant

positive effects, as at this point a wider range of services and facilities are likely to be accessible at North East Cambridge and new settlements.

8. Expanding a growth area around transport nodes

3.107 This option focuses on expanding Cambourne in anticipation of a new railway station and the Cambridgeshire Autonomous Metro. However, it is uncertain whether these will come forward within the plan period, particularly the railway link. Cambourne already includes a number of services and facilities to meet day to day needs, and further large-scale development is likely to support provision of additional services and facilities, which may help benefit the less mobile, such as elderly and disabled people.

3.108 Delivery of a new rail station and Cambridge Autonomous Metro at Cambourne would provide good access to Cambridge and also likely other large settlements outside Greater Cambridge, therefore giving access to a wider range of services and facilities. However, there is some uncertainty regarding when these will come forward, which could leave residents with less access to services and facilities further afield, particularly those unable or unwilling to drive, at least early in the plan period. In addition, reliance on public transport may not be an affordable choice for those on low incomes or those not of working age.

3.109 All options also include some growth situated across more rural settlements, which may help to ensure the vitality and viability of services at those settlements, thus benefitting the, likely older, people who live in rural areas who rely more heavily on local services.

3.110 The medium and maximum growth scenarios both include growth at North East Cambridge and the maximum growth scenario includes growth at Cambridge Airport, which will themselves provide new services and facilities and are in relatively close proximity of existing facilities within Cambridge. North East Cambridge includes one of the most deprived areas in Greater Cambridge, Development at this location would invest in this area and may help improve access to employment, facilities and services for those living there. Development at Cambridge Airport will contribute positively to equalities by taking this land out of use as an airport, which is likely to be used by a limited number of people, and release it to provide housing and benefit a wider number and range of people.

3.111 Large scale development around Cambourne and at North East Cambridge and Cambridge Airport also provides an opportunity to design buildings and streetscapes suitable for all.

3.112 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered to meet the needs of the large expansion of Cambourne (and, for the medium scenario, at North East Cambridge) between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, large-scale growth at Cambourne and North East Cambridge is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option, although this is less certain for Cambridge Airport..

3.113 For 2020-2041, all scenarios are expected to have minor positive uncertain effects. The minor positive effects are expected to become significant positive effects when fully built out,

due to additional provision of services and facilities and greater likelihood that strategic new transport links will have been delivered, although there is still some uncertainty in that regard.

Best performing option

3.114 Overall, Options 6 ‘Public transport corridors’, 7 'Supporting a high-tech corridor by integrating homes and jobs' and 8 ‘Expanding a growth area around transport nodes’ arguably perform best, as development at new settlements, Cambourne extensions and North East Cambridge will provide new services to meet the day to day needs of residents, whilst also being within easy access to Cambridge (and Cambourne) and supporting villages and rural centres, therefore likely benefitting less mobile residents, such as the elderly and disabled. Options 1 ‘Densification of existing urban areas’, 2 ‘Edge of Cambridge – outside Green Belt’ and 4 ‘Dispersal – new settlements’ also perform well when fully built out.

3.115 All options include a mix of development in and around Cambridge, which provides good access to services, facilities and employment opportunities, and many also include some growth in more rural locations, which is likely to help support services and facilities in those locations, and may even help provide new facilities or build a business case for improved public transport.

SA Objective 4: To improve public health, safety and wellbeing and reduce health inequalities

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-	+/-?	+/-	+?	-	+/-	+/-	+/-
Medium Growth	--/+?	+/-?	+/-	+?	+/-?	+/-	+/-	+/-
Maximum Growth	--/+?	+/-?	++/-?	+?	--/+?	+/-?	+/-?	+/-?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/-	++/-?		++?		++/-	++/-	++/-
Medium Growth	++/--	++/-?		++?		++/-	++/-	++/-
Maximum Growth	++/--?	++/-?		++?		++/-?	++/-?	++/-?

1. Densification of existing urban areas

3.116 Option 1 would result in an increase in the density of development in Cambridge, and therefore an increase in population, particularly in North East Cambridge, where there is the last major brownfield site that is going to be brought forward via the AAP.

3.117 A large number of people would be living within close proximity to their workplace, as well as a range of local amenities. This would encourage active travel such as walking and cycling. Under the minimum growth scenario, the demand for walking and cycling could be met. However, under the medium or maximum growth scenarios there may not be sufficient end of journey facilities for cyclists (e.g. bike storage). Furthermore, large parts of Cambridge City Centre are an AQMA and therefore poor air quality could have an adverse effect on people's health.

3.118 Greater density of development within the city, under the medium and maximum growth scenarios, may result in a loss of open space which may have a negative effect on residents' physical and mental health. The Green Infrastructure Study recognised that development in the urban area could result in piecemeal development of GI and difficulties in delivering GI due to space constraints. Alternatively, this option may present an opportunity to deliver GI where there are existing deficiencies, resulting in positive effects of physical and mental health.

3.119 It is also likely that a greater number of people would be located within close proximity of primary health care facilities. These facilities may be able to meet the demand of a minimum growth scenario. However, with a medium or maximum growth scenario it is possible that these services could be over-capacity and would therefore require further investment. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity.

3.120 Development coming forward at Cambridge Airport in the medium and maximum growth scenarios and, for the medium scenario, an edge of Cambridge Green Belt site, are likely to be of such as scale as to provide new services and facilities to serve new development, although these are unlikely to relieve the additional pressure on services within the city itself. Healthcare facilities are also only likely to be provided if developments reach a certain size. This large-scale development on the edge of the city could be built to accommodate more walking and cycling.

3.121 The medium and maximum growth scenarios include larger scale development at Cambridge Airport, which is likely to include open space, recreational and sporting facilities. These spaces and facilities are important for people's physical and mental wellbeing.

3.122 However, the minimum and medium growth scenarios are unlikely to provide the full range of health and recreation services and facilities at North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new health and recreation services and facilities, although this is not the case for Cambridge Airport.

3.123 The Green Infrastructure Study recognised that development at North East Cambridge and Cambridge Airport provides greater opportunities for integrating GI, although they may present greater risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites. Overall, there is increased risk of pressure on existing GI assets under the medium and maximum scenarios.

3.124 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.125 Therefore, for 2020-2041 the minimum growth scenario is expected to have a mixed minor positive and minor negative effect against this objective, whereas the medium and maximum scenarios are expected to have a mixed minor positive and significant negative uncertain effect. The minor positive effects are expected to become significant positive effects when fully built out, due to additional provision of services and facilities.

2. Edge of Cambridge – outside the Green Belt

3.126 Option 2 includes urban development at Cambridge Airport for all growth scenarios, which may be of sufficient scale to incorporate a GP surgery, plus a range of open space, recreational and sporting facilities. Furthermore, walking and cycling can be designed in from the outset.

3.127 The additional sources of supply for all growth scenarios includes development at North East Cambridge, a brownfield site, which is already within close proximity to amenities, services and facilities and may also provide new open space, recreation and health facilities. The maximum growth scenario includes a higher delivery rate which will lead to a more densely populated area. Although the site is close to existing healthcare facilities, a significant increase in population could mean these services are unable to meet the demand. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity.

3.128 The Green Infrastructure Study recognised that development at North East Cambridge and Cambridge Airport provides greater opportunities for integrating GI, although they may present greater risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites. Overall, there is increased risk of pressure on existing GI assets under the medium and maximum scenarios.

3.129 Both the medium and maximum growth scenarios include development of new settlements on public transport corridors. New settlements offer the opportunity to incorporate healthcare facilities, amenities, open space, green infrastructure and active travel from the outset. The minimum growth scenario includes a village site and the medium growth scenario includes development at larger villages. Residents at these locations may have more limited access to healthcare services, amenities and recreational and sporting facilities.

3.130 The Green Infrastructure Study states that development of new settlements along public transport corridors could risk increasing severance of the GI network, although there is an opportunity to use GI to mitigate this by creating connectivity across and along these corridors.

3.131 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.132 The minimum and medium growth scenarios are unlikely to provide the full range of health and recreation services and facilities at new, settlements North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new health and recreation services and facilities, although this is not the case for Cambridge Airport or the new settlements.

3.133 3.134 For 2020-2041, all growth scenarios are expected to have a mixed minor positive and minor negative effect on this objective with uncertainty, with the minor positive effects becoming significant when fully built out. This is because large urban extensions and new settlements are likely to provide new health and recreation facilities, particularly in the long-term, but more rural developments are likely to place pressure on existing healthcare and recreation facilities. The effects are uncertain as the exact location of the village site and new settlements are unknown.

3. Edge of Cambridge – Green Belt

3.134 Option 3 includes the development of new sites in the Green Belt, on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios across a broad range of locations. New urban extensions have more scope to be designed in a way that encourages walking and cycling which is likely to have a positive impact on people's health. However, under the medium or maximum growth scenarios there may not be sufficient end of journey facilities for cyclists (e.g. bike storage). Development would also be well located for residents to access existing services and facilities within Cambridge, although the Infrastructure Study states that it is thought much of Cambridge’s infrastructure is at or close to capacity

3.135 This option could see the creation of new on-site infrastructure, such as open space and a GP surgery, with positive effects on public health, although, the range of services and facilities provided will likely depend on the size of developments. This option provides an opportunity for urban extensions to cater for GI deficits in neighbouring urban areas, as well as connecting to and/or expanding key GI assets, such as the parkland and country park network. However, provision of new social and green infrastructure is likely to be more limited in the minimum and medium scenarios, due to the lower level of growth and likely smaller size of urban extensions.

3.136 For all scenarios, there is a possibility that development will take place in proximity to the A14 corridor AQMA, where poor air quality could have a negative impact on the health of residents.

3.137 Development will also come forward in the Cambridge urban area for the medium growth scenario. It is likely that residents at these dwellings will have access to healthcare facilities and amenities. Development is to be kept at a minimal balance so facilities should not be over-capacity. However, a large part of the city centre is an AQMA, therefore residents could be affected by poor air quality in the centre. The Green Infrastructure Study recognised that

development in the urban area could result in piecemeal development of GI and difficulties in delivering GI due to space constraints. Alternatively, this option may present an opportunity to deliver GI where there are existing deficiencies, resulting in positive effects of physical and mental health.

3.138 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.139 The 2020-2041 growth scenarios are expected to have a mixed minor positive and minor negative effect in relation to this objective, whereas the maximum growth scenario is expected to have mixed significant positive and minor negative effects. For the minimum growth scenario this is uncertain, as there will likely be more scope to avoid development at areas of poorer air quality.

3.140 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.141 Option 4 includes the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure.

3.142 New settlements have more scope to be designed in a way that encourages walking and cycling, which will likely have a positive impact on people's health. Furthermore, the new developments in the medium and maximum growth scenarios are more likely to be of scale to provide more extensive healthcare services, open space, GI, recreational and sporting facilities which will benefit public health. Large-scale development has potential to increase pressure on existing GI assets, although the Green Infrastructure Study suggests this is more of a risk to biodiversity than health.

3.143 The Green Infrastructure Study states that development of new settlements along public transport corridors could risk increasing severance of the GI network, although there is an opportunity to use GI to mitigate this by creating connectivity across and along these corridors.

3.144 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.145 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, at least some of the new settlements are likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.146 Option 4, for all growth scenarios, is expected to have a minor positive effect with uncertainty from 2020-2041 and a significant positive effect with uncertainty when fully built out, as all scenarios will include new open space, healthcare and recreation facilities but this provision may be more limited in the shorter term.

5. Dispersal – villages

3.147 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge, which could place increasing pressure on existing services, such as primary healthcare, recreational and sporting facilities and amenities. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. There are fewer Rural Centres so the absolute growth in each village is significantly greater for each Rural Centre than Minor Rural Centre. Rural Centres are likely to have more amenities, services and facilities than Minor Rural Centres however, they could become overwhelmed and reach capacity.

3.148 Furthermore, it is likely that residents would need to drive to access jobs, facilities and amenities, resulting in less active travel and an increase in poor air quality across Greater Cambridge which could have an adverse effect on people's health.

3.149 The Green Infrastructure Study identified that this option would likely result in piecemeal GI interventions, therefore reducing the likelihood of a connected GI network or strategic interventions. However, higher concentrations of development within individual villages, under the medium and maximum scenarios, may present opportunities to deliver GI that can address existing deficiencies in access to open space, and offer opportunities to add to the active travel network connecting villages and connecting to urban areas.

3.150 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.151 Option 5, minimum scenario is expected to have a minor negative effect and the medium growth scenario is expected to have a mixed minor positive and minor negative uncertain effect in relation to this objective. The maximum growth scenario is expected to have a mixed minor positive and significant negative uncertain effect against this objective, due to the additional pressure on existing services and facilities likely as a result of higher levels of growth.

3.152 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.153 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, across eighteen villages with existing or proposed public transport corridors and a new settlement on a public transport corridor. It is therefore likely that people would have good access to primary health care facilities, at least via public transport. In addition, larger developments, such as North East Cambridge and the new settlements are likely to be of a scale that would require new healthcare services, open space, GI, recreational and sporting facilities and amenities. As such, these facilities are likely to have a positive impact on public health.

3.154 However, for the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements and at North East Cambridge between 2020 and 2041, as a lower level of growth is expected at these

locations within the plan period. Under the maximum growth scenario however, growth at these locations is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.155 The Green Infrastructure Study states that development of new settlements along public transport corridors could risk increasing severance of the GI network, although there is an opportunity to use GI to mitigate this by creating connectivity across and along these corridors.

3.156 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.157 Depending on the scale of development, it may be more challenging to design in healthy behaviours, for example through provision of integrated open space and green infrastructure may come forward on a more piecemeal basis, such as the smaller developments across the eighteen villages. Existing rural healthcare facilities in these locations may be overwhelmed and reach capacity. Growth at North East Cambridge may present greater risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites, particularly when fully built out. All growth scenarios for option 6, are likely to have a mixed minor positive and minor negative effects for 2020-2041 and mixed significant positive and minor negative effect in relation to this objective when fully built out.

7. Supporting a high-tech corridor by integrating homes and jobs

3.158 Option 7 includes development to the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement. These settlements are expected to require new healthcare services, open space, recreational and sporting facilities and amenities. Furthermore, new settlements have the opportunity to encourage and accommodate walking and cycling from the outset through design, along with green infrastructure. This could have a positive impact on people's health.

3.159 The Green Infrastructure Study states that this option could enable expansion of the parkland and country park network.

3.160 The maximum growth scenario includes development at Cambridge Airport and North East Cambridge which will both likely provide new healthcare services, recreational and sporting facilities and amenities. These sites could be built to encourage more walking and cycling which would have a positive effect on public health. The Green Infrastructure Study recognised that development at North East Cambridge and Cambridge Airport provides greater opportunities for integrating GI, although they may present greater risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites. Overall, there is increased risk of pressure on existing GI assets under the medium and maximum scenarios.

3.161 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.162 However, for the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario however, growth at new settlements is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option. In addition, growth at North East Cambridge in the maximum scenario is likely to be of a scale to provide services and facilities to meet day to day needs, although there is a less certainty on this with regards to Cambridge Airport.

3.163 All growth scenarios also include development across five villages all with existing or proposed public transport nodes. However, development spread of across villages is likely to place a strain on existing healthcare services, recreational and sporting facilities and amenities. As such, these services and facilities could become overwhelmed and reach capacity. Development distributed among the villages could lead to piecemeal delivery of GI.

3.164 For both 2020-2041, all growth scenarios are expected to have mixed minor positive and negative effects in relation to this objective. When fully built out, all growth scenarios are expected to have a mixed significant positive and minor negative effect in relation to this objective.

8. Expanding a growth area around transport nodes

3.165 Option 8 would focus development at Cambourne and along the A428 public transport corridor, which are due to be served by a new railway station and Cambridge Autonomous Metro. However, it is uncertain whether these will come forward within the plan period, particularly the railway link. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes development equivalent to a larger new settlement. These developments are likely to be of a scale to require new healthcare services, recreational and sporting facilities and amenities. Furthermore, large new developments have the opportunity to encourage and accommodate walking and cycling, along with open space and green infrastructure from the outset through design. This could have a positive impact on people's health.

3.166 The Green Infrastructure Study identifies that this option has potential to extend or exacerbate north-south severance of GI, but also to introduce GI connectivity across the A428 corridor and develop active transport connections. However, development distributed among villages may result in piecemeal delivery of GI.

3.167 The Infrastructure Study states that it will be very challenging to deliver full open space and sports provision requirements generated by the maximum growth scenario, resulting in uncertainty associated with these effects.

3.168 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered to meet the needs of the large expansion of Cambourne (and, for the medium scenario, at North East Cambridge) between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, large-scale growth at Cambourne and North East Cambridge is likely be of a scale to ensure more extensive provision of sufficient new services and facilities,

due to the higher build out rates under this option, although this is less certain for Cambridge Airport.

3.169 All growth scenarios include development distributed across three village sites along the A428 public transport corridor. The medium and maximum growth scenario would see 40% of this development at Minor Rural Centres/ Group Village within 5km of Cambourne. Healthcare service, amenities, recreational and sporting facilities are less likely to be within close proximity of these villages and development may not be of scale to require new facilities and services to be built. Additional sources of supply for the medium and maximum scenarios include development at North East Cambridge and, for the maximum growth scenario, Cambridge Airport. These sites will require the development of healthcare services, amenities, recreational and sporting facilities. Furthermore, these developments could be built to encourage more walking and cycling which would have a positive effect on public health. Development at these sites presents more opportunities for integrating GI, but may also put pressure on the existing GI network.

3.170 For Option 8, all growth scenarios are expected to have a mixed minor positive and minor negative effect from 2020-2041, but a mixed significant positive and minor negative effect when fully built out.

Best performing option

3.171 Option 4 'Dispersal – new settlements' performs well, as new settlements are likely to be of scale that requires the development of new healthcare services and amenities, along with being large enough to design space for active travel, green infrastructure and open space. All options except Option 5 ‘Dispersal – villages’ perform relatively well when fully built out, although those that include locations within or near the urban area of Cambridge have potential to be affected by poor air quality. For all options, effects depend on the location, design and size of development.

3.172 Option 5 'Dispersal – villages' performs least well, as development under this scenario, as it is likely to result in development that would not be of scale that requires new facilities, amenities and open space, and may increase demand on existing services and facilities that cannot be met. It is also more likely to result in piecemeal delivery of GI, failing to support strategic interventions or the wider GI network.

SA Objective 5: To conserve, enhance, restore and connect wildlife habitats, species and/or sites of biodiversity or geological interest

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-?	+/-?	+/-?	+/-?	-?	-/+?	+/-?	+/-?
Medium Growth	--/+?	--/+?	--/+?	--/+?	--?	--/+?	--/+?	--/+?
Maximum Growth	--/+?	--/+?	--/+?	--/+?	--?	--/+?	--/+?	--/+?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-?	+/-?		+/-?		--/+?	+/-?	+/-?
Medium Growth	--/+?	--/+?		--/+?		--/+?	--/+?	--/+?
Maximum Growth	--/+?	--/+?		--/+?		--/+?	--/+?	--/+?

3.173 Note that the HRA Study identified a range of potential impacts on European sites for each option, but notes that the level of risk and severity of each impact will be assessed in more detail as part of the full HRA. In order to reflect that further work is required to enable firm conclusions on potential risks to European sites, all effects for this SA objective are recorded as uncertain.

1. Densification of existing urban areas

3.174 Option 1 would result in an increase in the density of development in Cambridge, a large proportion of which would be located within the urban area and at North East Cambridge on brownfield land or redevelopment of existing built-up sites. As such, development less likely to take place at greenfield sites where there is increased biodiversity and wildlife habitats.

3.175 Cambridge contains a number of designated biodiversity sites, and whilst it is unlikely that development would be permitted on these sites, focusing development in the city could affect the network of green spaces important for wildlife, habitats and species, particularly if multiple sites come forward in proximity to areas of biodiversity value. In addition, brownfield land can sometimes contain ecological interest. In addition, the Review of Strategic Spatial Option in Relation to Green Infrastructure (GI) noted that, whilst this option could increase pressure on existing nature conservation sites, there may be opportunities to use GI to support delivery of nearby Natural England's Habitat Network opportunity zones and support pollinator corridors – particularly in the south of Cambridge.

3.176 Both the medium and maximum growth scenarios include development at Cambridge Airport, another brownfield site. Much of this site is in the form of open grass areas, which is mown regularly, but habitats along the boundary, such as wooded areas and drainage ditches, can act as foraging habitat for protected species. The site itself does not contain any designated biodiversity habitats, but the western boundary of the airport abuts Barnwell East Local Nature Reserve, and the airport could be considered to form part of the wider ecological network. The Review of Strategic Spatial Option in Relation to Green Infrastructure highlighted that development at North East Cambridge and Cambridge Airport could increase pressure on wetland assets to the east and north east. There are Biodiversity Opportunity Areas present around the edge of the site, which could be used as a way to enhance the ecological networks present in the area, whilst also providing an opportunity to design in green infrastructure.

3.177 The medium growth scenario includes development at the edge of Cambridge on Green Belt land. Losing this land could have a negative effect on biodiversity including the loss of local species, wildlife and their habitats. Higher densities in the medium and maximum growth scenarios are likely to lead to the loss of more urban green space, which could be valuable wildlife refuges.

3.178 The Review of Strategic Spatial Option in Relation to Green Infrastructure noted that the minimum and maximum scenarios present an increased risk of pressure on existing GI assets, including designated biodiversity sites, and, when fully built out, potential for loss of land within Natural England's Habitat Network opportunity zones.

3.179 Option 1, minimum growth scenario is expected to have a minor positive and negative but uncertain effect against this objective. Both the medium and maximum growth scenarios are likely to have a mixed minor positive and significant negative uncertain effect in relation to this objective. The proposed effects are uncertain as specific details of the developments and exact locations are unknown. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

2. Edge of Cambridge – outside the Green Belt

3.180 Option 2 would result in development at Cambridge Airport site for all growth scenarios, which comprises largely brownfield land, although much of this is in the form of open grass areas, which is mown regularly, but habitats along the boundary, such as wooded areas and drainage ditches, can act as foraging habitat for protected species. The site itself does not contain any designated biodiversity habitats, but the western boundary of the airport abuts Barnwell East Local Nature Reserve, and the airport could be considered to form part of the wider ecological network. There are Biodiversity Opportunity Areas present around the edge of the site, which could be used as a way to enhance the ecological networks present in the area, whilst also providing an opportunity to design in green infrastructure.

3.181 Additional sources of supply for all growth scenarios includes development in North East Cambridge, which is a brownfield site. Although this site is developed and does not contain any designated or protected ecological areas, development could result in the loss of brownfield mosaic habitats. Furthermore, both the medium and maximum growth scenarios include development at new settlements on a public transport corridor which is likely to be to be situated out of the centre. The minimum growth scenario includes growth at one village and the medium growth scenario includes development across a range of villages. It is therefore likely development will take place on greenfield land where there may be protected species, wildlife and habitats. Despite potentially losing green space, networks and corridors, developing new settlements or sites offers the opportunity to integrate green open spaces and networks into their design from the outset.

3.182 The Green Infrastructure Study recognised that development at North East Cambridge and Cambridge Airport provides greater opportunities for integrating GI, including supporting Natural England's Habitat Network opportunity zones. However, development at these locations may present greater risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites, including wetland assets to the east and north east. Overall, there is increased risk of pressure on existing GI assets under the medium and maximum scenarios.

3.183 The Green Infrastructure Study states that development of new settlements along public transport corridors could risk increasing severance of the GI network, although there is an opportunity to use GI to mitigate this by creating connectivity across and along these corridors. Depending on the location of new settlements and supporting infrastructure, there is the potential risk of impacts on international designations and/or functionally linked habitat.

3.184 Option 2 is expected to have a mixed minor positive and minor negative uncertain effect for the minimum growth scenario in relation to this objective. A mixed minor positive and significant negative uncertain effect is expected for the medium and maximum growth scenarios, due to the greater land take and therefore greater likely habitat loss under these scenarios. The effects are all uncertain as it will depend on the location of the sites and design details, such as whether developments include green infrastructure and open green spaces. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

3. Edge of Cambridge – Green Belt

3.185 Option 3 would result in development around the edge of Cambridge. The minimum growth scenario includes development at three sites and the medium and maximum growth scenarios include development at five sites all across broad locations. Cambridge city and the surrounding area contains a number of Sites of Special Scientific Interest, Wildlife Sites and Local Nature Reserves, as well as many Priority Habitats. The Green Belt fringe supports significant habitat opportunity zones (as identified by Natural England Habitat Network mapping) in the south east and south west in particular, and to a lesser extent to the west around Coton. There is some sensitivity within Green Belt corridors that protrude into urban areas where assets are at greatest risk of fragmentation or severance. Green Belt Fringe areas of particular sensitivity include the Cam corridor through Trumpington, Fen Ditton and Grantchester which are vulnerable to hydrological change and recreational pressure. It is therefore possible that individual developments would take place at or within close proximity to these biodiversity assets. However, there may be opportunities to design in green infrastructure, incorporating ecological networks, particularly at larger extensions.

3.186 There is also a potential risk of impacts on international designations – those in closest proximity include the south east fenland complex and north east fen complex and peatlands.

3.187 The medium growth scenario includes some development within the Cambridge urban area. Cambridge contains a large number of designated biodiversity sites, and whilst it is unlikely that development would be permitted on these sites, focusing development in the city could affect the network of green spaces important for wildlife, habitats and species, particularly if multiple sites come forward in proximity to areas of biodiversity value. In addition, brownfield land can sometimes contain ecological interest.

3.188 The minimum growth scenario is expected to have a mixed minor positive and minor negative effect for this objective, as having fewer urban extensions gives more scope to avoid the most sensitive areas. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative but uncertain effects against this objective, as the higher deliver numbers incur greater potential for loss of habitat (e.g. within Natural England Habitat Network mapping opportunity areas), and greater pressure on existing resources. The proposed effects are uncertain as exact locations and specific details of the developments are unknown.

3.189 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.190 Option 4 includes the development of new settlements that are large enough to provide an opportunity for their own infrastructure. The minimum growth scenario includes two new settlements and the medium and maximum growth scenarios include three new settlements all on public transport corridors. The medium and maximum growth scenarios also include a new settlement on a road network. The location of any new settlements that could come through Option 4 is uncertain. However, it is very likely that this option will lead to development on large areas of greenfield land, which could have biodiversity value (depending on the habitats

present) and form part of the rural ecological network of habitats. The Green Infrastructure Study states that development of new settlements along public transport corridors could risk increasing severance of the GI network, although there is an opportunity to use GI to mitigate this by creating connectivity across and along these corridors

3.191 Greater Cambridge contains a large number of designated and non-designated habitats and it is therefore possible that a new settlement could take place at or within close proximity to these biodiversity assets. Depending on the location of new settlements and supporting infrastructure, there is an increased risk of impact on international designation and/or (particularly when fully built out) functionally linked habitat. However, greenfield sites are not always of particular ecological value, and the more sensitive ecological locations could be avoided. Nevertheless, designing a new settlement from scratch means that the most sensitive sites could be avoided, and green infrastructure and ecological networks can be designed into the development from the outset.

3.192 Option 4, minimum growth scenario, is expected to have a mixed minor positive and negative uncertain effect. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective, due to the greater land take and therefore greater likely habitat loss under these scenarios. The effects are all uncertain as it will depend on the location of sites and design details, such as whether developments include green infrastructure and open green spaces. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

5. Dispersal – villages

3.193 Option 5 would result in an increase in development at villages across Greater Cambridge. As many of the villages across Greater Cambridge contain or are located within close proximity to designated and non-designated biodiversity assets, and development is likely to come forward on greenfield land, particular developments coming forward under this option could lead to loss of biodiversity, depending on their location. Depending on the detailed distribution of development, potential impacts on international sites may occur via hydrological connectivity or quality, recreational impact, air quality impact, or through habitat loss or damage (of designated or functionally linked land). It may also be more challenging to deliver integrated ecological networks as part of individual development proposals, due to their likely smaller scale.

3.194 The minimum growth scenario is expected to have a minor negative uncertain effect in relation to this objective, whereas the medium and maximum scenarios are expected to have significant negative uncertain effects, due to the greater scale of development. The exact locations of development across the villages and the new settlement are unknown, along with specific design details, so the effects are uncertain.

3.195 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.196 Option 6 focuses development at North East Cambridge, a new settlement and 18 villages along key public transport corridors and hubs. Under this option, development may take place on greenfield land, which may support protected species and habitats. Greater Cambridge contains a large number of designated and non-designated habitats and it is therefore possible that a new settlement could take place at or within close proximity to these biodiversity assets. However, the exact locations of these developments are unknown, so the effects are uncertain.

3.197 All growth scenarios include development at North East Cambridge, which includes areas of green space and brownfield mosaic habitat that may act as habitats for a variety of species. The Green Infrastructure Study states that growth at North East Cambridge may present risks to the existing GI network, e.g. due to increased recreational pressure on nearby sites, particularly when fully built out. Whilst it does not intersect with any ecological designations, the Green Infrastructure Study highlights potential for effects on the wetland assets to the east and north. There is a risk of potential impacts on international fenland and washes sites via hydrological connectivity or through habitat loss or damage (of designated or functionally linked land). Depending on the location of the new settlement and supporting infrastructure, there is increased risk of impact on international designation and/or (particularly at 'all time' rates) functionally linked habitat.

3.198 Larger developments, such growth at North East Cambridge and new settlements, may offer the opportunity to design in strategic green infrastructure and spaces from the outset.

3.199 The effects of development at villages depends on the locations of these. Where villages are located in close proximity to designated or non-designated sites, there is potential for impacts on these and the wider ecological network.

3.200 For 2020-2041, the minimum growth scenario is expected to have mixed minor positive and minor negative effects on this objective. The medium and maximum scenarios are likely to result in an increased magnitude of change, therefore these growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective. The effects are all uncertain as it will depend on the location of sites and design details, such as whether developments include green infrastructure and open green spaces. When fully built out all options are expected to have mixed minor positive and significant negative effects.

7. Supporting a high-tech corridor by integrating homes and jobs

3.201 Option 7 focuses development in the south of Cambridge in villages and a new settlement close to the life science cluster area. The minimum and medium growth scenarios would have a smaller new settlement and maximum growth scenario would have a settlement twice the size. All options also include growth at five villages, which is also likely to take place on greenfield land. The area south of Cambridge contains Sites of Special Scientific Importance, Local Wildlife Sites and Local Nature Reserves, so it is therefore possible that development could be built at or within close proximity to these biodiversity assets. However, greenfield sites are not always of particular ecological value, and it may be possible to avoid the more sensitive

ecological locations. In addition, designing a new settlement from scratch means that green infrastructure and ecological networks can be designed into the development from the outset.

3.202 The Green Infrastructure Study states that focusing housing delivery in this area provides opportunities for habitat enhancement relating to woodland (optimising connectivity to both existing and proposed as part of forthcoming development) and the wetland-grassland mosaic.

3.203 The maximum growth scenario also includes development at Cambridge Airport and North East Cambridge. Although both sites are brownfield land, the sites do have areas of open green grassland which can act as foraging habitat for protected species or wildlife, as well as habitat mosaics on brownfield land at North East Cambridge. Both sites do not contain any designated biodiversity habitats, but the western boundary of the airport abuts Barnwell East Local Nature Reserve, so the site could form part of the wider ecological network. There are Biodiversity Opportunity Areas present around the edge of the airport, which could be used as a way to enhance the ecological networks present in the area and provide an opportunity to design in green infrastructure. Furthermore, when developing a new settlement there will be the opportunity to design in green infrastructure from the outset.

3.204 Option 7, for the minimum growth scenario is expected to have a mixed minor positive and minor negative uncertain effect in relation to this objective. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective due to greater loss of land, and therefore greater likely habitat loss under this scenario. As the exact locations of the developments are unknown, an uncertain effect is expected. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

8. Expanding a growth area around transport nodes

3.205 Option 8 focuses homes at Cambourne and surrounding villages along the A428 public transport corridor. These areas are to be served by a new railway station and Cambridgeshire Autonomous Metro.

3.206 The minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one smaller new settlement and development across three new villages. The maximum scenario includes a greater level of growth at Cambourne and development across three villages. Both the medium and maximum also include development at minor rural centres/ group villages within 5km of Cambourne. As such, the majority of development will be in rural locations. Development in the villages could affect designated or non-designated assets, and the wider ecological network, depending on their design and location.

3.207 The area contains a number of designated and non-designated habitats. For example, north west of Cambourne is Elsworth Wood, which is designated as ancient woodland and a Site of Special Scientific Interest (SSSI). North east of Cambourne is Knapwell Woods and east is Bucket Hill Plantation Grassland both of which are Local Wildlife Sites. It is therefore possible that development could take place within close proximity to these biodiversity assets, even if the sites themselves remain protected from development. It is noted that greenfield sites themselves are not always of particular ecological value, but they can provide supporting habitat

or nearby more sensitive locations. All growth scenarios include designing a large new development from scratch, which means green infrastructure and ecological networks could be incorporated into designs. The exact locations of the developments are unknown, leading to uncertainty

3.208 The Green Infrastructure Study states that this option has potential to affect the Eversden and Wimpole SAC and woodland SSSIs, as the SAC supports barbastelle bats, who rely on habitats n the wider area for foraging.

3.209 The maximum growth scenario includes development at Cambridge Airport which contains open grassland, which is mown regularly, but habitats along the boundary, such as wooded areas and drainage ditches, can act as foraging habitat for protected species. Both the medium and maximum growth scenarios include development at North East Cambridge where there are also areas of green space and brownfield mosaic habitat that could be of biodiversity importance. Both sites do not contain any designated biodiversity habitats, but the western boundary of the airport abuts Barnwell East Local Nature Reserve, so the site could form part of the wider ecological network. There are Biodiversity Opportunity Areas present around the edge of the airport, which could be used as a way to enhance the ecological networks present in the area and provide an opportunity to design in green infrastructure. Development at these sites presents more opportunities for integrating GI, but may also put pressure on the existing GI network.

3.210 The Green Infrastructure Study identifies that this option has potential to extend or exacerbate north-south severance of GI, but also to introduce GI connectivity across the A428 corridor.

3.211 The minimum growth scenario is expected to have a mixed minor positive and minor negative uncertain effect against this objective. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective, due to the greater land take and therefore greater likely habitat loss under these scenarios. The effects are uncertain as the exact location of much of the development proposed is not yet known, along with the layouts of developments which could avoid designations and designs could include green infrastructure. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

Best performing option

3.212 There is no one option which outperforms the other options. However, development that is focused in urban areas or on brownfield land is less likely to have a negative effect on Objective 5. Furthermore, development at new settlements or larger sites offers the opportunity to design in green infrastructure, networks and corridors from the outset (which could include protecting existing features, such as hedgerows and waterbodies), which will have a positive effect on SA objective 5. Option 5 'Dispersal – villages' performs least well as this option includes development at a broad range of locations, so it is likely that development would take place on greenfield land and may intersect with or be adjacent to an ecological designation and mitigation and enhancement measures will be more difficult to achieve.

SA Objective 6: To conserve and enhance the character and distinctiveness of Greater Cambridge's landscapes and townscapes, maintaining and strengthening local distinctiveness and sense of place

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-	+/-	-	+/-?	-?	+/-?	--/+?	--/+?
Medium Growth	--/+	--/+	--/+?	--/+?	-?	--/+?	--/+?	--/+?
Maximum Growth	--/+	--/+	--?	--/+?	--?	--/+?	--/+?	--/+?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-	+/-		+/-?		--/+?	--/+?	--/+
Medium Growth	--/+	--/+		--/+?		--/+?	--/+?	--/+
Maximum Growth	--/+	--/+		--/+?		--/+?	--/+?	--/+

1. Densification of existing urban areas

3.213 Option 1 would result in an increase in the density of development in Cambridge, which could have an adverse effect on the townscape.

3.214 It is unlikely that development would take place on landscape features present within the city (e.g. valued parks and green spaces), at least for the minimum growth scenario. Option 1 could involve the development of taller buildings within Cambridge, which could be out of character with the historic core of the city and affect views and vistas within the urban area, although it is recognised that not all individual developments within Cambridge would necessarily have a negative impact.

3.215 The medium and maximum growth scenarios are more likely to result in development out of keeping with the townscape in the city due to the higher density of development they require. The renewal of some locations, away from the city centre itself, may lead to townscape improvements. For example, all growth scenarios include development at a brownfield site, North East Cambridge, which could improve the townscape and landscape if development is considerate to existing surroundings.

3.216 Focusing development within Cambridge could protect sensitive landscapes located on its outskirts. The medium growth scenario includes development at the edge of Cambridge on Green Belt land which could potentially have an adverse effect on the landscape, by increasing urbanisation of this area and disrupting views towards the city and reducing the countryside gaps separating Cambridge from surrounding villages.

3.217 The medium and maximum scenarios include growth at Cambridge Airport, a site that is predominantly grassland. It includes airport buildings and structures, some of which are quite prominent. Although the airport and its associated buildings have formed part of the character and distinctiveness of this location for many years, they do not reflect the wider character of Cambridge. It also currently has aircraft movements. Between 2020 and 2041, these effects are likely to be more pronounced for the maximum growth scenario due to the greater level of growth. The medium growth scenario also includes growth at one site on the edge of Cambridge in the Green Belt, which could affect the setting of Cambridge to some extent, but this will be somewhat limited by the smaller amount of growth coming through this additional source of supply.

3.218 Option 1, minimum growth scenario is expected to have a mixed minor positive and minor negative effect against this objective. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative effect in relation to this objective due to the higher density of development and development on the edge of Cambridge. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

2. Edge of Cambridge – outside the Green Belt

3.219 Option 2 would result in a significant amount of development on the edge of the city, at Cambridge Airport, a site that is predominantly open grassland. It includes airport buildings and structures, some of which are quite prominent. Although the airport and its associated buildings have formed part of the character and distinctiveness of this location for many years, they do not reflect the wider character of Cambridge. It also currently has aircraft movements. The Landscape Study suggests the 'new urban edge' of development at the airport would be a prominent feature in the landscape.

3.220 The additional source of supply for all growth options includes development at a brownfield site in North East Cambridge. If the development is designed well it could enhance the character and distinctiveness of the area. It is on the edge of the city, so development could affect the views in and out of the city.

3.221 Both the medium and maximum growth scenarios include the development of new settlements on public transport corridors. Designing and developing a whole new settlement offers the opportunity to build homes and a public realm that are well-designed and sensitive to the surrounding character and distinctiveness. However, larger settlements are likely to have a greater impact on the landscape, due to the scale of new development.

3.222 The minimum growth scenario includes development at a village site and the medium scenario includes growth at rural centres and minor rural centres. The Landscape Study suggests that this growth may cause some harm to distinctive local landscape and townscape features. Nevertheless, this development is likely to be distributed so that any one settlement receives a relatively small level of growth, therefore the effect on the landscape/townscape is likely to be fairly minor.

3.223 The minimum growth scenario is expected to have a mixed minor positive and minor negative effect in relation to this objective. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative effect against this objective, as these scenarios include greater land-take and the development of new settlements, which will inevitably result in large-scale landscape change. The effects are uncertain as the exact location, design and scale of the proposed developments are unknown. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

3. Edge of Cambridge – Green Belt

3.224 Option 3 would result in development around the edge of Cambridge in Green Belt land for all growth options, which could have an adverse effect on views into and out of the city. Whilst such development would extend an already established urban area rather than introducing new urban development into a predominantly rural location, urban extensions could have significant impacts on the setting of Cambridge. The Landscape Study identifies that all landscape character types surrounding Cambridge have features that are vulnerable to change. However, may help to minimise changes to distinctive townscape features by avoiding growth within urban areas.

3.225 Both the medium and maximum growth scenarios estimate that five locations would be used compared with three in the minimum growth scenario. Furthermore, the maximum growth scenario would use higher delivery rates. As such, the higher the growth scenario the greater the likely impact (although this depends on whether any particularly sensitive features are present at or near specific development sites).

3.226 The medium growth scenario includes development within the Cambridge urban area. This could involve the development of taller buildings within Cambridge, which could be out of character with the historic core of the city and affect views and vistas within the urban area, although such impacts may be limited as the amount of development coming forward in the urban area is expected to be minimal. Alternatively, it could help regenerate degraded or underused land in the city.

3.227 The minimum scenario is expected to have a minor negative effect as it would expand Cambridge in fewer locations around the city, and therefore may be able to avoid the most sensitive areas. The medium and maximum growth scenarios are expected to have a significant negative uncertain effect in relation to this objective, except for the medium scenario which is expected to have a minor positive and significant negative uncertain effect. The effect is recorded as uncertain because the actual effect will depend on the final location, design, scale and layout of the proposed developments.

3.228 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.229 Option 4 includes the development of new settlements that are large enough to provide an opportunity for their own infrastructure. The minimum growth scenario includes two smaller new settlements and the medium and maximum growth scenarios include three new settlements all on public transport corridors. The medium and maximum growth scenarios include a new settlement on a road network.

3.230 A new settlement has the potential to have a major impact on Greater Cambridge's landscape, as it would be introducing a large urban development into a predominantly rural location. However, the effect on the surroundings will depend upon where it is located and how sensitively the new settlement is designed. Developing a whole new settlement offers the opportunity to design it sensitively from the outset. Furthermore, development is not within the centre of Cambridge so will not affect the townscape and setting of the city.

3.231 The minimum growth scenario is expected to have a mixed minor positive and minor negative uncertain effect for this objective and the medium and maximum growth scenario is expected to have a mixed significant negative and minor positive uncertain effect. The effects are uncertain as the final location, design, scale and layout of the proposed developments are unknown. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

5. Dispersal – villages

3.232 Option 5 would result in an increase in development at villages across Greater Cambridge. The expansion of these villages could have an adverse effect on the open countryside and landscape surrounding these villages, as well as village character, particularly if a large amount of dispersed development is required. As such, dispersed development is likely to affect more areas, although perhaps to a lesser degree. The Landscape Study states that effects will vary from village to village, depending on their existing character, therefore all effects are uncertain.

3.233 Option 5 is expected to a minor negative uncertain effect for the minimum and medium growth scenario and a significant negative uncertain effect for the maximum scenario in relation to this objective. The actual effect will depend on exact locations of developments across the villages, along with the final design, scale and layout of the proposed development but these are unknown.

3.234 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.235 Option 6 focuses development along key public transport corridors and hubs through redevelopment of North East Cambridge, the expansion or intensification of existing villages and a new settlement. A new settlement has the potential to have a major impact on Greater Cambridge's landscape, as it would introduce a relatively large urban development into a predominantly rural location. However, the effect on the surroundings will depend upon where it is located and how sensitively the new settlement is designed. If this option led to a string of development along key public transport corridors, which was not done in a sensitive way, it could significantly extend a sense of urbanisation into the more rural parts of Greater Cambridge and coalescence between settlements, as these routes are the ones that people would travel through most often.

3.236 All growth scenarios include development at North East Cambridge, which is on the edge of city. Development at North East Cambridge could potentially affect the character and distinctiveness of the city. It is on the edge of Cambridge, so it could affect views in and out of the city. However, if development of this brownfield site is sensitive to its surroundings, it could have a positive impact on the townscape and landscape.

3.237 For 2020-2041, the minimum growth scenario is expected to have mixed minor positive and minor negative effects, as it would result in more limited impacts on distinctive local landscape characteristics/features. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective. The effects are uncertain as the actual effect will depend on the final location, design, scale and layout of the proposed development. When fully built out, all scenarios are expected to have a mixed minor positive and significant negative uncertain effect. Note that it is expected that construction for elements coming forward beyond 2041 is likely to commence within the plan period.

7. Supporting a high-tech corridor by integrating homes and jobs

3.238 Option 7 focuses development in the south of Cambridge in villages and a new settlement close to the life science cluster area. The minimum and medium growth scenarios would have a smaller new settlement and maximum growth scenario would have a settlement twice the size. These developments have the potential to have a major impact on the landscape, as it would be introducing urban development into a predominantly rural location. In addition, this could lead to settlement coalescence and greater harm to the local landscape than other options. However, this option would concentrate such urbanisation in one area, therefore reducing such effects in other parts of Greater Cambridge. The exact location of these developments is not yet known and if designed sensitively considering the existing landscape it could have a positive impact on its surroundings. Developing a whole new settlement offers the opportunity to consider the character and distinctiveness of the area and to design sensitively from the outset.

3.239 The maximum growth scenario also includes development at two brownfield sites, Cambridge Airport and North East Cambridge. Although the airport and its associated buildings have formed part of the character and distinctiveness of this location for many years, they do not reflect the wider character of Cambridge. Development at North East Cambridge is on the edge of Cambridge, so it could affect views in and out of the city. However, if development at these sites is sensitive to their surroundings it could have positive impact on the townscape and landscape.

3.240 For 2020-2041, all growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective. The effects are uncertain as the actual effect will depend on the final location, design, scale and layout of the proposed development. When fully built out, all scenarios are expected to have a mixed minor positive and significant negative uncertain effect. Note that it is expected that construction for elements coming forward beyond 2041 is likely to commence within the plan period.

8. Expanding a growth area around transport nodes

3.241 Option 8 focuses homes at Cambourne and surrounding villages, along the A428 public transport corridor. These areas are to be served by a new railway station and Cambridgeshire Autonomous Metro.

3.242 The minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one smaller new settlement and the maximum growth scenario includes expansion by equivalent of a larger development. All growth options include development at three villages. Whilst this would increase urbanisation, this would be largely restricted to one location within Greater Cambridge. Expansion of Cambourne and villages along the A428 could result in coalescence of settlements along this corridor.

3.243 Both the medium and maximum also include development at a minor rural centres/ group villages within 5km of Cambourne. As such, the majority of development will be in rural locations and development may affect the surrounding landscape if it is not designed sensitively. Building a large new development in a rural location will have a major impact on the surrounding landscape. However, large new developments provide an opportunity to consider the character

and distinctiveness of the area and it design sensitively from the outset. The final location, design, scale and layout of the proposed development is not yet known so the effects are uncertain.

3.244 An additional source of supply for the medium and maximum growth scenarios includes development at North East Cambridge and, for the maximum growth scenario, Cambridge Airport. Although the airport and its associated buildings have formed part of the character and distinctiveness of this location for many years, they do not reflect the wider character of Cambridge. Development at North East Cambridge is on the edge of Cambridge and could therefore, potentially affect the character and distinctiveness of the city, along with views in and out of Cambridge. Again, if development at these sites is sensitive to their surroundings it could have positive impact on the townscape and landscape. The effects of development at these sites is therefore uncertain as the design, scale and layout of the proposed development is not yet known.

3.245 For 2020-2041, the minimum growth scenario is expected to have mixed minor positive and minor negative effects, as it would result in more limited impacts on distinctive local landscape characteristics/features. The medium and maximum growth scenarios are expected to have a mixed minor positive and significant negative uncertain effect in relation to this objective. The effects are uncertain as the actual effect will depend on the final location, design, scale and layout of the proposed development. When fully built out, all scenarios are expected to have a mixed minor positive and significant negative uncertain effect. Note that it is expected that construction for elements coming forward beyond 2041 is likely to commence within the plan period. However, there is more certainty that effects will occur in the longer term, therefore uncertainty is removed when sites are fully built out.

Best performing option

3.246 There is no one option which outperforms the other options. Option 5 'Dispersal – villages' performs relatively well, as more dispersed development is less likely to lead to significant landscape change (although significant negative effects are expected for the maximum growth scenario). Option 4 'Dispersal – new settlements' also performs relatively well, as new settlements have an opportunity to be designed sensitively to their surroundings and will not affect the historic townscape of Cambridge itself as development would not be focused within the city. However, new settlements would result in substantial change to the local landscape, which would change from rural to urban.

3.247 The maximum scenario under Option 3 'Edge of Cambridge – Green Belt' performs least well as it includes development on the edge of city at five different locations, which could affect the views in and out of the city as well as increasing urbanisation out of Cambridge.

SA Objective 7: To conserve and/or enhance the qualities, fabric, setting and accessibility of Greater Cambridge's historic environment.

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	-	-	-?	-?	--?	--?	--?	-?
Medium Growth	--	-	--?	--?	--?	--?	--?	-?
Maximum Growth	--	-	--?	--?	--?	--?	--?	-?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	-	-		-?		--?	--?	-?
Medium Growth	--	-		--?		--?	--?	-?
Maximum Growth	--	-		--?		--?	--?	-?

1. Densification of existing urban areas

3.248 Option 1 would result in an increase in the density of development in Cambridge, which could have an adverse effect on the historic environment. Cambridge contains a high number of heritage assets, including listed buildings, as well as a number of scheduled monuments and registered parks and gardens, particularly associated with the University. There are a large number of conservation areas in the city. The minimum growth scenario focuses development within Cambridge urban area and at North East Cambridge, a brownfield site on the edge of the city. The latter involves the regeneration of a site on the edge of Cambridge, which would be unlikely to adversely affect the setting of heritage assets, if well-designed.

3.249 The medium growth scenario includes development at the edge of Cambridge on Green Belt land, which could affect views in and out of the city. Due to the uncertainty of the location of these developments, there is also the possibility that development could take place in or near to areas of historic interest.

3.250 Both the medium and maximum growth scenarios include development at Cambridge Airport, where there is an airport control tower that is Grade 2 listed. Development of the airport could remove the historic context of this feature. However, less air traffic may have a positive effect on the setting of the historic city.

3.251 The medium and maximum growth scenarios contain more development within Cambridge's urban area, which could affect the historic environment and character within the city.

3.252 Option 1, minimum growth scenarios is expected to have a minor negative effect and the medium and maximum growth scenarios are expected to have a significant negative effect in relation to this objective. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

2. Edge of Cambridge – outside the Green Belt

3.253 Option 2 includes development at Cambridge Airport for all growth options. The airport has a control tower that is Grade 2 listed, so development of the airport could remove the historic context of this feature. However, less air traffic may have a positive effect on the historic city.

3.254 This option for all growth scenarios includes development at a brownfield site in North East Cambridge which is on the edge of the city, which would be unlikely to adversely affect the setting of heritage assets, if well-designed.

3.255 Both the medium and maximum growth scenarios include the development of new settlements on public transport corridors. The minimum growth scenario includes a village site and the medium growth scenario includes development across rural and minor rural centres however, the exact locations are uncertain. Therefore, it is difficult to say whether these developments will affect Cambridge's historic environment.

3.256 All growth scenarios are expected to have a minor negative effect in relation to this objective. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

3. Edge of Cambridge – Green Belt

3.257 Option 3 would result in development around the edge of Cambridge for all growth scenarios. Many of Cambridge's designated historic assets are located within the city centre, although development on the edge of the city could affect views in and out of the city and would also be likely to affect the setting of the historic city. Both the medium and maximum growth scenarios estimate that five locations would be used compared with three in the minimum growth scenario. The medium scenario also includes some growth within the Cambridge urban area, which could negatively affect the setting of some of the many historic assets within the city, depending on the location and design of development.

3.258 Overall, a minor negative uncertain effect is expected for the minimum growth scenario and a significant negative uncertain effect is expected for the medium and maximum growth scenarios in relation to this objective. The effects are uncertain because the exact locations of the developments are unknown.

3.259 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.260 Option 4 includes the development of new settlements. The minimum growth scenario includes two smaller new settlements and the medium and maximum growth scenarios include three new settlements all on public transport corridors. The medium and maximum growth scenarios include a new settlement on a road network.

3.261 There are a number of listed buildings, scheduled monuments, registered parks and gardens and conservation areas across Greater Cambridge, which could be affected by development under this option. Development in more rural locations may contain or be in proximity to historic assets with more extensive settings.

3.262 The minimum growth scenario is expected to have a minor negative uncertain effect. The medium and maximum growth scenarios are expected to have significant negative effects as larger development is less likely to be able to avoid historic assets and/or their settings. The effects are uncertain because the actual effect will depend on the location of development, as well as its final design, scale and layout, which may provide opportunities to avoid significant impacts. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

5. Dispersal – villages

3.263 Option 5 would result in an increase in development at villages across Greater Cambridge, many of which include conservation areas, contain listed buildings or are located

within close proximity to listed buildings, scheduled monuments and registered parks and gardens. If development is dispersed across a range of villages and rural centres, it is more likely to affect a wider range of areas.

3.264 Option 5 is therefore expected to have a significant negative uncertain effect for all growth scenarios. Whilst lower levels of development may be able to avoid the most sensitive areas to some extent, all options have potential to result in significant negative effects. The actual effect will depend on exact locations of development across the villages and rural centres, along with the final design, scale and layout of the proposed development which are unknown.

3.265 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.266 Option 6 focuses development along key public transport corridors and hubs through the expansion or intensification of existing villages or through more new settlements. Due to the fact there are a number of listed buildings, scheduled monuments and registered parks and gardens across Greater Cambridge, it is possible that development could be located within close proximity to one or more such assets. In particular, the public transport corridors to the west and south west have a number of listed buildings, conservation areas and registered parks and gardens within close proximity that may be affected by development. However, the exact location of development is unknown so effects are uncertain. All growth scenarios also include development at North East Cambridge, which is on the edge of city.

3.267 Option 6 is therefore expected to have a significant negative uncertain effect for all growth scenarios. The effect is uncertain as the actual effect will depend on the location of development, as well as its final design, scale and layout in relation to historic assets. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

7. Supporting a high-tech corridor by integrating homes and jobs

3.268 Option 7 focuses development in the south of Cambridge in villages and a new settlement close to the life science cluster area. The minimum and medium growth scenarios would have a smaller new settlement and maximum growth scenario would have a settlement twice the size. There are a number of listed buildings, scheduled monuments and conservation areas in the area south of Cambridge, so it is likely that development would be within close proximity to a heritage asset. However, the exact location of these settlements and village expansions (included in all growth scenarios) are unknown, so effects are uncertain.

3.269 The maximum growth scenario also includes development at two brownfield sites, Cambridge Airport and North East Cambridge. The airport includes a Grade 2 listed control tower, so development of the airfield could affect the historic context of the asset.

3.270 All growth scenarios are expected to have a significant negative uncertain affect in relation to this objective. The effects of the development under this option are uncertain as it will

depend on developments location, design, scale and layout. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

8. Expanding a growth area around transport nodes

3.271 Option 8 focuses homes at Cambourne and surrounding villages, along the A428 public transport corridor. These areas are to be served by a new railway station and Cambridgeshire Autonomous Metro.

3.272 The minimum and medium growth scenario includes the expansion of Cambourne by the equivalent of one smaller new settlement and the maximum scenario includes the equivalent of a larger settlement. All growth scenarios include development across three villages. Both the medium and maximum growth scenarios also include development at a minor rural centres/ group villages within 5km of Cambourne. Cambourne has a few listed buildings. However, it does not contain any conservation areas, scheduled monuments or registered parks and gardens. To the south and north east of Cambourne there are registered parks and gardens. To the south and west there are scheduled monuments. Although development close to Cambourne is unlikely to affect much in the way of historic assets or features, development in surrounding villages or rural locations could have a greater affect.

3.273 An additional source of supply for the maximum growth scenario is Cambridge Airport. The airport includes a Grade 2 listed control tower, so development of the airfield may affect the context of the historic asset. The medium and maximum growth scenarios include development at North East Cambridge which is on the edge of Cambridge.

3.274 All growth scenarios are expected to have a minor negative uncertain effect in relation to this objective. The effects are uncertain as the exact location, design, scale and layout of the proposed development is unknown. These effects are expected to be the same both within the plan period and when fully built out, particularly as construction for elements coming forward beyond 2041 is likely to commence within the plan period, and therefore effects are expected to arise from that point.

Best performing option

3.275 Options 2 'Edge of Cambridge – outside of Green Belt' and 8 'Expanding a growth area around transport nodes' perform best.

3.276 For Option 2, this is because development is focused on brownfield sites on the edge of Cambridge. As such, development will have more limited effects on the historic environment and assets found in the centre of Cambridge, although it would result in loss of Cambridge airfield, which provides the context for the listed control tower.

3.277 Option 8 performs relatively well because it has more potential to locate development in less sensitive areas in terms of the historic environment, although the maximum growth scenario would also result in the loss of the context for the listed control tower at Cambridge Airport.

3.278 All other options have the potential to result in significant harm to the historic environment, particularly under the medium and maximum growth scenarios as Greater Cambridge has a number of historic assets in both urban and rural locations, as well as within the city of Cambridge itself.

SA Objective 8: To make efficient use of Greater Cambridge's land resources through the re-use of previously developed land and conserve its soils.

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++	++/-?	--?	--?	--?	--/+?	--?	--?
Medium Growth	++	++/--?	--/+?	++/--?	--?	--/+?	--?	--/+?
Maximum Growth	++/-	++/--?	--?	--?	--?	--/+?	++/--?	++/--?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++	++/-?		--?		--/+?	--?	--?
Medium Growth	++	++/--?		++/--?		--/+?	--?	--/+?
Maximum Growth	++/-	++/--?		--?		--/+?	++/--?	++/--?

1. Densification of existing urban areas

3.279 Option 1 includes an increase in the density of development in Cambridge located on brownfield land at North East Cambridge and the redevelopment of existing urban uses under all growth scenarios. As such, development at these sites will not result in the loss of high-quality agricultural land. Furthermore, both the medium and maximum growth scenarios include development at Cambridge Airport which is previously developed land. However, the site does contain open grassland. The medium growth scenario also includes development at the edge of Cambridge on Green Belt land.

3.280 The minimum and medium growth scenarios are expected to have a significant positive effect against this objective, whereas the maximum growth scenario is expected to have mixed significant positive and minor negative effects. These effects are expected to be the same both within the plan period and when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.281 Option 2 includes development on previously developed land at Cambridge Airport, however, it does contain open grassland and associated soil resources (although unlikely to be used for commercial farming). An additional source of supply includes development at North East Cambridge and development here would reduce the need to develop best and most versatile agricultural land.

3.282 Both the medium and maximum growth scenarios include the development of new settlements on public transport corridors. The minimum growth scenario includes a village site and the medium growth scenario includes development across rural and minor rural centres, but the exact locations are uncertain. Therefore, there is a possibility that development could occur on high-quality agricultural land.

3.283 A significant positive and minor negative uncertain effect is expected for the minimum growth scenario. A significant positive and significant negative uncertain effect is expected for the medium and maximum growth scenarios. The effects are uncertain because the location of the developments is not yet known. These effects are expected to be the same both within the plan period and when fully built out.

3. Edge of Cambridge – Green Belt

3.284 Option 3 would be likely to result in substantial development of greenfield land as all scenarios include development on Green Belt at different locations. Both the medium and maximum growth scenarios include five locations compared with three in the minimum growth scenario. The areas around the city of Cambridge consist of Grades 1, 2 and 3 agricultural land, therefore it is possible or even probable that high-quality agricultural land could be lost. The medium scenario also includes some development within the Cambridge urban area, which would help reduce the amount of agricultural land required for development.

3.285 All growth scenarios are expected to have significant negative uncertain effect against this objective. For the medium growth scenario, this is mixed with a minor positive effect. The effects are uncertain as the exact location of the developments is unknown.

3.286 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.287 Option 4 includes the development of new settlements. The minimum growth scenario includes two smaller new settlements and the medium and maximum growth scenarios include three new settlements all on public transport corridors. The medium and maximum growth scenarios also include a new settlement on a road network. It is noted that a new settlement could be on, or partly on, brownfield land, although there is very limited brownfield land in the Cambridge urban area, therefore development of new settlements is likely to be on greenfield land, which could be high-quality agricultural land. However, the exact location of these new settlements is unknown, so the actual effect is uncertain.

3.288 The medium growth scenario includes development at a brownfield site in North East Cambridge on the edge of the city, which would help reduce the need for development on best and most versatile agricultural land.

3.289 A significant negative uncertain effect is expected for all growth scenarios except for the medium growth scenario where a mixed significant positive and significant negative uncertain effect is expected in relation to this objective, as the medium scenario includes development on previously developed land. The effects are uncertain as the exact location of the developments are unknown. These effects are expected to be the same both within the plan period and when fully built out.

5. Dispersal – villages

3.290 Option 5 would result in an increase in development at villages across Greater Cambridge. The expansion of these villages is likely to be on greenfield land, which could be high-quality agricultural land, as a large part of South Cambridgeshire consists of Grades 1, 2 and 3 agricultural land. However, the exact location of the development is unknown, so the effect is uncertain.

3.291 Option 5, for all growth scenarios, is expected to have a significant negative uncertain effect. The actual effect will depend on exact locations of development across the villages and rural centres.

3.292 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.293 Option 6 focuses development along key public transport corridors and hubs through the expansion or intensification of existing villages or through more new settlements. As such,

development is likely to be in rural locations and therefore could be on high-quality agricultural land. However, the exact location of this development is unknown, so the effect is uncertain.

3.294 All growth scenarios also include development at North East Cambridge, which is brownfield land on the edge of the city. As such, this could help minimise the need for development of best and most versatile agricultural land, although it does not make use of other brownfield sites, such as Cambridge Airport.

3.295 A minor positive and significant negative uncertain effect is expected for all growth scenarios against this objective. The effects are uncertain as the exact location of the development is unknown. These effects are expected to be the same both within the plan period and when fully built out.

7. Supporting a high-tech corridor by integrating homes and jobs

3.296 Option 7 focuses development in the south of Cambridge in villages and a new settlement close to the life science cluster area. The minimum and medium growth scenarios would include a smaller new settlement and maximum growth scenario would include a settlement twice the size. Due to the size of the new settlements, along with the expansion of villages (included in all growth scenarios), it is likely the development would be located within rural locations across the south of Cambridge. As such, much of the development is likely to be located on Grades 2 and 3 agricultural land. However, the exact location of development is unknown, so the effect is uncertain.

3.297 The maximum growth scenario also includes development at two brownfield sites, Cambridge Airport and North East Cambridge. Development of these sites would help minimise the amount of development required on best and most versatile agricultural land.

3.298 A significant negative uncertain effect is expected for all growth scenarios, except the maximum growth scenario where a significant positive and significant negative uncertain effect is expected in relation to this objective. The latter includes development on previously developed land. The effects are uncertain as the exact location of development is unknown. These effects are expected to be the same both within the plan period and when fully built out.

8. Expanding a growth area around transport nodes

3.299 Option 8 focuses homes at Cambourne and surrounding villages, along the A428 public transport corridor. These areas are to be served by a new railway station and Cambridgeshire Autonomous Metro.

3.300 The minimum and medium growth scenario includes the expansion of Cambourne by equivalent of one smaller new settlement and the maximum scenario includes the equivalent of two larger settlements All growth scenarios include development across three villages. Both the medium and maximum also include development at a minor rural centre and group villages within 5km of Cambourne. Cambourne and the surrounding area has a large amount of Grade 1, 2 and 3 agricultural land, which could be lost to development. However, the exact location of the development is not yet known, so the effect is uncertain.

3.301 An additional source of supply for the medium and maximum growth scenario includes development at North East Cambridge. The maximum growth scenario also includes development at Cambridge Airport. Development at these sites could help minimise the amount of development required on best and most versatile agricultural land, although the medium option does not make use of other brownfield sites, such as Cambridge Airport.

3.302 The minimum growth scenario is expected to have a significant negative uncertain effect, the medium scenario is expected to have a mixed minor positive and significant negative effect and the and maximum growth scenario is expected to have a mixed significant positive and significant negative uncertain effect in relation to this objective. The effects are uncertain as the exact location, design, scale and layout of the proposed development is unknown. These effects are expected to be the same both within the plan period and when fully built out.

Best performing option

3.303 Option 1 'Densification of existing urban areas' performs best, as development under this option is likely to be focused on brownfield sites and therefore less to affect the wider rural areas of Greater Cambridge where there is the best and versatile agricultural land (although there will be some loss of greenfield land in the maximum growth scenario). The focus source of supply for Option 2 ‘Edge of Cambridge – outside Green Belt’ is at Cambridge Airport, a large brownfield site, albeit with existing soil resources in the large, grassy areas. However, in order to provide sufficient housing this option also includes potential greenfield sites, including at new settlements for the medium and maximum growth scenarios. All options except Option 3 ‘Edge of Cambridge – Green Belt’, 4 ‘Dispersal – new settlements’ and 5 ‘Dispersal – villages’ also include North East Cambridge, a large brownfield site on the outskirts of Cambridge. However, all options also include other sources of supply.

3.304 Option 5 'Dispersal – villages' performs least well as this options includes development at a broad range of rural locations, so it is likely that development will take place on greenfield land, which has greater potential to be Grade 1, 2 or 3 agricultural land.

SA Objective 9: To conserve mineral resources in Greater Cambridge.

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	-?	-?	-?	-?	-?	-?	-?	0
Medium Growth	-?	--?	--?	-?	--?	--?	--?	0
Maximum Growth	-?	--?	--?	-?	--?	--?	--?	0

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	-?	-?	-?	-?	-?	-?	-?	0
Medium Growth	-?	--?	--?	-?	--?	--?	--?	0
Maximum Growth	-?	--?	--?	-?	--?	--?	--?	0

1. Densification of existing urban areas

3.305 Cambridge contains a small number of Minerals Safeguarding Areas. It is therefore possible that developments coming forward under Option 1 could take place within these Minerals Safeguarding Areas, albeit minerals extraction is unlikely to take place in the urban area. The medium growth scenario also includes development on the edge of Cambridge on Green Belt land, which could coincide with a Minerals Safeguarding Area. However, exact locations of these developments are uncertain.

3.306 All growth scenarios include development in North East Cambridge, which is not located within a Minerals Consultation Area or Safeguarding Area. Both the medium and maximum growth scenarios include development at Cambridge Airport, which does not contain any Minerals Consultation or Safeguarding Areas.

3.307 Minor negative uncertain effects are identified in relation to all objectives. The effect is uncertain as the exact location of development within the Green Belt is unknown. These effects are expected to be the same both within the plan period and when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.308 The Cambridge Airport (included in all growth options) site is not within a Minerals Consultation Area or Safeguarding Area. The additional source of supply for all growth scenarios includes development at North East Cambridge which is also not within a Minerals Consultation Area or Minerals Safeguarding Area. The additional source of supply for both the medium and maximum growth scenarios includes the development of new settlements on public transport corridors, which could be within a Minerals Consultation or Safeguarding Area. The minimum growth scenario includes a village site and the medium growth scenario includes development across rural centres and minor rural centres, but the exact locations are uncertain. Therefore, development under these growth scenarios could be located within a Minerals Consultation Area or Safeguarding Area.

3.309 Therefore, the minimum growth scenario is expected to have a minor negative uncertain effect in relation to this objective. The medium and maximum growth scenarios are expected to have a significant negative but uncertain effect in relation to this objective. The latter two options would result in higher levels of development so there is greater chance development could be within Minerals Consultation or Safeguarding Areas. The effects are uncertain as the exact location of the new settlements, development at rural centres and the village site are unknown. These effects are expected to be the same both within the plan period and when fully built out.

3. Edge of Cambridge – Green Belt

3.310 Option 3 includes development at the edge of Cambridge on substantial areas of greenfield land for all growth scenarios. There are a small number of Minerals sites, Safeguarding and Consultation Areas around Cambridge. It is therefore possible that particular development locations coming forward through Option 3 could take place within these Minerals Safeguarding or Consultation Areas.

3.311 The medium growth scenario includes development at urban areas across Cambridge, which does not include any Minerals Safeguarding or Consultation Areas.

3.312 Therefore, the minimum growth scenario is expected to have a minor negative uncertain effect in relation to this objective. The medium and maximum growth scenarios are expected to have a significant negative but uncertain effect in relation to this objective. The latter two options would result in higher levels of development so there is greater chance development could be within Minerals Consultation or Safeguarding Areas. The effect is uncertain as the exact location of development is unknown.

3.313 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal – new settlements

3.314 Option 4 includes the development of new settlements. The minimum growth scenario includes two smaller new settlements and the medium and maximum growth scenarios include three new settlements all on public transport corridors. The medium and maximum growth scenarios also include a new settlement on a road network.

3.315 A small number of Minerals Safeguarding Areas and Minerals Consultation Areas are located outside of Cambridge. Due to the large proportion of the plan area that is not designated as a Minerals Safeguarding Area or Minerals Consultation Area, it is possible that a new settlement could avoid any effects on these, although this depends on the location of any particular developments that come forward.

3.316 Therefore, a minor negative uncertain effect is expected for all scenarios. These effects are expected to be the same both within the plan period and when fully built out.

5. Dispersal – villages

3.317 Option 5 proposes an increase in development at villages, rural and minor rural centres across Greater Cambridge. Therefore, development under this option would take place at rural locations in Greater Cambridge where there are Minerals Safeguarding and Consultation Areas. However, this depends on the specific location of any particular development that come forward.

3.318 Therefore, the minimum growth scenario is expected to have a minor negative uncertain effect in relation to this objective. The medium and maximum growth scenarios are expected to have a significant negative but uncertain effect in relation to this objective. The latter two options would result in higher levels of development so there is greater chance development could be within Minerals Consultation or Safeguarding Areas. The actual effect will depend on exact locations of development across the villages, rural and minor rural centres.

3.319 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.320 Option 6 proposes development along or around key public transport corridors and hubs through the expansion or intensification of existing villages or through new settlements. There

are a small number of Minerals Safeguarding and Consultation Areas located along existing and proposed key transport corridors, which could be affected by development under this option, although this depends on the location of any particular developments that come forward.

3.321 All growth scenarios also include development at a site in North East Cambridge, which is not within a Minerals Safeguarding and Consultation Area.

3.322 A minor negative uncertain effect is likely for the minimum growth scenario and a significant negative uncertain effect is likely for the medium and maximum growth scenarios. The latter two options would result in higher levels of development so there is greater chance development could be within Minerals Consultation or Safeguarding Areas. These effects are expected to be the same both within the plan period and when fully built out.

7. Supporting a high-tech corridor by integrating homes and jobs

3.323 Option 7 focuses development in the south of Cambridge in villages and a new settlement close to the life science cluster area. The minimum and medium growth scenarios include a smaller new settlement and maximum growth scenario includes a settlement twice the size. The south of Cambridge contains some Minerals Consultation and Safeguarding Areas which could intersect with development. However, the exact location of development is unknown, so effects are uncertain.

3.324 The maximum growth scenario also includes development at two brownfield sites, Cambridge Airport and North East Cambridge. Both of these sites are not located within Minerals Consultation and Safeguarding Areas.

3.325 A minor negative uncertain effect is expected for the minimum growth scenario in relation to this objective. A significant negative uncertain effect is expected for the medium and maximum growth scenarios. The effects are uncertain as the exact locations of development are not yet known. These effects are expected to be the same both within the plan period and when fully built out.

8. Expanding a growth area around transport nodes

3.326 Option 8 focuses homes at Cambourne, along the A428 public transport corridor and at villages along the corridor. These areas are to be served by a new railway station and Cambridgeshire Autonomous Metro.

3.327 The minimum and medium growth scenario include the expansion of Cambourne by the equivalent of one smaller new settlement and the maximum scenario includes expansion by equivalent of a larger new development. All options include development across three village sites. Both the medium and maximum scenarios also include development at minor rural centres/ group villages within 5km of Cambourne. Cambourne and the surrounding area do not contain any Minerals Safeguarding Areas and Minerals Consultation Areas so development is unlikely to coincide with these designations.

3.328 An additional source of supply for the medium and maximum growth scenarios includes North East Cambridge and for the maximum growth scenarios it includes development at Cambridge Airport. These sites do not contain Minerals Safeguarding or Consultation Areas.

3.329 All growth scenarios are expected to have a negligible effect in relation to this objective. The effects are uncertain as the exact location of the proposed development is unknown. These effects are expected to be the same both within the plan period and when fully built out.

Best performing option

3.330 Option 8 'Expanding a growth area around transport nodes' performs best. Option 8 performs well as Cambourne and the surrounding area where development would take place, is not within a Minerals Safeguarding or Consultation Area. All other options have potential to result in development that could be within Minerals Safeguarding Area or a Minerals Consultation Area, particularly for higher growth options.

SA Objective 10: To achieve sustainable water resource management and enhance the quality of Greater Cambridge's waters.

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	+/-?	+/-?	--/+?	+/-?	--/+?	--/+?	+/-?	--/+?
Medium Growth	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?
Maximum Growth	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?	--/+?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--?	++/--?		++/--?		++/--?	++/--?	++/--?
Medium Growth	++/--?	++/--?		++/--?		++/--?	++/--?	++/--?
Maximum Growth	++/--?	++/--?		++/--?		++/--?	++/--?	++/--?

1. Densification of existing urban areas

3.331 The minimum growth scenario includes growth in Cambridge urban area and North East Cambridge. Wastewater from these developments could be accommodated in the new Cambridge Water Recycling Centre (WRC) however, this is dependent on timing. Maintaining water quality is likely to be achievable with some mitigation measures at the new WRC, but interim mitigation may be necessary before new works are operational. North East Cambridge is not within a SPZ. Cambridge contains two Source Protection Zones (SPZs 1 and 2) by The Leys School. However, since built development is already present at these SPZs; it is unlikely that any development coming forward would take place at these sites. Furthermore, both the medium and maximum growth scenarios include development at Cambridge Airport which is not in a SPZ.

3.332 As well as the development listed above, the medium growth scenario also includes development at Cambridge Airport and on the Edge of Cambridge (Green Belt). Wastewater treatment (and maintaining water quality) for these developments is likely to be the same as stated above. The maximum growth scenario includes growth at Cambridge urban area and North East Cambridge, as well as development at Cambridge Airport.

3.333 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.334 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as North East Cambridge and Cambridge Airport, although this is more likely to come forward in the longer term.

3.335 As such, for 2020-2041, a mixed minor positive and minor negative effect with uncertainty is expected for the minimum growth scenario, whereas mixed minor positive and significant negative effects with uncertainty are expected for the medium and maximum scenarios. When fully built out, all scenarios are expected to have mixed significant positive and significant negative effects with uncertainty. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

2. Edge of Cambridge – outside the Green Belt

3.336 All growth options include development at North East Cambridge and Cambridge Airport. Wastewater from these developments could be accommodated in the new Cambridge WRC however, this is dependent on timing. Maintaining water quality is likely to be achievable with some mitigation measures at the new WRC, but interim mitigation may be necessary before new works are operational. North East Cambridge and Cambridge Airport are not within a SPZ.

3.337 The minimum growth scenario includes development at a village site and the medium growth scenario includes development at rural centres. Both the medium and maximum growth scenarios include the development of new settlements. Wastewater from new settlements is expected to generally be able to be accommodated (although it is noted some WRC catchments lack capacity), although this is dependent on the specific location and timing of development. The exact locations of the village site and minor rural centres under the minimum and medium scenarios are uncertain. In addition, the medium and maximum growth scenarios include development at new settlements, for which the locations are also uncertain. As such, it currently is not possible to state whether these developments would be within a SPZ.

3.338 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.339 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as North East Cambridge, Cambridge Airport and new settlements, although this is more likely to come forward in the longer term. At rural centres there may be some opportunities to improve water quality and implement water recycling on larger sites however, this is dependent on-site size and feasibility.

3.340 As such, for 2020-2041, a mixed minor positive and minor negative effect with uncertainty is expected for the minimum growth scenario, whereas a mixed minor positive and significant negative effect with uncertainty is expected for the medium and maximum growth scenarios. When fully built out, all scenarios are expected to have mixed significant positive and significant negative effects with uncertainty. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

3. Edge of Cambridge – Green Belt

3.341 All growth options include development on the Edge of Cambridge (Green Belt), with the medium growth scenario also containing development in Cambridge urban areas. Wastewater from these developments could be accommodated in the new Cambridge WRC however, this is dependent on timing. Maintaining water quality is likely to be achievable with some mitigation measures at the new WRC, but interim mitigation may be necessary before new works are operational. The medium growth option includes development in Cambridge where there are two Source Protection Zones (SPZs 1 and 2) by The Leys School. However, since built development is already present at these SPZs; it is unlikely that any development coming forward would take place at these sites. The locations on the Edge of Cambridge are unknown, so it is not possible to state whether these developments would be within a SPZ.

3.342 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but

not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.343 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, therefore minor positive effects are identified but uncertain, as this depends on the size of individual development sites.

3.344 As such, all scenarios are expected to have mixed minor positive and significant negative effects with uncertainty. The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

4. Dispersal – new settlements

3.345 All growth options include development at new settlements across the greater Cambridge. Wastewater from new settlements is expected to generally be able to be accommodated (although it is noted some WRC catchments lack capacity), although this is dependent on the specific location and timing of development Maintaining water quality is likely to be achievable with some mitigation measures at the relevant WRC. Furthermore, as the locations of the new settlements are unknown, so it is not possible to state whether these developments would be within a SPZ.

3.346 The Water Study identified that the maximum growth scenario has potential ‘deal breaker’ constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.347 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as at larger new settlements, although this is more likely to come forward in the longer term.

3.348 As such, for 2020-2041, a mixed minor positive and minor negative effect with uncertainty is expected for the minimum growth scenario, whereas a mixed minor positive and significant negative effect with uncertainty is expected for the medium and maximum growth scenarios. When fully built out, all scenarios are expected to have mixed significant positive and significant negative effects with uncertainty. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

5. Dispersal – villages

3.349 All growth options include development at rural centres, minor rural centres and villages however, the exact locations of these developments are unknown. Wastewater from these developments is expected to generally be able to be accommodated (although it is noted some WRC catchments lack capacity), although this is dependent on the specific location and timing of development. Maintaining water quality is likely to be achievable, with some mitigation measures at the relevant WRC. As the locations of the new developments are unknown, it is not possible to state whether these developments would be within a SPZ.

3.350 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.351 There may be some opportunities to improve water quality and implement water recycling on larger sites however, this is dependent on-site size and feasibility.

3.352 As such, all scenarios are expected to have mixed minor positive and significant negative effects with uncertainty. The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

6. Public transport corridors

3.353 All growth options include development at North East Cambridge, a new settlement and across eighteen villages along an existing or proposed public transport corridor. Wastewater from new settlements is expected to generally be able to be accommodated (although it is noted some WRC catchments lack capacity), although this is dependent on the specific location and timing of development. Wastewater from Cambridge urban areas could be accommodated in the new Cambridge WRC however, this is dependent on timing. Maintaining water quality is likely to be achievable with some mitigation measures at the relevant WRC, but, with regards to the new Cambridge WRC, interim mitigation may be necessary before new works are operational. North East Cambridge is not in a SPZ. The locations of the new settlement and village sites are unknown, so it is not possible to state whether these developments would be within a SPZ.

3.354 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions

cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.355 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as North East Cambridge and new settlements, although this is more likely to come forward in the longer term. There may be some opportunities to improve water quality and implement water recycling at larger settlements or village sites however, this is dependent on-site size and feasibility.

3.356 As such, for 2020-2041, a mixed minor positive and significant negative effect with uncertainty is expected for all growth scenarios. When fully built out, all scenarios are expected to have mixed minor significant positive and significant negative effects with uncertainty. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

7. Supporting a high-tech corridor by integrating homes and jobs

3.357 All growth scenarios include development at a new settlement along a public transport corridor and villages across greater Cambridge. Wastewater from new settlements is expected to generally be able to be accommodated (although it is noted some WRC catchments lack capacity), although this is dependent on the specific location and timing of development. The maximum scenario also includes development at North East Cambridge and Cambridge Airport. Wastewater from these developments could be accommodated in the new Cambridge WRC however, this is dependent on timing. Maintaining water quality is likely to be achievable with some mitigation measures at the relevant WRC, but, with regards to the new Cambridge WRC, interim mitigation may be necessary before new works are operational. Furthermore, the locations of the new settlement and villages are unknown, so it is not possible to state whether these developments would be within a SPZ. North East Cambridge and Cambridge Airport are not in a SPZ.

3.358 The Water Study identified that the maximum growth scenario has potential ‘deal breaker’ constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios.

3.359 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as a new settlement along a public transport corridor, North East Cambridge and Cambridge Airport, although this is more likely to come forward in the longer term. There may be some opportunities to improve water quality and implement water recycling at village sites however, this is dependent on-site size and feasibility.

3.360 As such, for 2020-2041, a mixed minor positive and minor negative effect with uncertainty is expected for the minimum growth scenario, whereas a minor positive and significant negative

effect with uncertainty is expected for the medium and maximum growth scenarios. When fully built out, mixed significant positive and significant negative effects with uncertainty are expected for all growth scenarios. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

8. Expanding a growth area around transport nodes

3.361 All growth options include the expansion of Cambourne by the equivalent of one new settlement. The minimum and medium growth scenarios include development at three villages along a public transport corridor. The medium and maximum scenarios also include development at minor rural centres and group villages within 5km of Cambourne. The medium growth scenario includes development at North East Cambridge and the maximum growth scenario includes development at North East Cambridge and Cambridge Airport.

3.362 Any extension to Cambourne or villages sited along the A428 public transport corridor may result in wastewater issues, as both Bourn and Uttons Drove WRC have capacity limitations that would require addressing. Maintaining water quality is likely to be achievable with some mitigation measures at the relevant WRC.

3.363 The Water Study identified that the maximum growth scenario has potential 'deal breaker' constraints due to water supply limitations, and the medium scenario is plausibly achievable, but not without but has significant constraints or uncertainties that will be difficult to overcome, technically challenging and/or costly. For these growth scenarios new regional-scale solutions would have to be implemented, but particularly for the maximum scenario, such solutions cannot currently be implemented in time to prevent detrimental impacts to water resources. As such, significant negative effects are identified for both the medium and maximum scenarios. However, the study also notes that development in the Cambourne area could have good opportunities for water resources with the potential to be supplied by bulk transfer, which could reduce water supply issues in the short term.

3.364 Water recycling and new blue-green infrastructure may be easier to implement across larger sites, such as strategic extensions to Cambourne, North East Cambridge and Cambridge Airport, although this is more likely to come forward in the longer term. There may be some opportunities to improve water quality and implement water recycling at minor rural centres and village sites however, this is dependent on-site size and feasibility. As such, for 2020-2041, a minor positive and significant negative effect with uncertainty is expected for all growth scenarios. When fully built out, the minimum growth scenario is expected to have a mixed significant positive and significant negative effect with uncertainty for all growth scenarios. Whilst it is likely the significant negative effects can be mitigated, and more easily so for the medium scenario than for the maximum scenario, the scores are based on a precautionary approach, which does not assume mitigation will be in place.

Best performing option

3.365 It is not possible to distinguish a best performing option The Water Study concludes that the most preferable spatial options are Option 2 'Edge of Cambridge – outside Green Belt' and Option 4 'Dispersal – new settlements', whereas the least preferable option is Option 5

‘Dispersal – villages’. However, this also takes into account flood risk, which is considered under SA objective 11.

3.366 Availability of water resources is a major issue in Greater Cambridge and the surrounding area. The minimum growth scenario performs best, given that the Water Study states that this level of growth could be accommodated with feasible adjustments to next Water Resource Management Plan to mitigate impacts, whereas the medium growth scenario has significant constraints that would require regional-scale solutions to be operational by the mid-2030s. The maximum growth scenario performs worst against this SA objective, as growth cannot be accommodated without detrimental impacts and interim measures are unlikely to be able to mitigate scale of impact.

3.367 The minimum growth scenarios for Options 1 'Densification of existing urban areas', Option 2 'Edge of Cambridge – outside the Green Belt', Option 4 'Dispersal – new settlements and Option 7 'Supporting a high-tech corridor by integrating homes and jobs' perform relatively well, as only minor negative effects are expected.

SA Objective 11: To adapt to climate change, including minimising flood risk

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	--/+?	+/-?	++/-?	+/-?	-?	+/-?	+/-	-?
Medium Growth	--/+	+/-?	++/--	--/+?	-?	+/-?	+/-	-?
Maximum Growth	--/+	+/-?	++/--	--/+?	-?	+/-?	+/-	-?

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--?	++/-?		++/-?		++/-?	++/-	+/-?
Medium Growth	++/--	++/-?		++/--?		++/-?	++/-	+/-?
Maximum Growth	++/--	++/-?		++/--?		++/-?	++/-	+/-?

1. Densification of existing urban areas

3.368 The city of Cambridge contains several areas that fall within Flood Zones 2 and 3. This is due to the fact the River Cam runs through the city. Therefore, development in Cambridge could fall within Flood Zones 2 or 3, which are at a higher risk of flooding, and Cambridge also has high levels of surface water flood risk. Option 1 would result in an increase in the density of development, particularly within Cambridge. The primary location for development would be within the urban area and at North East Cambridge, the last major brownfield site within the urban area. This site is not within Flood Zones 2 or 3.

3.369 As this option aims to focus the majority of development within the urban area, it reduces the need to use greenfield land to accommodate growth thereby reducing the amount of additional impermeable surfaces. This will help to reduce any additional risk of flooding through new development. This is particularly true for the minimum growth scenario. However, for the medium and maximum growth scenarios, additional sources of supply will be at Cambridge Airport and, for the medium growth scenario, an edge of Cambridge Green Belt site. Whilst Cambridge Airport is a brownfield site and does not fall within Flood Zones 2 or 3, it contains substantial, permeable, grassy areas and development on the edge of Cambridge is likely to be on greenfield land.

3.370 Development on the edge of Cambridge is likely to be on Greenfield land, although the edge of Cambridge does not contain many areas that fall within Flood Zones 2 or 3. There are also areas identified as being at risk of surface water flooding. Development at these sites is likely to increase the amount of impermeable areas that will reduce the infiltration capacity and flood retention provided by greenfield land. However, larger developments at the edge of Cambridge and Cambridge Airport could provide additional green space, which could build climate resilience in the area, especially if the open spaces are naturally designed compared to amenity space. The Water Study suggests that development at North East Cambridge and within the urban area have good opportunities to retrofit SuDS and other flood risk measures, and that development at Cambridge Airport could use on-site attenuation to reduce flood risk downstream.

3.371 For 2020-2041, significant negative effects with uncertainty are expected for the minimum growth scenario, whereas mixed minor positive and significant negative effects are expected for the medium and maximum growth scenarios. These effects are expected to be the same when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.372 Option 2 includes urban development at Cambridge Airport for all growth scenarios in addition to extensions to the edge of Cambridge, with the opportunity of including a range of green spaces incorporating sustainable drainage systems. Cambridge Airport is within Flood Zone 1.

3.373 Similar to Option 1, this Option would make use of brownfield land, thereby reducing the need to use greenfield land and any additional risk of flooding through the increase of impermeable surfaces. Whilst Cambridge Airport is a brownfield site and does not fall within

Flood Zones 2 or 3, it has some surface water flood risk and contains large areas of permeable, grassy areas and development on the edge of Cambridge is likely to be on greenfield land. Additional sources of supply will also be delivered North East Cambridge for all scenarios. The Water Study states that North East Cambridge is in an area at low risk of flooding and has good opportunities to retrofit SuDS and other flood risk measures, and that development at Cambridge Airport could use on-site attenuation to reduce flood risk downstream.

3.374 For the minimum growth scenario one village site is also proposed and the medium scenario includes growth at rural centres and minor rural centres. The medium and maximum growth scenarios also include development at new villages. The locations of these are unknown, therefore it is not known if these will fall within areas at high risk of flooding and similarly opportunities for managing flood risk (e.g. on-site attenuation) are uncertain. However, the medium and maximum scenarios are likely to result in greater loss of greenfield land, which could increase the risk of surface water flooding, although new settlements are likely to include additional greenspace, which could incorporate sustainable drainage systems and build climate resilience in the area.

3.375 For 2020-2041, mixed minor positive and minor negative effects are expected for all options. These are uncertain, as the locations of new settlements and village sites/rural centres are unknown. When fully built out, the positive effects are expected to be significant.

3. Edge of Cambridge - Green Belt

3.376 Option 3 includes the development of new sites in Green Belt on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios across a broad range of locations. The edge of Cambridge does not contain many areas that fall within Flood Zones 2 or 3, although the Water Study notes that existing fluvial flood and surface water flood risk may make individual sites difficult to deliver, depending on location. Development at these sites is also likely to increase the amount of impermeable areas will reduce the infiltration capacity and flood retention provided by greenfield land. However, these developments, particularly larger individual developments, present the opportunity for green spaces to be delivered on-site and to use large scale features in larger sites to reduce flood risk downstream. In addition, provision of green space could incorporate sustainable drainage systems and build climate resilience in the area, especially if the open spaces are naturally designed compared to simple amenity space. Given that this option is expected be fully built out within the plan period, such measures are considered more likely to be delivered within the plan period.

3.377 The medium growth scenario also includes growth within the urban area of Cambridge. The urban area contains several areas that fall within Flood Zones 2 and 3. This is due to the fact the River Cam runs through the city. Therefore, development in Cambridge could fall within Flood Zones 2 or 3, which are at a higher risk of flooding, and Cambridge also has high levels of surface water flood risk.

3.378 Overall, mixed significant positive and minor negative effects with uncertainty are expected for the minimum growth scenario (as development at fewer locations offers more scope to avoid areas at higher risk of flooding), whereas mixed significant positive and significant negative effects are expected for the medium and maximum growth scenarios.

3.379 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.380 Option 4 involves the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure. Both the medium and maximum growth scenarios include a new settlement on the road network as well.

3.381 New settlements are likely to be developed on greenfield land. Therefore, a settlement would increase the risk of surface run-off and potentially flooding in the area through the increase of impermeable surfaces. Depending on where the new settlements might come forward, there are large amounts of land within Flood Zones 2 and 3 within the northern part of South Cambridgeshire and as such if development is located there it may be at higher risk of flooding. However, the Water Study states that it is expected new settlements will be located on areas of low or medium flood risk, where it is feasible to safely manage risk within development, and that new settlements present good opportunities to use large scale features in new settlements to reduce flood risk downstream. In addition, it is likely that additional green space would be provided which could incorporate sustainable drainage systems and build climate resilience in the area, especially if the open spaces are naturally designed compared to simple amenity space.

3.382 For 2020-2041, mixed minor positive and minor negative effects with uncertainty are expected for the minimum growth scenario, whereas mixed minor positive and significant negative uncertain effects are expected for the medium and maximum growth scenarios. This is because the medium and maximum scenarios are likely to provide four new settlements thereby substantially reducing the amount of greenfield land available to provide infiltration capacity and flood retention and increasing the likelihood development will coincide with an area at high risk of flooding. When fully built out, mixed significant positive and minor negative effects with uncertainty are expected for the minimum growth scenario, whereas mixed significant positive and significant negative effects are expected for the medium and maximum growth scenarios.

5. Dispersal – villages

3.383 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. It is likely that development within the villages of Greater Cambridge will be on greenfield land which would increase the risk of flooding in the area through the increase of impermeable surfaces. This will reduce the infiltration capacity and flood retention provided by greenfield land. In Greater Cambridge Flood Zones 2 and 3 correspond with the River Cam and its tributaries, therefore there are patches of Flood Zones 2 and 3 throughout the area. As such an increase in flooding would depend on the exact location of the development. Sites coming forward under this option are unlikely to be large enough to offer significant betterment in terms of flood risk.

3.384 Overall, minor negative effects are expected against each scenario with uncertainty.

3.385 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.386 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, one new settlement (smaller for the minimum scenario and larger for the other two scenarios) and development across 18 villages with existing or proposed public transport corridors.

3.387 North East Cambridge lies in an area at low risk of flooding, but could present an opportunity to retrofit SuDS. Flood Zones 2 and 3 correspond with the River Cam and its tributaries, therefore there are patches of Flood Zones 2 and 3 throughout the area. As such the developments could be at risk of flooding. However, the exact locations are uncertain at this time. The Water Study states that it is expected new settlements will be located on areas of low or medium flood risk, where it is feasible to safely manage risk within development, and that new settlements present good opportunities to use large scale features in new settlements to reduce flood risk downstream. It is also likely that additional green space would be provided at the new settlements which could incorporate sustainable drainage systems and build climate resilience in the area, especially if the open spaces are naturally designed compared to simple amenity space.

3.388 For 2020-2041, mixed minor positive and minor negative effects with uncertainty are expected against each scenario. When fully built out, all growth scenarios are expected to have mixed significant positive and minor negative effects.

7. Supporting a high-tech corridor by integrating homes and jobs

3.389 Option 7 includes development in the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement. All growth scenarios also include growth at villages to the south of Cambridge.

3.390 As the development will be concentrated in the south of Cambridge it is less likely that development will be located in Flood Zones 2 and 3 as the majority of areas at risk of flooding lie within the north of the plan area. However, development is likely to increase the risk of flooding with the increase of impermeable areas via development on greenfield land. The Water Study states that it is expected new settlements will be located on areas of low or medium flood risk, where it is feasible to safely manage risk within development, and that new settlements present good opportunities to use large scale features in new settlements to reduce flood risk downstream. In particular, the Green Infrastructure Study states that focusing development in this area could provide opportunities for woodland and wetland-grassland habitat, which could support flood management. In addition, it is expected that new settlements would include green space, which could incorporate sustainable drainage systems and build climate resilience in the area, especially if the open spaces are naturally designed compared to simple amenity space.

3.391 The maximum growth scenario includes growth at North East Cambridge and Cambridge Airport. North East Cambridge is not within Flood Zones 2 or 3. Cambridge Airport is within Flood Zone 1, although it has some surface water flood risk and development of this site would

result in loss of a large, grassy area, which could increase surface water flooding. The Water Study recognised that North East Cambridge has good opportunities to retrofit SuDS and other flood risk reduction measures to brownfield sites, reducing risk of flooding to site and elsewhere and Cambridge Airport offers good opportunities to use on-site attenuation to reduce flood risk downstream.

3.392 For 2020-2041, mixed minor positive and minor negative effects are expected against each growth scenario. The positive effects are expected to be positive when fully built out.

8. Expanding a growth area around transport nodes

3.393 Option 8 would focus development at Cambourne and along the A428 public transport corridor, as there will be a new railway station and Cambridge Autonomous Metro serving the areas. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes a larger extension. All options also include development at villages along the A428 and the medium and maximum scenarios include further growth at minor rural centres and group villages within 5km of Cambourne.

3.394 It is likely that development at Cambourne, along the A428 and at the villages/minor rural centres will be on greenfield land, therefore the risk of flooding is likely to rise due to the increase of impermeable areas. There are patches of Flood Zones 2 and 3 within the southern section of Cambourne and the Water Study states that the area has some surface water flood risk, but it should be feasible to safely manage this within development. As such the developments could be at some risk of flooding, however the exact locations are uncertain at this time. The Water Study states there may be some opportunities to use on-site attenuation in new settlements to reduce flood risk downstream. In addition, the large scale of development at Cambourne would be expected to provide new green space, which could incorporate sustainable drainage systems and build climate resilience in the area, especially if the open spaces are naturally designed compared to simple amenity space.

3.395 The Green Infrastructure Study states that this option could provide opportunities to enhance wetland and grassland habitat, which could support flood management.

3.396 The medium and maximum scenarios include growth at North East Cambridge and the maximum growth scenario also includes growth at Cambridge Airport. North East Cambridge is not within Flood Zones 2 or 3. Cambridge Airport is within Flood Zone 1 and Cambridge Airport offers good opportunities to use on-site attenuation to reduce flood risk downstream, although development of this site would result in loss of a large, grassy area, which could increase surface water flooding.

3.397 For 2020-2041, minor negative effects are expected against each scenario with uncertainty. When fully built out, mixed minor positive and minor negative effects with uncertainty are expected.

Best performing option

3.398 For 2020-2041, the minimum scenario for Option 3 'Edge of Cambridge – Green Belt' performs best, as it is more likely to be able to avoid areas at high risk of flooding and could

include flood betterment measures. This is comparable to the following options when fully built out: Options 2 'Edge of Cambridge – outside the Green Belt', 6 'Public transport corridors', 7 'Supporting a high-tech corridor by integrating homes and jobs' and the minimum growth scenario for Option 4 'Dispersal – new settlements', which also perform well.

3.399 The Water Study concludes that the most preferable spatial options are Option 2 ‘Edge of Cambridge – outside Green Belt’ and Option 4 ‘Dispersal – new settlements’, whereas the least preferable option is Option 5 ‘Dispersal – villages’. However, this also takes into account water resources, water quality and wastewater treatment, which are considered under SA objective 10.

SA Objective 12: To minimise Greater Cambridge's contribution to climate change

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++	+/-	+/-?	--/+?	--	--/+?	+/-?	--/+
Medium Growth	++/-	--/+	+/-?	--/+?	--	++/--?	++/-?	--/+
Maximum Growth	++/-	--/+	++/-?	--/+?	--	++/--?	++/-?	--/+

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++	++/-		++/--		++/--?	++/-	++/--?
Medium Growth	++/-	++/--		++/--		++/--?	++/-?	++/--?
Maximum Growth	++/-	++/--		++/--		++/--?	++/-	++/--?

3.400 Note that the assessments below have been partly informed by the Transport Study. It is noted that the Transport Study is based on the maximum growth scenario. In the absence of equivalent information for the minimum and medium scenarios, this has also been used as the starting point for assessing the other growth scenarios, although the overall scores in the table above are influenced by a number of factors.

1. Densification of existing urban areas

3.401 Option 1 would result in an increase in the density of development, particularly within Cambridge. The primary location for development would be within the urban area and at North East Cambridge, the last major brownfield site within the urban area. This site will be brought forward through the AAP.

3.402 The medium and maximum growth scenarios also include development at Cambridge Airport, at which a range of services and facilities, employment opportunities, open space and walking and cycling can be designed in from the outset of design. As such, this option is likely to reduce the need to travel as development will be within close proximity to existing services and facilities with the option to also incorporate additional services and facilities from the outset. The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities and employment opportunities at North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities and employment opportunities, although this is not the case for Cambridge Airport.

3.403 The Cambridge Airport area has been identified as having high levels of estimated soil carbon and carbon in vegetation, which could be disturbed or lost as a result of development.

3.404 As this option aims to focus the majority of development within the urban area, which is the main centre for services and facilities and employment opportunities, the need to travel by car will reduce thereby encouraging more sustainable methods of transport like walking and cycling and minimising the amount of greenhouse gas emissions. This is particularly true for the minimum growth scenario.

3.405 The medium and maximum growth scenarios may put more pressure on local services and facilities, due to the increased density of development in the Cambridge urban area. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity. This could lead to residents travelling further afield to access services and facilities, increasing carbon emissions from transport. Whilst the medium and maximum scenarios are also likely to include larger developments that may provide new services and facilities, these would be located outside of Cambridge and therefore would not be able to fully mitigate the effects of higher densities in the urban area. Nevertheless, the Transport Study stated that this option was one of the best performing (for the maximum growth scenario) as it will result in fewer car trips and generate less traffic than other options. This option will result in a higher proportion of trips taken by active modes of transport than any other option. The Zero Carbon Study also found that this option performs best in terms of minimising carbon emissions. Whilst this is primarily related to lower levels of car travel, high density development, such as high-rise flats, have less embodies carbon per dwelling.

3.406 Overall, significant positive effects are expected for the minimum growth scenario, whereas mixed significant positive and minor negative uncertain effects are expected for the medium and maximum growth scenarios, for both 2020- 2041 and when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.407 Option 2 includes development at Cambridge Airport and North East Cambridge for all growth scenarios, which offer the opportunity to incorporate employment opportunities, a GP surgery, a range of open space, recreational and sporting facilities, and walking and cycling can be designed in from the outset of design. As such, this option is likely to reduce the need to travel as development will be within close proximity to existing services and facilities with the option to also incorporate additional services and facilities from the outset.

3.408 The Cambridge Airport area has been identified as having high levels of estimated soil carbon and carbon in vegetation, which could be disturbed or lost as a result of development.

3.409 The medium and maximum growth scenarios propose two new settlements on public transport corridors. It is likely that these settlements will be designed so that residents can access the centre of each settlement by active travel. However, even with public transport options available, many residents are likely to drive for longer journeys, for example to access employment in Cambridge. The minimum growth scenario also includes a village site and the medium scenario includes growth at rural centres and minor rural centres, which would likely rely on private transport to amenities, facilities and services, which may increase the emission of greenhouse gases. New settlements, provided by the medium and maximum scenarios, offer the opportunity to incorporate services and facilities and employment opportunities into the design from the outset. The medium and maximum growth scenarios include development of new settlements, which are expected to provide new services and facilities and employment opportunities, particularly larger settlements. The medium growth scenario includes development at rural centres and minor rural centres, which may help ensure the continued vitality and viability of these centres, although there is a risk that a larger amount of development at any one rural settlement could lead to increased pressure on services and facilities and lead to an increased need to travel by private car to access facilities elsewhere.

3.410 The Transport Study demonstrated that this option is likely to result in a relatively high proportion of trips taken by active transport, but will generate more distance travelled, travel time and delay than options 1 and 7 (for the maximum growth scenario).

3.411 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities at new settlements, North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport or the new settlements. New settlements could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks.

3.412 For 2020-2041, mixed minor positive and significant negative effects are expected for medium and maximum scenarios. Mixed minor positive and minor negative effects are recorded for the minimum scenario, given that the majority of development will have good access to services and facilities in Cambridge by sustainable modes of transport. Mixed significant positive and minor negative effects are expected for the minimum scenario and mixed significant positive and significant negative effects are expected for the medium and maximum scenarios when fully built out.

3. Edge of Cambridge – Green Belt

3.413 Option 3 includes the development of new sites in the Green Belt on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios across a broad range of locations. The maximum growth scenario includes higher delivery rates at the Green Belt sites. It is likely that additional services and facilities and employment opportunities will also be provided on site, but these may not be provided in the short term and are likely to be more limited under the minimum and medium growth scenarios. Larger developments have more scope to be designed in a way that encourages walking and cycling which is likely to minimise the area's contribution to climate change. In addition, it is likely for these developments to have good access to services and facilities, jobs and public transport options within Cambridge. These are likely to be accessible via public transport from the new developments. Larger urban extensions could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks. Smaller extensions are less likely to have these benefits.

3.414 Areas in the east and south have high estimated levels of soil carbon. Development on land supporting high levels of carbon may cause disturbance or loss thereof.

3.415 The medium growth scenario also includes growth within the Cambridge urban area, which is likely to help minimise carbon emissions by providing housing close to services, facilities, jobs and public transport links.

3.416 The Transport Study demonstrated that this option is likely to result in a relatively high proportion of trips taken by active transport, but will generate more distance travelled, travel time and delay than options 1 and 7 (for the maximum growth scenario) .

3.417 Overall, the minimum and medium growth scenarios are expected to have a mixed minor positive and minor negative effect with uncertainty and the maximum growth scenario is expected to have a significant positive and minor negative effect with uncertainty.

3.418 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.419 Option 4 includes the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure. Under the minimum growth scenario, the two new settlements would be on a public transport corridor, which would reduce the need for private transport and reduce greenhouse gas emissions. However, both the medium and maximum growth scenarios include a new settlement on the road network. As such, residents would be more reliant on private transport which could increase the area's contribution to climate change. Even with public transport options available, many residents are likely to drive for longer journeys, for example to access employment in Cambridge. Nevertheless, larger settlements have more scope to be designed in a way that encourages walking and cycling, which will likely minimise the area's contribution to climate change.

3.420 New settlements would be expected to provide a range of new services and facilities to meet the day to day needs of residents and increase the amount of employment opportunities within the settlement. However, for the minimum and medium scenarios in particular, it is

considered unlikely that the full range of services and facilities and job opportunities at new settlements will be delivered between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, at least some of the new settlements are likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option. New settlements could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks.

3.421 The Transport Study suggests that this option is 'medium performing' overall (for the maximum growth scenario). It will increase the proportion of travel by active modes above the baseline, but not as much as other options and will generate more distance travelled, travel time and delay than options 1 and 7.

3.422 Overall, these growth scenarios are expected to have a mixed minor positive and significant negative effect with uncertainty from 2020-2041 and a mixed significant positive and significant negative effect with uncertainty when built out.

5. Dispersal – villages

3.423 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. There are fewer Rural Centres so the absolute growth in each village is significantly greater for each Rural Centre than Minor Rural Centre. Rural Centres are likely to have more amenities, services and facilities and employment opportunities than Minor Rural Centres however, they could become overwhelmed and reach capacity. As such, an increase in the reliance on private vehicles is likely in order to access services and facilities and employment opportunities elsewhere, thereby leading to an increase in greenhouse gas emissions. This will be more prevalent in villages without good public transport links, although most are not as well connected via public transport (particularly regarding frequency of services), than larger centres. The Zero Carbon Study found that this option performs worst in terms of increased carbon emissions.

3.424 Overall, each scenario is likely to have negative effects on this objective for all scenarios.

3.425 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.426 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, one new settlement (smaller for the minimum scenario and larger for the other two scenarios) and across 18 villages with existing or proposed public transport corridors. New settlements could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks.

3.427 Development at North East Cambridge will provide new services and facilities and employment opportunities, as well as be in close proximity to existing facilities within Cambridge city. In addition, this option concentrates development along public transport corridors, it may

reduce the use of private vehicles and greenhouse gas emissions. However, an increase in residents could lead to overcapacity if additional services are not provided, leading people to travel to services further afield; this is most likely to occur at the 18 villages. Even with public transport options available, many residents are likely to drive for longer journeys, for example from new settlements and more rural settlements to access employment in Cambridge.

3.428 In addition, for the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered at new settlements and at North East Cambridge between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. This is likely to be more pronounced for the minimum growth scenario, during the plan period, due to the smaller amount of development likely to be completed at a new settlement site. Under the maximum growth scenario however, growth at these locations is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.429 The Transport Study suggests that this option is 'medium performing' overall (for the maximum growth scenario). It will increase the proportion of travel by active modes above the baseline, but not as much as other options and will generate more distance travelled, travel time and delay than options 1 and 7. The Zero Carbon Study found that this option performs second best (after option 1) in terms of minimising carbon emissions.

3.430 For 2020-2041, mixed minor positive and significant negative effects are expected for the minimum scenario, whereas mixed significant positive and significant negative effects are expected for the medium and maximum growth scenarios. All scenarios are expected to have mixed significant positive and significant negative effects when fully built out. All effects are considered uncertain.

7. Supporting a high-tech corridor by integrating homes and jobs

3.431 Option 7 includes development in the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement however, both are on public transport corridors.

3.432 The Review of Spatial Options in relation to Green Infrastructure suggests that development in this area provides opportunities for enhancement of woodland and wetland-grassland mosaic, which could serve to support carbon capacity.

3.433 All growth scenarios include development across five villages all with existing or proposed public transport nodes. However, the medium growth scenario could include 25% of development not on public transport corridors. Overall, it is likely that the need to travel by car will be minimised, but the medium growth scenario may also increase the use of private vehicles and greenhouse gas emissions. Whilst there is likely to be some private car use resulting from development, in this area south of Cambridge employees could travel to work using active travel or public transport especially as this option supports the life sciences cluster area around the south of Cambridge.

3.434 The maximum growth scenario also includes growth at North East Cambridge and Cambridge Airport, which will provide new services and facilities and employment opportunities, as well as low growth in the urban area. As such, this scenario will be less likely to put pressure on existing services and facilities, as well as providing new ones to serve new development, thereby reducing the need to travel by private car to access facilities elsewhere, resulting in significant positive effects. The Cambridge Airport area has been identified as having high levels of estimated soil carbon and carbon in vegetation, which could be disturbed or lost as a result of development.

3.435 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period, resulting in a need for residents to travel further to access these. Under the maximum growth scenario however, growth at new settlements is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option. In addition, growth at North East Cambridge in the maximum scenario is likely to be of a scale to provide services and facilities to meet day to day needs, although there is a less certainty on this with regards to Cambridge Airport. New settlements could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks.

3.436 Nevertheless, the Transport Study stated that this option was one of the best performing as, whilst it will not have the highest non-car mode share, it will reduce overall travel distance, time and delay, leading to reduced impacts on the wider road network and associated carbon emissions (for the maximum growth scenario). Given that the Transport Study is based on the maximum growth scenario, it is expected that positive effects for the minimum scenario, within the plan period, will be minor, rather than significant. However it is noted that the Zero Carbon Study suggested that this option is more of a medium-performing option, resulting in some uncertainty.

3.437 For 2020-2041, the minimum scenario is expected to have mixed minor positive and minor negative effects with uncertainty, whereas the medium and maximum scenarios are likely to have significant positive and minor negative effects with uncertainty. When fully built out, all scenarios are expected to have significant positive and minor negative effects, although there is uncertainty associated with the medium growth scenario as there is a greater risk of private vehicles being utilised.

8. Expanding a growth area around transport nodes

3.438 Option 8 would focus development at Cambourne and along the A428 public transport corridor, as there will be a new railway station and Cambridge Autonomous Metro serving these areas, although it is uncertain whether these will come forward within the plan period, particularly the railway link. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes a larger development. All of these developments would have access to the railway station, which would help to reduce reliance on travelling by car thereby minimising greenhouse gas emissions. Furthermore, new settlements have the opportunity to encourage and accommodate walking and cycling from the initial design stage. However, currently the development at Cambourne is not well served by public transport, so positive effects could be

felt in the long term when the rail station and Cambridge Autonomous Metro are implemented, but in the short term development in Cambourne and along the A428 could cause additional residents utilising private vehicles to travel. In addition, some residents are still likely to travel by car, particularly to locations not served by the train or Cambridge Autonomous Metro. Larger urban extensions could have greater potential to incorporate low-carbon and energy efficient design, such as district heating networks.

3.439 This option also includes growth at villages along the A428 public transport corridor, which will be well served by public transport, and therefore contribute to minimising greenhouse gas emissions, in the long term, but may be reliant on private car use to some extent. The medium and maximum options include growth at other villages/settlements within 5km of Cambourne that may not be on public transport corridors. Such growth is likely to result in increases in car use to access employment, services and facilities.

3.440 The medium and maximum growth scenarios include growth at North East Cambridge and, for the maximum growth scenario, growth at Cambridge Airport. These sites are likely to have good access to the services, facilities an public transport links within Cambridge as well as providing new ones, therefore minimising the need to travel and associated greenhouse gas emissions. For the medium scenario, it is considered unlikely that the full range of services and facilities will be delivered to meet the needs of growth at North East Cambridge between 2020 and 2041, as a lower level of growth is expected within the plan period. Under the maximum growth scenario, growth at North East Cambridge is more likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option, although this is less certain for Cambridge Airport. The Cambridge Airport area has been identified as having high levels of estimated soil carbon and carbon in vegetation, which could be disturbed or lost as a result of development.

3.441 The Transport Study suggests that this option is ‘medium performing’ overall (for the maximum growth scenario). It will increase the proportion of travel by active modes above the baseline, but will generate more distance travelled, travel time and delay than options 1 and 7.

3.442 For 2020-2041, all scenarios are likely to have mixed minor positive and significant negative effects. When fully built out, each scenario is expected to have significant positive and significant negative effects with uncertainty.

Best performing option

3.443 Option 1: 'Densification of existing urban areas' performs best, as it locates development within the existing urban area. As such, proximity to existing services, facilities, employment opportunities and public transport is likely to be better than the other options. In addition, the opportunity to cycle and walk are more prevalent within the urban area, but also could be developed within other sources of supply in the medium and maximum scenarios as active travel could be included from the design stages. Higher density development also tends to have lower embodied carbon. The Transport Study identified that Option 7 'Supporting a high-tech corridor by integrating homes and jobs' also performs well (for the maximum growth scenario), as it will reduce traffic in the wider Cambridge area and reduce journey length/times to work. However, the Zero Carbon Study suggested that Option 6 ‘Public transport corridors’ would likely lead to lower carbon emissions than Option 7. The Transport Study also found that

Options 2 ‘ Edge of Cambridge – outside Green Belt’ and Option 3 'Edge of Cambridge – Green Belt' would help support active travel (based on the maximum growth scenario).

3.444 Larger urban extensions, such as those that may come forward through options 3 ‘Edge of Cambridge – Green Belt’ and 8 ‘Expanding a growth area around transport nodes’, as well as new settlements, may present greater opportunity to incorporate sustainable energy generation, such as district heating networks. All development could also help to minimise carbon emissions through energy efficient design etc., although the Zero Carbon Study highlights that the main source of carbon emissions for all options is transport.

3.445 Option 5 'Dispersal – villages' performs least well as it is likely to lead to development with high levels of dependency on the private car.

SA Objective 13: To limit air pollution in Greater Cambridge and ensure lasting improvements in air quality

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--	--/+	+/-?	--/+?	--	--/+?	+/-	--/+
Medium Growth	++/--	--/+	--/+?	--/+?	--	--/+?	++/-?	--/+
Maximum Growth	++/--	--/+	++/--?	--/+?	--	--/+?	++/-	--/+

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--	++/--		++/--?		++/--?	++/-	++/--?
Medium Growth	++/--	++/--		++/--?		++/--?	++/-?	++/--?
Maximum Growth	++/--	++/--		++/--?		++/--?	++/--	++/--?

1. Densification of existing urban areas

3.446 Option 1 would result in an increase in the density of development, particularly within Cambridge. The primary location for development would be within the urban area and at North East Cambridge, the last major brownfield site within the urban area. This site will be brought forward through the AAP.

3.447 The medium and maximum growth scenarios also include development at Cambridge Airport. A range of services and facilities, employment opportunities, open space and walking and cycling can be designed in from the outset of design. As such, this option is likely to reduce the need to travel as development will be within close proximity to existing services and facilities with the option to also incorporate additional services and facilities from the outset.

3.448 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities and employment opportunities at North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities and employment opportunities, although this is not the case for Cambridge Airport.

3.449 As this option aims to focus the majority of development within the urban area, which is the main centre for services and facilities, the need to travel by car will reduce thereby encouraging more sustainable methods of transport like walking and cycling and minimising the effects of poor air quality. This is particularly true for the minimum growth scenario.

3.450 The medium and maximum growth scenarios may put more pressure on local services and facilities, due to the increased density of development in the Cambridge urban area. Indeed the Infrastructure Study states that it is thought much of Cambridge's infrastructure is at or close to capacity. This could lead to residents travelling further afield to access services and facilities, increasing air pollution from transport. Whilst the medium and maximum scenarios are also likely to include larger developments that may provide new services and facilities and employment opportunities, these would be located outside of Cambridge and therefore would not be able to fully mitigate the effects of higher densities in the urban area. Nevertheless, the Transport Study stated that this option was one of the best performing as it will result in fewer car trips and generate less traffic than other options (for the maximum growth scenario). This option will result in a higher proportion of trips taken by active modes of transport than any other option.

3.451 In addition, there is an AQMA within the city of Cambridge and another on the A14 which connects to the centre of the city and North East Cambridge. Whilst development would have good access to services and facilities by non-car modes, it is likely some residents will travel by car or other motorised vehicle, therefore, it is likely that additional development within the urban area and at North East Cambridge will exacerbate the poor air quality within the area.

3.452 Overall, mixed significant positive and significant negative effects with uncertainty are expected for aa growth scenarios, for both 2020-2041 and when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.453 Option 2 includes development at Cambridge Airport and North East Cambridge for all growth scenarios, which offer the opportunity to incorporate employment opportunities, a GP surgery, a range of open space, recreational and sporting facilities, and walking and cycling can be designed in from the outset of design. As such, this option is likely to reduce the need to travel as development will be within close proximity to existing services and facilities and jobs with the option to also incorporate additional services and facilities and employment opportunities from the outset.

3.454 The medium and maximum growth scenarios propose two new settlements on the public transport corridors. It is likely that these settlements will be designed so that residents can access the centre of each settlement by active travel. However, even with public transport options available, many residents are likely to drive for longer journeys, for example to access employment in Cambridge. The minimum growth scenario also includes a village site and the medium scenario includes growth at rural centres and minor rural centres, which would likely rely on private transport to access amenities, facilities and services and employment opportunities and this may worsen air quality. New settlements, provided by the medium and maximum scenarios, offer the opportunity to incorporate services and facilities into the design from the outset. The medium and maximum growth scenarios include development of new settlements, which are expected to provide new services and facilities, particularly larger settlements. The medium growth scenario includes development at rural centres and minor rural centres, which may help ensure the continued vitality and viability of these centres, although there is a risk that a larger amount of development at any one rural settlement could lead to increased pressure on services and facilities. This could lead to residents travelling further afield to access services and facilities, increasing air pollution from transport.

3.455 The minimum and medium growth scenarios are unlikely to provide the full range of services and facilities at new settlements, North East Cambridge and Cambridge Airport between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, growth at North East Cambridge is expected to be of a scale to ensure provision of sufficient new services and facilities, although this is not the case for Cambridge Airport or the new settlements.

3.456 In addition, there is one AQMA within the city of Cambridge and another on the A14 which connects to the centre of the city and North East Cambridge. Whilst development in and around Cambridge would have good access to services and facilities by non-car modes, it is likely some residents will travel by car or other motorised vehicle, therefore, it is likely that development will exacerbate the poor air quality within the area.

3.457 The Transport Study demonstrated that this option is likely to result in a relatively high proportion of trips taken by active transport, but will generate more distance travelled, travel time and delay than options 1 and 7 (for the maximum growth scenario).

3.458 For 2020-2041, mixed minor positive and significant negative effects are expected for all growth scenarios. Mixed significant positive and significant negative effects are expected for all scenarios when fully built out.

3. Edge of Cambridge – Green Belt

3.459 Option 3 includes the development of new sites in the Green Belt on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios across a broad range of locations. The maximum growth scenario includes higher delivery rates at the Green Belt sites. It is likely that additional services and facilities and employment opportunities will also be provided on site, but these may not be provided in the short term and are likely to be more limited for the minimum and medium growth scenarios. Larger developments have more scope to be designed in a way that encourages walking and cycling which is likely to minimise impacts on the area's air quality. In addition, it is likely for these developments to have good access to public transport options in Cambridge.

3.460 The medium growth scenario also includes growth within the Cambridge urban area, which is likely to help minimise carbon emissions by providing housing close to services, facilities, jobs and public transport links. Whilst development in and around Cambridge would have good access to services and facilities by non-car modes, it is likely some residents will travel by car or other motorised vehicle, therefore exacerbating poor air quality in this area, including the city centre and A14 AQMAs .

3.461 The Transport Study demonstrated that this option is likely to result in a relatively high proportion of trips taken by active transport, but will generate more distance travelled, travel time and delay than options 1 and 7 (for the maximum growth scenario).

3.462 Overall, the minimum growth scenario is expected to have mixed minor positive and minor negative effects with uncertainty, the medium growth scenario is expected to have mixed minor positive and significant negative effects with uncertainty and the maximum growth scenario is expected to have a mixed significant positive and significant negative effect with uncertainty.

3.463 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.464 Option 4 includes the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure. Under the minimum growth scenario, the two new settlements would be on a public transport corridor, which would reduce the need for private transport and help to minimise poor air quality. However, both the medium and maximum growth scenarios include a new settlement on the road network. As such, residents would be more reliant on private transport which could worsen air quality. Even with public transport options available, many residents are likely to drive for longer journeys, for example to access employment in Cambridge. Nevertheless, larger settlements have more scope to be designed in a way that encourages walking and cycling, which will likely minimise adverse effects on the area's air quality.

3.465 New settlements would be expected to provide a range of new services and facilities to meet the day to day needs of residents within the settlement. However, for the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities and job opportunities at new settlements will be delivered between 2020 and 2041, as

a lower level of growth is expected at these locations within the plan period. Under the maximum growth scenario, at least some of the new settlements are likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.466 The Transport Study suggests that this option is 'medium performing' overall (for the maximum growth scenario). It will increase the proportion of travel by active modes above the baseline, but not as much as other options and will generate more distance travelled, travel time and delay than options 1 and 7.

3.467 Overall, these growth scenarios are expected to have a mixed minor positive and significant negative effect with uncertainty from 2020-2041 and a mixed significant positive and significant negative effect with uncertainty when fully built out.

5. Dispersal – villages

3.468 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. There are fewer Rural Centres so the absolute growth in each village is significantly greater for each Rural Centre than Minor Rural Centre. Rural Centres are likely to have more amenities, services and facilities and employment opportunities than Minor Rural Centres however, they could become overwhelmed and reach capacity. As such, an increase in the reliance on private vehicles is likely in order to access services and facilities and employment opportunities elsewhere, thereby leading to a worsening of air quality. This will be more prevalent in villages without good public transport links, although most are not as well connected via public transport (particularly regarding frequency of services), than larger centres.

3.469 Overall, each scenario is likely to have significant negative effects on this objective.

3.470 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.471 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, one new settlement (smaller for the minimum scenario and larger for the other two scenarios) and across 18 villages with existing or proposed public transport corridors. Development at North East Cambridge will provide new services and facilities and employment opportunities, as well as be in close proximity to existing facilities within Cambridge city. In addition, this option concentrates development along public transport corridors, it may reduce the use of private vehicles and help to minimise poor air quality, however an increase in residents could lead to overcapacity if additional services are not provided, leading people to travel to services further afield; this is most likely to occur at the 18 villages. Even with public transport options available, many residents are likely to drive for longer journeys, for example from new settlements and more rural settlements to access employment in Cambridge.

3.472 In addition, for the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities at new settlements will be delivered at new settlements and at North East Cambridge between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period. This is likely to be more pronounced for the minimum growth scenario, during the plan period, due to the smaller amount of development likely to be completed at a new settlement site. Under the maximum growth scenario however, growth at these locations is likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option.

3.473 The Transport Study suggests that this option is 'medium performing' overall (for the maximum growth scenario). It will increase the proportion of travel by active modes above the baseline, but not as much as other options and will generate more distance travelled, travel time and delay than options 1 and 7.

3.474 In addition, there is one AQMA within the city of Cambridge and another on the A14 which connects to the centre of the city and North East Cambridge. Therefore, it is likely that development within North East Cambridge will exacerbate the poor air quality within the area.

3.475 For 2020-2041, mixed minor positive and significant negative effects are expected for all scenarios, with the positive effects becoming significant when fully built out. All effects are considered uncertain.

7. Supporting a high-tech corridor by integrating homes and jobs

3.476 Option 7 includes development in the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement however, both are on public transport corridors.

3.477 All growth scenarios include development across five villages all with existing or proposed public transport nodes. However, the medium growth scenario could include 25% of development not on public transport corridors. Overall, it is likely that the need to travel by car will be minimised, but the medium growth scenario may also increase the use of private vehicles and worsen air quality. Whilst there is likely to be some private car use resulting from development, in this area to the south of Cambridge employees could travel to work using active travel or public transport especially as this option supports the life sciences cluster area around the south of Cambridge.

3.478 The maximum growth scenario also includes growth at North East Cambridge and Cambridge Airport, which will provide new services and facilities and jobs, as well as low growth in the urban area. As such, this scenario will be less likely to put pressure on existing services and facilities, as well as providing new ones to serve new development, thereby reducing the distance to essential development for residents and the need to travel by private car to access facilities elsewhere, resulting in significant positive effects. However, there is one AQMA within the city of Cambridge and another on the A14 which connects to the centre of the city and North East Cambridge. Therefore, it is likely that development within North East Cambridge, for the maximum scenario, will exacerbate the poor air quality within the area.

3.479 For the minimum and medium scenarios in particular, it is considered unlikely that the full range of services and facilities will be delivered at new settlements between 2020 and 2041, as a lower level of growth is expected at these locations within the plan period, resulting in a need for residents to travel further to access these. Under the maximum growth scenario however, growth at new settlements is likely be of a scale to ensure more extensive provision of sufficient new services and facilities and employment opportunities, due to the higher build out rates under this option. In addition, growth at North East Cambridge in the maximum scenario is likely to be of a scale to provide services and facilities to meet day to day needs and additional employment opportunities, although there is a less certainty on this with regards to Cambridge Airport. Nevertheless, the Transport Study stated that this option was one of the best performing as, whilst it will not have the highest non-car mode share, it will reduce overall travel distance, time and delay, leading to reduced impacts on the wider road network and associated carbon emissions (for the maximum growth scenario). Given that the Transport Study is based on the maximum growth scenario, it is expected that positive effects for the minimum scenario, within the plan period, will be minor, rather than significant.

3.480 For 2020-2041, the minimum growth scenario is expected to have mixed minor positive and minor negative effects, whereas the medium and maximum scenarios are likely to have mixed significant positive and minor negative effects. When fully built out, the minimum and medium scenarios are expected to have significant positive and minor negative effects, although there is uncertainty associated with the medium growth scenario as there is a greater likelihood of private vehicles being utilised. When fully built out, the maximum scenario is expected to have a mixed significant positive and significant negative effects.

8. Expanding a growth area around transport nodes

3.481 Option 8 would focus development at Cambourne and along the A428 public transport corridor, as there will be a new railway station and Cambridge Autonomous Metro serving these areas, although it is uncertain whether these will come forward within the plan period, particularly the railway link. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes a larger development. All of these developments would have access to the railway station, which would help to reduce reliance on travelling by car thereby improving air quality. Furthermore, new settlements have the opportunity to encourage and accommodate walking and cycling from the initial design stage. However, currently the development at Cambourne is not well served by public transport, so positive effects could be felt in the long term when the rail station and Cambridge Autonomous Metro are implemented, but in the short term development in Cambourne and along the A428 could cause additional residents utilising private vehicles to travel. In addition, some residents are still likely to travel by car, particularly to locations not served by the train or Cambridge Autonomous Metro.

3.482 The medium and maximum growth scenarios include growth at North East Cambridge and, for the maximum growth scenario, growth at Cambridge Airport. These sites are likely to have good access to the services, facilities an public transport links within Cambridge as well as providing new ones, therefore minimising the need to travel and associated air pollution. For the medium scenario, it is considered unlikely that the full range of services and facilities will be delivered to meet the needs of growth at North East Cambridge between 2020 and 2041, as a

lower level of growth is expected within the plan period. Under the maximum growth scenario, growth at North East Cambridge is more likely be of a scale to ensure more extensive provision of sufficient new services and facilities, due to the higher build out rates under this option, although this is less certain for Cambridge Airport. In addition, there is one AQMA within the city of Cambridge and another on the A14 which connects to the centre of the city and North East Cambridge. Therefore, it is likely that development within North East Cambridge will exacerbate the poor air quality within the area.

3.483 This option also includes growth at villages along the A428 public transport corridor, which will be well served by public transport, and therefore contribute to minimising greenhouse gas emissions, in the long term, but may be reliant on private car use in the shorter term. The medium and maximum options include growth at other villages/settlements within 5km of Cambourne that may not be on public transport corridors. Such growth is likely to result in increases in car use to access employment, services and facilities.

3.484 For 2020-2041, all scenarios are likely to have mixed minor positive and significant negative effects. When fully built out, each scenario is expected to have significant positive and significant negative effects with uncertainty.

Best performing option

3.485 Option 7 'Supporting a high-tech corridor by integrating homes and jobs' performs best, as it is expected to provide additional services and facilities and walking, cycling at the urban extensions/new settlement and are already located near existing public transport links, employment opportunities and Cambridge city, thereby minimising the need to travel far by private car.. The Transport Study identified that Option 7 'Supporting a high-tech corridor by integrating homes and jobs' will reduce traffic in the wider Cambridge area and reduce journey length/times to work (for the maximum growth scenario). The Transport Study also found that Option 1 ‘Densification of existing urban areas’ performed best in terms of promoting active travel (for the maximum growth scenario), but growth in and around Cambridge has potential to exacerbate air quality issues in existing AQMAs, as some new residents will travel by car or other private vehicle, increasing traffic in these areas to some extent.

3.486 Option 5 'Dispersal – villages' performs least well as it is likely to lead to development with high levels of dependency on the private car.

SA Objective 14: To facilitate a sustainable and growing economy

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	--/+	--/+?	+/-?	+/-	+/-	+/-	+/-	--/+
Medium Growth	--/+	--/+?	+/-?	+/-	+/-	+/-	+/-	--/+
Maximum Growth	++/--	--/+?	++/-?	+/-	+/-	++/-	++/-	++/--

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--	--/+?		++/-		++/-	++/-	++/-
Medium Growth	++/--	++/--?		++/-		++/-	++/-	++/-
Maximum Growth	++/--	++/--?		++/-		++/-	++/-	++/-

1. Densification of existing urban areas

3.487 Option 1 would result in an increase in the density of development, particularly within Cambridge. The primary location for development would be within the urban area and at North East Cambridge, the last major brownfield site within the urban area. This site will be brought forward through the AAP. The medium and maximum growth scenarios also include development at Cambridge Airport. Therefore, it is likely this option will support the existing economic hub in Cambridge.

3.488 As growth would be focused within and around Cambridge city, it can continue to support the vitality and viability of the city. Cambridge is also the main employment centre for Greater Cambridge; therefore this option is likely to support existing businesses by locating homes, and therefore workers, close to businesses.

3.489 The medium and maximum scenarios include growth at Cambridge Airport and the medium scenario includes growth at a Green Belt site on the edge of Cambridge. Growth at Cambridge Airport (for the medium and maximum options) and at North East Cambridge (for all options) is likely to help support the local economy by locating workers close to jobs and encouraging spending in the city centre. They are also expected to provide new jobs and new services and facilities, although for the minimum and medium scenarios in particular, these are not likely to be provided fully within the plan period.

3.490 However, this option would direct the economic benefits of development in Cambridge itself and would therefore do less for the wider economy of Greater Cambridge.

3.491 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. It notes that, under all growth scenarios, this option may fail to provide sufficient industrial and warehousing floorspace requirements through intensification of the urban sites in the city alone. For the maximum growth scenario there may also be a lack of lower density wet lab B1b premises.

3.492 For 2020-2041, mixed minor positive and significant negative effects are expected for the minimum and medium scenarios, whereas mixed significant positive and significant negative effects are expected for the maximum scenario. For all scenarios, the positive effects identified are expected to be significant when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.493 Option 2 includes development at Cambridge Airport and North East Cambridge for all growth scenarios, which lie on the edge of Cambridge. The medium and maximum growth scenarios propose two new settlements on public transport corridors. Therefore, growth would be near Cambridge itself or public transport options, which allow for easy access into Cambridge. Therefore, it is likely this option will support the existing economic hub in Cambridge. Cambridge is also the main employment centre for Greater Cambridge; therefore, this option is likely to support existing businesses by locating homes, and therefore workers, close to businesses. In addition, new settlements are likely to provide new services and facilities and some space for new or expanding businesses and may help support the wider economy of

Greater Cambridge. However, new employment space is less likely to come forward within the plan period, particularly for the minimum and medium growth scenarios.

3.494 The minimum growth scenario includes a village site and the medium growth scenario includes growth at rural centres and minor rural centres. These would likely be less well connected to Cambridge but would support the vitality and viability of more rural areas.

3.495 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. It notes that, under all growth scenarios, this option may fail to provide sufficient industrial and warehousing floorspace requirements through provision at the edge of the city alone. For the higher growth scenario, there is a possible lack of wet lab B1b premises, depending on competition of ruse of employment floorspace. It is not clear if these unmet needs could be provided through additional sources of supply, e.g. new settlements.

3.496 For 2020-2041, all options are expected to have mixed minor positive and significant negative uncertain effects. When fully built out, mixed minor positive and significant negative uncertain effects are expected for the minimum growth scenario whereas mixed significant positive and significant negative uncertain effects are expected against the medium and maximum scenarios.

3. Edge of Cambridge – Green Belt

3.497 Option 3 includes the development of new sites in Green Belt on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios across a range of locations. The medium scenario also includes growth within the Cambridge urban area. The maximum growth scenario includes higher delivery rates at the Green Belt sites. Therefore, the growth would be near existing economic centres within the city, which can continue to support their vitality and viability. Cambridge is the main employment centre for Greater Cambridge; therefore, this option is likely to support existing businesses by locating homes, and therefore workers, close to businesses. It is likely that additional services and facilities will also be provided on site, but these may not be provided in the short term and are likely to be more limited for the minimum and medium growth scenarios. As such, this option is likely to have positive effects on the local economy.

3.498 However, this option would direct the economic benefits of development in Cambridge itself and would therefore do less for the wider economy of Greater Cambridge.

3.499 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. It is anticipated that the full range of employment land needed could be delivered for all growth scenarios and there could be opportunities to attract more inward investment.

3.500 For the minimum and medium scenarios, mixed minor positive and minor negative uncertain effects are expected, whereas for the maximum growth scenario a mixed significant positive and minor negative uncertain effect is expected.

3.501 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.502 Option 4 includes the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure. While this option would not provide development near existing settlements or knowledge hubs within Cambridge, it would be creating new towns or villages, providing jobs in a new location. While it is likely that strategic transport infrastructure connecting to Cambridge would be created, this is most likely to occur in the longer term. It may take a while to build the vibrancy and vitality of new settlements themselves, as they will not be fully occupied at first. However, this option would support provision of additional services and facilities and additional employment land and therefore job opportunities and diversification of services and facilities in areas where there are new settlements, although again, this is more likely to come forward in the longer term, particularly for the minimum and medium growth scenarios. Depending on the location of new settlements, it is possible that some residents will be commuting out of Cambridge to surrounding areas or London which may hinder growth of the local Greater Cambridge economy.

3.503 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. New settlements would be well suited to accommodating the full range of land uses associated with Greater Cambridge's sectors including offices, labs and warehousing / industrial given opportunities for available land, although the document suggests that the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city. It also states the location of a new settlement may therefore have a bearing on its level of employment success.

3.504 For 2020-2041, mixed minor positive and minor negative effects are expected for each scenario. When fully built out, the minor positive effects identified are expected to become significant.

5. Dispersal – villages

3.505 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. Therefore, this option would help to support and diversify the rural economy through supporting rural services and facilities, although some may have more limited public transport into the economic hub of Cambridge. As such, this option may not provide development of the scale or location required to support the knowledge sectors located in and around Cambridge.

3.506 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. All growth scenarios could provide land for a range of employment types, although the document notes that the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city. However, dispersal of employment across villages is likely to temper the ability of larger employment development to agglomerate being limited by localised workforce. The document also notes that the location of employment distribution may therefore have a bearing on its level of employment success and that large employment developments could be disproportionate to village size.

3.507 Overall, mixed minor positive and minor negative effects are expected for each growth scenario.

3.508 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.509 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, one new settlement (smaller for the minimum scenario and larger for the other two scenarios) and across 18 villages with existing or proposed public transport corridors.

3.510 Development in North East Cambridge and the villages would be based around existing urban areas and settlements. Therefore, this option could help to support their vitality and viability. In addition, this development would support the expansion of economic benefits outwards from Cambridge. As this option would provide new settlements the provision of additional job opportunities and diversification of services and facilities in more rural areas is likely. It may take a while to build the vibrancy and vitality of new settlements themselves, as they will not be fully occupied at first. Depending on the location of new settlements, it is possible that some residents will be commuting out of Cambridge to surrounding areas or London which may hinder growth of the local Greater Cambridge economy.

3.511 Growth at North East Cambridge and new settlements is likely to include new services and facilities, as well as new employment land. However, these are likely to come forward in the longer term, particularly for the minimum and medium scenarios.

3.512 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. All growth scenarios could provide land for a range of employment types, although the document notes that the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city. The provision of industrial and warehousing floorspace depends on the accessibility of these sites, particularly via the strategic road network. It also states the location of a new settlement may therefore have a bearing on its level of employment success.

3.513 For 2020-2041, mixed minor positive and minor negative effects are expected for the minimum and medium scenarios, whereas significant positive and minor negative effects are expected for the maximum growth scenario. When fully built out, significant positive and minor negative effects are expected against each scenario.

7. Supporting a high-tech corridor by integrating homes and jobs

3.514 Option 7 includes development in the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement however, both are on public transport corridors.

3.515 All growth scenarios include development across five villages all with existing or proposed public transport nodes however, the medium growth scenario could include 25% of development not on public transport corridors.

3.516 This option would focus development close to existing jobs within the life sciences cluster area to the south of Cambridge. Therefore, this option would support the growth of the science sector – a key sector in the Cambridge economy – in particular, but might lead to less diversification of the economy. This potential lack of diversification may be slightly less so for the maximum scenario, which also includes growth at North East Cambridge and Cambridge Airport. Development at North East Cambridge and Cambridge Airport would likely provide new services, facilities and employment space and also support the local and regional economy by locating workers near to jobs and are located such as to encourage spending in Cambridge city.

3.517 It is expected that the new settlement would provide some new employment space, as well as services and facilities, which would provide some employment and spending opportunities. However, only limited services and employment land may be delivered in the plan period, particularly for the minimum and medium growth scenarios.

3.518 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. All growth scenarios could provide land for a range of employment types, particularly providing sufficient land is provided with good accessibility via the strategic road network for industrial and warehousing floorspace. However, the document highlights that, whilst expansion of other sectors is feasible, the employment focus for this option is within the life sciences.

3.519 For 2020-2041, mixed minor positive and minor negative effects are expected for the minimum and medium scenarios, whereas mixed significant positive and minor negative effects are expected for the maximum growth scenario. When fully built out, significant positive and minor negative effects are expected against each scenario.

8. Expanding a growth area around transport nodes

3.520 Option 8 would focus development at Cambourne and along the A428 public transport corridor, as there will be a new railway station and Cambridge Autonomous Metro serving these areas. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes a larger development.

3.521 This option would provide development at existing growth areas, adding to the critical mass of population that could generate demand for further services and employment provision. However, while it is likely that strategic transport infrastructure, such as the new railway station, connecting to Cambridge and services and facilities would be created, this is most likely to occur in the long term. It may take a while to build the vibrancy and vitality of new communities themselves, although the wider settlement of Cambourne is more established. It is possible that some residents will be commuting out of Cambridge to surrounding areas or London which may hinder growth of the local Greater Cambridge economy. These factors combine to result in likely significant negative effects in the shorter term.

3.522 All growth scenarios also include growth at some villages along the A428 and, for the medium and maximum scenarios, growth at settlements within 5km of Cambourne. Whilst these

would not be necessarily near existing economic centres (particularly Cambridge), those along the A428 could access these via public transport and all would help support the vitality and viability of more rural areas. The maximum growth scenario also includes growth at North East Cambridge and Cambridge Airport, which would support the local and regional economy by locating workers near to jobs and are located such as to encourage spending in Cambridge city.

3.523 The Employment Study recommend against planning for the minimum scenario, as this could constrain job growth due to lack of labour supply. The document notes that Cambourne has been slow to develop as an employment location, but has gained traction as a secondary office location in recent years for professional services and ICT. All growth scenarios could provide land for a range of employment types, particularly providing sufficient land is provided with good accessibility via the strategic road network for industrial and warehousing floorspace.

3.524 For 2020-2041, the minimum and medium growth scenarios are expected to have mixed minor positive and significant negative effects, whereas the maximum growth scenario is expected to have mixed significant positive and significant negative effects. When fully built out, all options are expected to have mixed significant positive and minor negative effects are expected against each scenario.

Best performing option

3.525 The Employment Study suggests that the greater the level of growth, the greater the positive impacts for the economy. It suggests therefore, that the minimum growth scenario performs least well and may constrain growth, whereas the maximum growth scenario performs best in providing a flexible land supply. The outcome depends on the performance of the economy which has uncertainties, particularly with regard to Covid-19.

3.526 For 2020-2041, the maximum growth scenario for Options 3 'Edge of Cambridge – Green Belt', 6 ‘Public transport corridors’ and 7 ’Supporting a high-tech corridor by integrating homes and jobs’ perform well.

3.527 When fully built out, Options 4 ‘Dispersal – new settlements’, 6 'Public transport corridors', 7 'Supporting a high-tech corridor by integrating homes and jobs' and 8 ‘Expanding a growth area around transport nodes’ perform best. Whilst Option 8 ‘Expanding a growth area around transport nodes’ performs less well within the plan period, it performs well when fully built out as new strategic transport infrastructure is expected to be implemented in the longer term.

3.528 Options 1 ‘Densification of existing urban areas’ and 2 ‘Edge of Cambridge – outside the Green Belt’ perform least well overall, as they are less likely to be able to meet the full range of employment land needs.

SA Objective 15: To deliver, maintain and enhance access to diverse employment opportunities, to meet both current and future needs in Greater Cambridge

Housing provision between 2020-2041

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	--/+	--/+?	+/-	+/-	--/+	+/-	+/-	--/+
Medium Growth	--/+	--/+?	+/-	+/-	--/+	+/-	+/-	--/+
Maximum Growth	++/--	--/+?	++/-	++/-?	--/+	++/-?	++/-	++/--

Housing provision when fully built out ('all time')

Strategic Spatial Options / Growth Scenarios	1. Densification of existing urban areas	2. Edge of Cambridge – outside the Green Belt	3. Edge of Cambridge – Green Belt	4. Dispersal – new settlements	5. Dispersal – villages	6. Public transport corridors	7. Supporting a high-tech corridor by integrating homes and jobs	8. Expanding a growth area around transport nodes
Minimum Growth	++/--	--/+?		++/-		++/-	++/-	+/-
Medium Growth	++/--	++/--?		++/-		++/-	++/-	++/-
Maximum Growth	++/--	++/--?		++/-		++/-	++/-	++/-

1. Densification of existing urban areas

3.529 Option 1 would result in an increase in the density of development, particularly within Cambridge. The primary location for development would be within the urban area and at North East Cambridge, the last major brownfield site within the urban area. This site will be brought forward through the AAP. The medium and maximum growth scenarios also include development at Cambridge Airport and the medium scenario includes growth at a Green Belt site on the edge of Cambridge.

3.530 As this option aims to focus the majority of development within the urban area, it is likely that more sustainable methods of transport like walking and cycling would be used, thereby providing easily accessible employment opportunities. In addition, this option is likely to provide additional employment opportunities at North East Cambridge, although these may only come forward in limited amounts during the plan period, particularly for the minimum and medium growth scenarios. For the medium and maximum growth scenarios, additional sources of supply will be located at the Cambridge Airport and, for the medium growth scenario, the edge of Cambridge. Both of which are likely to have good access to job opportunities and public transport options in Cambridge.

3.531 However, this option would focus job growth and accessibility in Cambridge, which is already the main centre for employment and therefore may limit employment opportunities available in the wider Greater Cambridge area. In addition, Employment Study states that, under all growth scenarios this option may fail to provide sufficient industrial and warehousing floorspace requirements through intensification of the urban sites in the city alone, due to lack of floorspace for these uses. For the maximum growth scenario there may also be a lack of lower density wet lab B1b premises. As such, diversity of employment opportunities may be more limited for this option.

3.532 For 2020-2041, mixed minor positive and significant negative effects are expected for the minimum and medium growth scenarios and mixed significant positive and significant negative effects are expected for the maximum growth scenario. Mixed significant positive and significant negative effects are expected each growth scenario when fully built out.

2. Edge of Cambridge – outside the Green Belt

3.533 Option 2 includes urban development at Cambridge Airport and North East Cambridge for all growth scenarios, which lie on the edge of Cambridge. It is anticipated that development at North East Cambridge and Cambridge Airport would provide additional employment opportunities, although these may only come forward in limited amounts during the plan period, particularly for the minimum and medium growth scenarios. These locations are also likely to have good access to job opportunities and public transport options in Cambridge.

3.534 The medium and maximum growth scenarios propose two new settlements on the public transport corridors, which may help make employment opportunities in Cambridge more accessible and are expected to provide some employment opportunities on-site. However, new employment space is less likely to come forward within the plan period, particularly for the minimum and medium growth scenarios.

3.535 The minimum growth scenario includes a village site and the medium growth scenario also includes a number of dwellings spread across rural centres and minor rural centres which, would likely rely on private transport, although they could help to provide jobs in the wider Greater Cambridge economy.

3.536 The Employment Study states that, under all growth scenarios, this option may fail to provide sufficient industrial and warehousing floorspace requirements through provision at the edge of the city alone. For the higher growth scenario, there is a possible lack of wet lab B1b premises, depending on competition of ruse of employment floorspace. It is not clear if these unmet needs could be provided through additional sources of supply, e.g. new settlements. As such, diversity of employment opportunities may be more limited for this option.

3.537 For 2020-2041, mixed minor positive and significant negative uncertain effects are expected for all scenarios. When fully built out, the minimum growth scenario is expected to have mixed minor positive and significant negative uncertain effects, whereas mixed significant positive and significant negative uncertain effects are expected for the medium and maximum growth scenarios.

3. Edge of Cambridge – Green Belt

3.538 Option 3 includes the development of new sites in Green Belt on the edge of the city with three sites for the minimum growth scenario and five sites for the medium and maximum growth scenarios. The maximum growth scenario includes higher delivery rates at the Green Belt sites and the medium scenario includes growth in the urban area of Cambridge. It is likely that these developments will have good access to job opportunities in Cambridge. Locations are also likely to have good access to public transport, although this depend on the exact location of development. The Employment Study suggests that all growth scenarios are likely to be able to provide for the full range of employment types needed, providing sufficient land is released. However, this option would focus job growth and accessibility in Cambridge, which is already the main centre for employment and therefore may limit employment opportunities available in the wider Greater Cambridge area.

3.539 Overall, mixed minor positive and minor negative effects are expected for the minimum and medium growth scenarios, whereas mixed significant positive and minor negative effects are expected for the maximum growth scenario.

3.540 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

4. Dispersal - new settlements

3.541 Option 4 includes the development of new settlements that would establish a whole new town or village including homes, jobs and supporting infrastructure. This would be expected to include some employment provision and sustainable transport options at the new settlements themselves, although easy accessibility to existing job opportunities in Cambridge may be more limited. However, these new settlements are likely to be provided on public transport corridors and therefore can provide access to job opportunities within Cambridge.

3.542 New employment opportunities at new settlements will help support job growth in the wider Greater Cambridge area, but the majority of these are likely to come forward after the plan period, particularly for the minimum and medium growth scenarios.

3.543 The Employment Study suggests this option is likely to be able to provide for the full range of employment types needed, although the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city.

3.544 For 2020-2041, mixed minor positive and minor negative effects are expected for the minimum and medium growth scenarios, whereas mixed significant positive and minor negative uncertain effects are expected for the maximum growth scenario. When fully built out, the minor positive effects identified are expected to become significant.

5. Dispersal – villages

3.545 Option 5 for all growth scenarios would result in an increase in development at villages across Greater Cambridge. Under all growth scenarios 40% of development would occur in Rural Centres and another 40% in Minor Rural Centres. Whilst this option may help to provide some employment opportunities in the wider Greater Cambridge area, there are likely to be more limited job opportunities in the villages and some may have more limited public transport into the economic hub of Cambridge. The Employment Study states that all growth scenarios could provide land for a range of employment types, although the document notes that the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city. Whilst a number of existing employment parks have successfully developed near villages, the location of employment distribution may have a bearing on its level of employment success. In addition, large employment developments could be disproportionate to village size.

3.546 Overall, mixed minor positive and significant negative effects are expected for all growth scenarios.

3.547 The locations in this option are expected to be fully built out within the plan period, therefore no scores are recorded for 'all time' figures.

6. Public transport corridors

3.548 Option 6 would result in an increase in development along and around key public transport corridors and hubs. All growth options include development at North East Cambridge, one new settlement (smaller for the minimum scenario and larger for the other two scenarios) and across 18 villages with existing or proposed public transport corridors. This option would generally enable good labour market accessibility to employment locations, particularly Cambridge.

3.549 This development would support the expansion of economic benefits outwards from Cambridge which would grow and diversify jobs outside of Cambridge. However, while it is likely that strategic transport infrastructure connecting to Cambridge would be created, this is most likely to occur in the long term. Therefore, in the short term the increase in accessibility of job opportunities would likely be minimal. Similarly, whilst development at new settlements and North East Cambridge are expected to provide some job opportunities, these are likely to come forward in the longer term, particularly for the minimum and medium scenarios.

3.550 The Employment Study suggests that all growth scenarios could provide land for a range of employment types, although the document notes that the market's preference would be to see new B1a and some B1b space delivered in close proximity to the city. The provision of industrial and warehousing floorspace depends on the accessibility of these sites, particularly via the strategic road network. It also states the location of a new settlement may therefore have a bearing on its level of employment success.

3.551 For 2020-2041, mixed minor positive and minor negative effects are expected for the minimum and medium growth scenarios, whereas mixed significant positive and minor negative uncertain effects are expected for the maximum growth scenario. When fully built out, significant positive and minor negative effects are expected against each scenario.

7. Supporting a high-tech corridor by integrating homes and jobs

3.552 Option 7 includes development in the south of Cambridge near the life sciences cluster area where there are existing and committed jobs. Both the minimum and medium growth scenarios include a smaller new settlement, while the maximum growth scenario includes a larger settlement however, both are on public transport corridors.

3.553 All growth scenarios include development across five villages all with existing or proposed public transport nodes however, the medium growth scenario could include 25% of development not on public transport corridors.

3.554 This option would support the growth of the science sector, as it would provide easy access to a large amount of job opportunities. Development is likely to be provided on public transport corridors and therefore can provide access to job opportunities and the labour pool within Cambridge as well. In addition, the maximum growth scenario includes development at North East Cambridge and Cambridge Airport, which are both located in proximity to employment opportunities within Cambridge and are likely to provide additional employment opportunities. These larger developments, along with the new settlement, are expected to provide new employment opportunities. However, only limited employment opportunities may be delivered in the plan period, particularly for the minimum and medium growth scenarios.

3.555 This option would focus job growth and accessibility in and around Cambridge, particularly at the science cluster, which is already the main centre for employment and therefore may limit job growth in the wider Greater Cambridge area. The Employment Study suggests that all growth scenarios could provide land for a range of employment types, particularly providing sufficient land is provided with good accessibility via the strategic road network for industrial and warehousing floorspace. However, the document highlights that, whilst expansion of other sectors is feasible, the employment focus for this option is within the life sciences and therefore may result in a more limited range of job opportunities.

3.556 For 2020-2041, mixed minor positive and minor negative effects are expected for the minimum and medium scenarios, whereas mixed significant positive and minor negative effects are expected for the maximum growth scenario. When fully built out, significant positive and minor negative effects are expected against each scenario.

8. Expanding a growth area around transport nodes

3.557 Option 8 would focus development at Cambourne and along the A428 public transport corridor, as there will be a new railway station and Cambridge Autonomous Metro serving these areas. Both the minimum and medium growth scenarios include the expansion of Cambourne by the equivalent of one new smaller settlement, while the maximum growth scenario includes a larger development.

3.558 This option would provide development at an existing growth area, adding to the critical mass of population that could generate demand for further services and employment provision. The Employment Study states that employment located at transport nodes around Cambourne will broadly enable good labour market accessibility. However, while it is likely that strategic transport infrastructure, such as the new railway station, connecting to Cambridge would be created, this is most likely to occur in the long term. Therefore, in the short term the accessibility to and from the area, especially jobs within Cambridge city, by sustainable transport would be more limited. The Employment Study notes that Cambourne has been slow to develop as an employment location, but has gained traction as a secondary office location in recent years for professional services and ICT. All growth scenarios could provide land for a range of employment types, particularly providing sufficient land is provided with good accessibility via the strategic road network for industrial and warehousing floorspace.

3.559 All growth scenarios also include growth at some villages along the A428 and, for the medium and maximum scenarios, growth at settlements within 5km of Cambourne. Whilst these would not be necessarily near existing employment centres (particularly Cambridge), those along the A428 could access these via public transport, particularly in the longer term when new strategic public transport infrastructure is implemented, and all would help job growth in more rural areas. The maximum growth scenario also includes growth at North East Cambridge and Cambridge Airport, which would both be within proximity to employment opportunities in the city and are likely to provide new employment opportunities.

3.560 For 2020-2041, mixed minor positive and significant negative effects are expected for the minimum and medium scenarios, whereas mixed significant positive and significant negative effects are expected for the maximum growth scenario. When fully built out, mixed minor positive and minor negative effects are expected for the minimum growth scenario, whereas mixed significant positive and minor negative uncertain effects are expected for the medium and maximum growth scenarios.

Best performing option

3.561 Options 4 ‘Dispersal – new settlements’, 6 'Public transport corridors' and 7 'Supporting a high-tech corridor by integrating homes and jobs' perform well, particularly when fully built out. The maximum growth scenario for Option 3 ‘Edge of Cambridge – Green Belt’ also performs well. Whilst Option 8 ‘Expanding a growth area around transport nodes’ performs less well within the plan period, it performs well when fully built out as new strategic transport infrastructure is expected to be implemented in the longer term.

3.562 Options 5 'Dispersal-Villages' performs least well, as existing centres of employment are likely to be less accessible to development under this option. Options 1 ‘Densification of existing

urban areas' and 2 'Edge of Cambridge – outside the Green Belt' also perform less well than other options, as they are less likely to be able to meet the full range of employment needs.

Chapter 4
Conclusions and Next Steps

Conclusions

4.1 The eight strategic spatial options have been subject to Sustainability Appraisal, including considerations of their effects at different levels of growth. As may be expected with any assessment of growth, more positive effects are generally expected with regards to economic and social objectives, and more negative effects are generally associated with environmental objectives.

4.2 It is noted that many of the strategic spatial options cannot meet the full housing need through the focus source of supply and therefore require additional sources of supply. This has led to substantial overlap between some of the options. For example, many include at least one new settlement and this has therefore resulted in similar effects being identified in relation to this. Nevertheless, we have attempted to distinguish between the better performing options and those that perform less well, based primarily on the number of positive and negative effects and whether these are considered significant. There is a substantial level of uncertainty in the assessment as actual sustainability effects will depend strongly on the exact locations, scale and nature of development and the supporting infrastructure provided.

Locational sources of supply

4.3 Whilst the spatial options have been assessed as a whole (i.e. taking into account both the main focus of sources of supply and additional sources of supply), The following pages summarise the key sustainability benefits, opportunities and issues related to each of the sources of supply individually. This sets out the sustainability effects of these individual development types, which has influenced the assessments in Chapter 3. The table includes comments on the 'Southern Cluster', which is the broad locational focus for Option 7 'Supporting a high tech corridor by integrating homes and jobs'. Whilst this includes a range of development types (i.e. village growth and a new settlement), it was considered useful to identify the effects of focusing development at this particular location as well. As with the assessment of the spatial options, there is a level of uncertainty associated with the sustainability benefits, opportunities and issues identified in the following pages., as effects depend on the exact location, scale and nature of development.

Source of supply – Cambridge urban area

Key sustainability benefits and opportunities

- Very good access to services, facilities and public transport links, encouraging walking and cycling, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- Very good access to established employment hubs, within and on the edge of Cambridge, and the main commercial and retail centres, resulting in positive effects on economy and employment.
- Reduces need to develop greenfield and agricultural land.
- Helps to protect the wider setting of Cambridge.
- Challenges developers to deliver innovative urban design solutions, incorporating energy efficiency and high quality built form and public realm.
- Good opportunities to retrofit flood risk reduction measures.

Key sustainability issues

- Unlikely to be able to deliver significant volumes of new homes.
- More limited range of housing types if reliant on smaller development schemes.
- Existing services and facilities may not have capacity to accommodate new development.
- According to the Employment Study, this option may not meet needs for larger employment uses and therefore result in lower diversity of employment opportunities.
- Could lead to loss of public open space, particularly for the medium and maximum growth scenarios.
- Development likely to be within or near to an AQMA.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Intensification of development may be out of keeping with the character of the historic townscape.
- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).
- Development may fall within an area at high risk of fluvial or surface water flooding.
- Limited investment in services, facilities, economy and employment in more rural areas.

Source of supply - Edge of Cambridge (non-Green Belt)

Key sustainability benefits and opportunities

- Opportunity to deliver a scheme of new settlement scale, as part of the Cambridge urban area, with all the jobs, shops, services and facilities expected of a development of that scale.
- Will help to regenerate one of the remaining large-scale previously developed sites in Cambridge.
- Can deliver large numbers of homes of a range of types and tenures where the demand is greatest.
- Good access to existing services, facilities and public transport links, particularly Cambridge North Railway station and the guided busway. Provision of new services and facilities and public transport, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- Includes established employment hubs, such as Cambridge Science Park, and relatively good access the main retail centre by public transport, as well as provision of a substantial amount of new employment as well as local centres, resulting in positive effects on economy and employment.
- Can be designed around walking and cycling, enhancing and integrating with the existing Cambridge walking and cycling networks.
- Can be designed to deliver low carbon outcomes.
- Opportunity to provide new/improved green infrastructure.
- Reduces need to develop greenfield and agricultural land.
- Good opportunities for flood risk and water management.
- Good access to some existing local services and facilities in Barnwell and Church End, and provision of new services and facilities, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- Good access to established employment hubs, including Neath Farm Business Centre and at Newmarket Road and Cambridge Retail Park, as well as provision of new employment and local centres, resulting in positive effects on economy and employment.

Key sustainability issues

- Development adjacent to an AQMA.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Pressure on water supply (particularly for medium and maximum growth scenarios).
- Will require the relocation of the existing wastewater treatment works.

- According to the Employment Study, this option may not meet needs for larger employment uses and therefore result in lower diversity of employment opportunities.
- Loss of historic context of Grade 2 listed control tower.
- Will require the relocation of existing businesses, which could disrupt trade or affect viability.
- Limited investment in services, facilities, economy and employment in more rural areas.
- Cambridge City Airport services likely to be transferred elsewhere to other airports less well located to Cambridge, with resulting direct and indirect impacts on local jobs and support services.
- Potential impacts on long and open views and vistas into and out of Cambridge city centre.

Source of supply - Green Belt fringe

Key sustainability benefits and opportunities

- Potentially good access to existing services, facilities and public transport links, and provision of new services and facilities if developments are of sufficient scale, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- Potentially good access to established employment hubs and potentially good access to the centre of Cambridge by public transport, depending on location, as well as provision of new employment and local centres, depending on the scale of development, resulting in positive effects on economy and employment.
- Can be designed around walking and cycling, enhancing and integrating with the existing Cambridge walking and cycling networks.
- Opportunity to provide new/improved green infrastructure.
- Good opportunities for flood risk and water management.

Key sustainability issues

- Piecemeal Green Belt release may not offer the scale of development to provide for a full range of homes, jobs, services and facilities, including public transport.
- Some Green Belt locations could be too distant from the city centre for ease of walking and cycling.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Potential loss of views into and out of the historic core of Cambridge, affecting its setting.

- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).
- Limited investment in services, facilities, economy and employment in more rural areas.
- Existing fluvial and surface water flood risk may make individual sites difficult to deliver, depending on location.

Source of supply - New settlements

Key sustainability benefits and opportunities

- Depending on scale, can deliver large numbers of homes of a range of types and tenures.
- Provision of new services and facilities, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- New settlements on very good public transport corridors also likely to have good access to services, facilities, public transport and employment centres.
- Can be designed around walking and cycling for internal trips.
- Can be designed to deliver low carbon outcomes.
- Helps to protect the wider setting of Cambridge.
- Opportunity to provide new/improved green infrastructure.
- Good opportunities for flood risk and water management.

Key sustainability issues

- Difficult to establish a sense of community in earlier years.
- Homes may not be where people want to live, if their desire is to live within or close to existing settlements, especially Cambridge.
- Unlikely to be within walking and cycling distance of main existing settlements, especially Cambridge, which could encourage car use.
- New settlements that are not on very good public transport routes/services are likely to encourage increased car use.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).
- Major landscape change/urbanisation at the location of the development.
- Likely loss of a large area of greenfield land.

Source of supply - Villages

Key sustainability benefits and opportunities

- Supports rural services and the vitality and viability of villages, and their shops and services.
- Provides for homes to be delivered to meet local village needs.
- Significant growth of service villages could provide opportunities to deliver new services and facilities, including pre-school facilities, primary schools, and healthcare.
- Villages offer immediate access to the countryside, which is good for health and wellbeing.
- Helps to protect the wider setting of Cambridge.

Key sustainability issues

- Less scope to deliver the volumes of homes required to meet needs through the Greater Cambridge area.
- More limited range of housing types / affordable housing.
- Existing services and facilities may not have capacity to accommodate new development.
- Likely to result in significant car trips, both for commuting and to access services and facilities not available in villages.
- Unlikely to result in a significant shift towards low carbon outcomes.
- Significant growth in villages could affect their character, distinctiveness and identity.
- Significant development may impact upon the historic assets and setting of villages including listed buildings and conservation areas.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).

Source of supply - Southern cluster

Key sustainability benefits and opportunities

- Could deliver a reasonable number of new homes, close to Cambridge.
- Potentially good access to existing services, facilities and public transport links, depending on exact location of development.

- Good access to established employment hub(s), including Cambridge Biomedical Campus, and possibly Granta Park, resulting in positive effects on economy and employment, as well as helping to minimise traffic and related emissions.
- Some types of development, i.e. new settlements are expected to include provision of new services and facilities, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.

Key sustainability issues

- May not deliver the numbers, range and types of homes required.
- Existing services and facilities in villages may not have capacity to accommodate new development.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).
- Potential for settlement coalescence, with consequential effects on settlement character and identity.
- Likely loss of grades 2 and/or 3 agricultural land.
- Sensitive landscape characteristics (river valley and chalk hills).

Source of supply - Cambourne expansion

Key sustainability benefits and opportunities

- Further develops and enhances a new settlement where the groundwork has already been laid.
- Depending on scale of expansion, can deliver large numbers of homes of a range of types and tenures.
- Access to services and facilities within Cambourne and likely provision of new services and facilities, resulting in positive effects for accessibility, equalities, health, climate change mitigation and air quality.
- Good access to public transport and services, facilities and employment centres elsewhere, once strategic transport infrastructure is complete.
- Can be designed around walking and cycling for internal trips.
- Helps to protect the wider setting of Cambridge.
- Opportunity to provide new/improved green infrastructure.
- Good opportunities for water management.

Key sustainability issues

- Homes may not be where people want to live, if their desire is to live within or close to existing settlements, especially Cambridge.
- Access to jobs and services outside Cambourne are beyond reasonable walking and cycling distance, which could encourage car use, despite public transport provision and investment.
- If car use for external trips remains high, then this will make it more difficult to achieve low carbon outcomes.
- Could result in damage to or degradation of biodiversity assets and green infrastructure.
- Pressure on water supply and wastewater treatment (particularly for medium and maximum growth scenarios).
- Likely loss of grades 1, 2 and/or 3 agricultural land.

Growth scenarios

4.4 Overall, the minimum growth scenario tends to have fewer negative effects, as a lower level of growth is likely to put less pressure on local services and environmental resources. However, the maximum growth scenario tends to have more significant positive effects, particularly within the plan period, as larger individual developments are likely to be built within the plan period under this option. These have greater scope for providing new services and facilities and being designed in a way that encourages healthy lifestyles. In addition, a higher level of development may be able to provide the critical mass for provision of substantial new infrastructure and environmental enhancements, such as new green infrastructure and provide a greater diversity of homes and jobs. The medium growth scenario lies between these two. In general it will not provide the same opportunities for new infrastructure within the plan period as the maximum growth option, but is expected to do so in the longer term.

Strategic spatial options

Option 1. Densification of existing urban areas

4.5 Option 1 'Densification of existing urban areas' performs very well, particularly for the minimum growth scenario, as it includes regeneration of a large brownfield site at North East Cambridge and would result in development that is very well located to access local services and facilities and jobs and would likely minimise the need to travel by car. Concentrating development in the urban area would also prevent or reduce the need to develop greenfield land, which may be more sensitive in terms of biodiversity and would reduce the need to sterilise mineral resources or high quality agricultural land. However, this option poses a risk of demand for local services and facilities, including health services and green space, becoming greater than supply. It could also result in development on existing green space, particularly for the medium and maximum growth scenarios, which would have negative implications for human and environmental health. In addition, it may provide a more limited range of housing types and it would also fail to support the economic and social vitality of rural settlements. Whilst parts of the urban area are at risk of fluvial and surface water flooding, there are opportunities to use sustainable drainage systems in new developments on brownfield land.

Option 2. Edge of Cambridge – outside Green Belt

4.6 Option 2 ‘Edge of Cambridge – outside Green Belt’ performs quite well when fully built out, although not as well within the plan period. On the one hand, it combines the benefits of growth in proximity to Cambridge, i.e. access to services, facilities and jobs in the city, with the benefits of larger developments (such as new settlements under the medium and maximum growth scenarios). This includes provision of new services and facilities and potential to use large scale measures for environmental benefit e.g. energy, sustainable drainage, green infrastructure. This option would result in a range of sources of supply, all of which bring different benefits. It also makes use of brownfield land at North East Cambridge and Cambridge Airport. However, this option has potential to result in harm to the landscape and biodiversity assets and could result in relatively high carbon emissions before developments are fully built out, which is particularly the case for the additional sources of supply at villages and new settlements.

Option 3. Edge of Cambridge – Green Belt

4.7 Option 3 'Edge of Cambridge – Green Belt' is similar to Option 2 in terms of focusing development around Cambridge, but it does not include the additional sources of supply at villages and new settlements. Option 3's exclusive focus on growth in and around Cambridge city it is expected to result in greater accessibility to existing services and facilities and therefore lower levels of car use than Option 2. This option is expected to include large urban extensions, particularly under the maximum growth scenario, that will provide new services and facilities, as well as being well-located for services, facilities and jobs within Cambridge. However, there is a risk that substantial growth around the city could put pressure on amenities within the city and would fail to support more rural settlements. It also has potential for adverse impacts on the landscape and historic environment by extending the urban influence of the city and affecting views into and out of the historic centre.

Option 4. Dispersal – new settlements

4.8 Option 4 'Dispersal – new settlements' performs very well when fully built out, although not as well within the plan period. It performs particularly well against the social SA objectives, as all new settlements are expected to be of a size that provide for the day to day needs of residents. This includes provision of features such as schools, health care, recreation and leisure facilities. In addition, new settlements can be designed in a way that encourages walking and cycling and incorporate good green infrastructure networks. However, new settlements result in large-scale landscape change and may be of a scale where it is difficult to avoid intersecting with environmental or heritage assets, areas at risk of flooding or source protection zones. In addition, new settlements have a long lead in time. Relying solely on new settlements to deliver growth may lead to a lack of housing availability earlier in the plan period and a period of disconnect between when housing is delivered and when jobs and supporting infrastructure is delivered. In order to ensure sustainable behaviours are encouraged in new settlements, it is important to avoid the need for residents to travel for work and services at the outset, otherwise these may become ingrained travel patterns.

Option 5. Dispersal – villages

4.9 Option 5 'Dispersal – villages' performs least well against many SA objectives and overall. This is because it is likely to lead to a series of small developments that are unlikely to provide the critical mass to provide new services and facilities. This could result in local services and facilities being over-capacity and not able to meet demand. In addition, more dispersed development is more likely to be car-dependent and, again, may not provide the critical mass required to focus improvements to the public transport network. Whilst this option is likely to result in development in close proximity to sensitive environmental assets, it may have less effect on these than options likely to result in large-scale development. In addition, this option could help to support the rural economy. Overall, a small level of growth at more rural settlements would likely have positive sustainability implications, but not as the primary focus of growth.

Option 6. Public transport corridors

4.10 Option 6 'Public transport corridors' performs well, particularly when fully built out. This option is expected to provide good accessibility to services and facilities for all and will help minimise traffic-related emissions of greenhouse gases and air pollutants due to good access to the public transport network. However, there is a risk that development in more rural areas under this option could be more distant from services, facilities and employment opportunities. There will always be some residents who choose to drive, rather than travel by sustainable transport, particularly if this is more convenient in terms of route or time to get to work. Therefore it is generally more sustainable to provide services, facilities and employment opportunities close to where people live. This option could also result in development in areas with higher environmental sensitivity, depending on the exact location of development.

Option 7. Supporting a high tech corridor by integrating homes and jobs

4.11 Option 7 'Supporting a high tech corridor by integrating homes and jobs' performs very well, particularly when fully built out. Option 7 will locate homes within easy access of employment and also likely within easy access of services and facilities, although this could be further enhanced by investment in sustainable transport in the area. Together, this would help boost the local economy by attracting workers to the area and minimise emissions of greenhouse gases and air pollutants as many residents would be likely to find employment near their homes. However, there are some environmentally sensitive features to the south of Cambridge, which would be the focus for development under this option. These include historic assets, sensitive landscape features and high quality agricultural land, which could be damaged or lost to development.

Option 8. Expanding a growth area around transport nodes

4.12 Option 8 'Expanding a growth area around transport nodes' performs very well when fully built out, but less well within the plan period. This option presents the opportunity to build on the existing settlement at Cambourne and expand its offer. Development would be well-located for Cambourne's existing services and facilities whilst providing new and/or expanded facilities too. It is also in a less sensitive area in terms of environmental and historic assets. This option performs relatively poorly within the plan period, as it is unlikely that the full infrastructure to support development will be provided, particularly in terms of sustainable transport. The introduction of a new railway station and the Cambridgeshire Autonomous Metro will greatly improve sustainable transport options at this location in the long term, which are likely to be attractive to residents. However, there is a substantial amount of uncertainty about when these will be delivered and the ranking of this option is dependent on delivery of those links. It is also noted that growth outside of Cambourne (i.e. in the villages) may put pressure on local services and facilities and have greater car dependency.

Next Steps

4.13 The Councils will consider the assessments in this document alongside evidence from various specialist consultants (which has also fed into this document). This will be discussed

with stakeholders and feed into the Councils' decision on preferred options to take forward. Once preferred options (and any additional reasonable alternatives identified) have been worked up in detail, these will be subject to SA.

LUC

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