Leicester and Leicestershire Strategic Growth Plan (Final Report)

Sustainability Appraisal Report

September, 2018

REVISION SCHEDULE

Rev	Date	Details	Prepared by	Reviewed by	Approved by
1	September 2017	Interim SA Report for Leicester and Leicestershire Strategic Planning Group (Alternatives assessment findings)	**Ian McCluskey** Principal Sustainability Consultant **Matthew Stopforth** Planning Consultant	**Ian McCluskey** Principal Sustainability Consultant	**Alan Houghton** Regional Director
2	January, 2018	Draft SA Report	**Ian McCluskey** Principal Sustainability Consultant	**Mark Fessey** Principal Consultant	**Alan Houghton** Regional Director
3	February 2nd, 2018	Final SA Report	**Ian McCluskey** Principal Sustainability Consultant	**Mark Fessey** Principal Consultant	**Alan Houghton** Regional Director
4	September 12th 2018	Updated SA Report for Strategic Planning Group review	**Ian McCluskey** Principal Sustainability Consultant	**Ian McCluskey** Principal Sustainability Consultant	**Frank Hayes** Associate Director
5	September 26th	Final SA Report	**Ian McCluskey** Principal Sustainability Consultant	**Ian McCluskey** Principal Sustainability Consultant	**Frank Hayes** Associate Director

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1 Introduction

1.1 Background

1.1.1 AECOM are independent consultants with specialisms in environmental and sustainability assessment. We have been commissioned by The Leicester and Leicestershire Councils and the Local Enterprise Partnership to prepare a Sustainability Appraisal/Strategic Environmental Assessment (SA/SEA) and Habitat Regulations Assessment (HRA) for the Leicester and Leicestershire Strategic Growth Plan.

1.1.2 The Strategic Growth Plan will set out a broad framework for development across the whole of the County of Leicestershire, and the City of Leicester, focusing on the period up to 2050. Local Plans will be the primary delivery mechanism for the Strategic Growth Plan ('the Plan'), and this is where the key decisions will be made about the specific development opportunities that will help to deliver the Plan.

1.1.3 The SA/SEA has addressed key elements of the Plan including:

- Scale of growth for housing and employment land;
- Spatial distribution of growth;
- Major infrastructure requirements; and
- Environmental protection.

1.1.4 This document is an SA Report that describes the processes that have been undertaken as part of the SA/SEA Process.

1.2 Summary of the SEA/SA process

1.2.1 Strategic Environmental Assessment (SEA) is a statutory process that must be carried out when a plan, policy or programme is considered likely to have significant effects on the environment.

1.2.2 In the case of the Strategic Growth Plan (which sets the framework for future Local Plans) an SEA is determined to be necessary. However, to ensure that social and economic factors are also taken into consideration, it has been considered beneficial to undertake a sustainability appraisal (SA), which covers a wider range of factors including social and economic factors.

1.2.3 Sustainability Appraisal (SA) is a process for helping to ensure that plans, policies and programmes achieve an appropriate balance between environmental, economic and social objectives. The process that is followed incorporates the requirements of an SEA.

1.2.4 SA should help to identify the sustainability implications of different plan approaches and recommend ways to reduce any negative effects and to increase the positive outcomes.

1.2.5 SA is also a tool for communicating the likely effects of a Plan (and any reasonable alternatives), explaining the decisions taken with regards to the approach decided upon, and encouraging engagement from key stakeholders such as local communities, businesses and plan-makers.

1.2.6 Although SA can be applied flexibly, it contains legal requirements under the 'Environmental Assessment of Plans and Programmes Regulations 2004' (which were prepared in order to transpose into national law the EU Strategic Environmental Assessment (SEA) Directive).

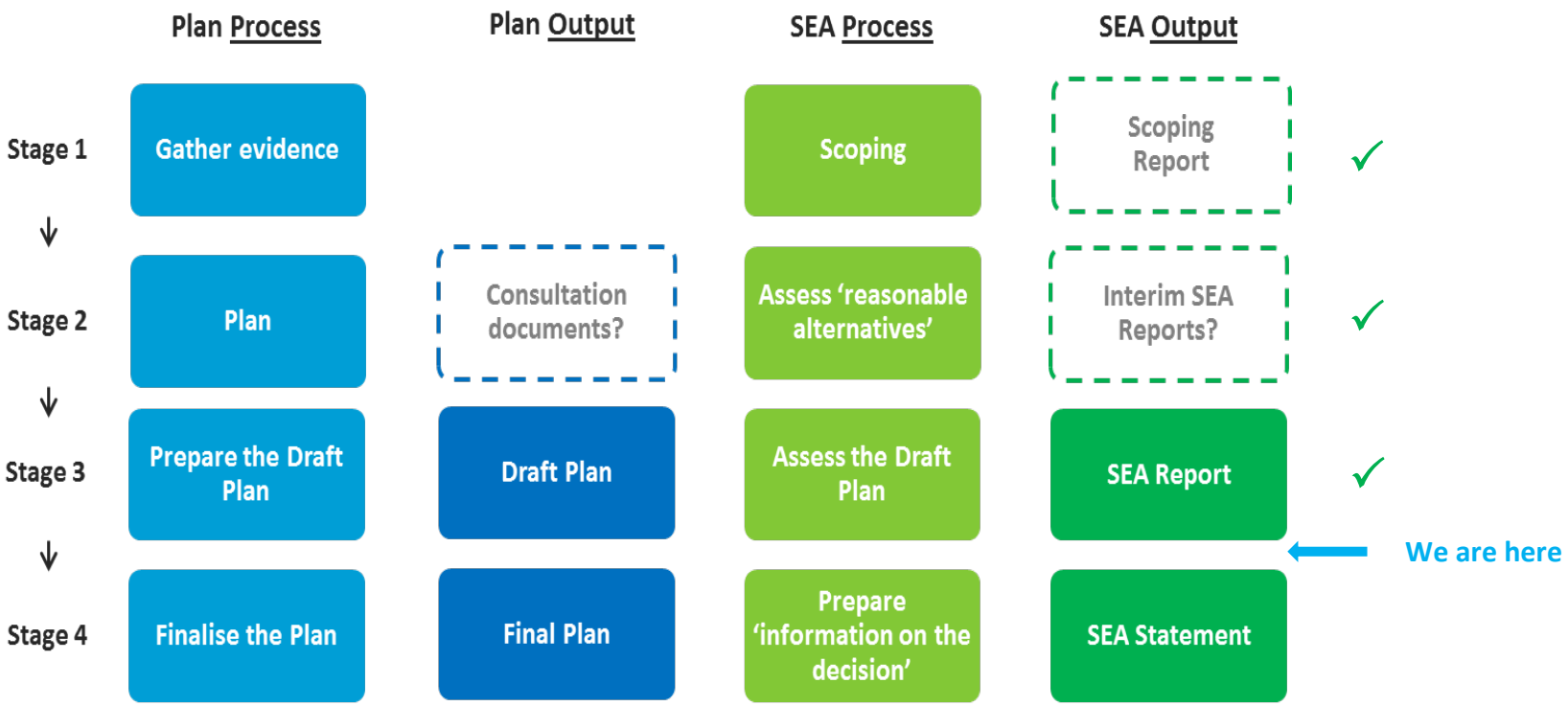
1.2.7 The regulations set out prescribed processes that must be followed. In particular the Regulations require that a report is published for consultation alongside the draft plan that 'identifies, describes and evaluates' the likely significant effects of implementing 'the plan, and reasonable alternatives'. The SA/SEA report must then be taken into account, alongside consultation responses when finalising the plan.

1.2.8 Though the Strategic Growth Plan is not a statutory document, it has the potential to have significant effects upon the environment, communities and economy. Therefore, it is considered necessary and beneficial to undertake a sustainability appraisal that meets the requirements of the SEA Regulations.

1.2.9 SA/SEA can be viewed as a four-stage process that produces a number of statutory and non-statutory outputs. As illustrated in Figure 1.1 below, 'Scoping' is a mandatory process under the SEA Directive, but the publication of a scoping report is a voluntary (but useful) output.

1.2.10 Figure 1.1 shows that we are at the latter stages of the process. A final Plan has been prepared, and this SA Report, documents the process and findings of the SA. However, in the context of the SEA Regulations, the plan is only 'final' once it has been approved (or Adopted for statutory Local plans for example). At this stage, an SEA statement is prepared.

Figure1.1: *SA/SEA as a four stage process*



1.3 Schedule of compliance

Schedule 2 requirements	Evidence
An outline of the contents and main objectives of the plan or programme, and of its relationship with other relevant plans and programmes.	Presented in full within the updated Scoping Report attached at Appendix A. Section 1.5 presents the Plan area. Section 7 outlines the main objectives and principles of the Plan.
The relevant aspects of the current state of the environment and the likely evolution thereof without implementation of the plan or programme.	Presented in full within the updated Scoping Report attached at Appendix A. Summarised within the appraisal tables throughout Section 6
The environmental characteristics of areas likely to be significantly affected.	Presented in full within the updated Scoping Report attached at Appendix A. Summarised within the appraisal tables throughout Section 6
*Any existing environmental problems which are relevant to the plan or programme including, in particular, those relating to any areas of a particular environmental importance, such as areas designated pursuant to Council Directive 79/409/EEC on the conservation of wild birds(**a**) and the Habitats Directive.*	Presented in full within the updated Scoping Report attached at Appendix A. Summarised within the appraisal tables throughout Section 6
The environmental protection objectives, established at international, Community or Member State level, which are relevant to the plan or programme and the way those objectives and any environmental considerations have been taken into account during its preparation.	Presented in full within the updated Scoping Report attached at Appendix A.

Schedule 2 requirements	Evidence
The likely significant effects on the environment, including short, medium and long-term effects, permanent and temporary effects, positive and negative effects, and secondary, cumulative and synergistic effects.	The effects associated with the reasonable alternatives are presented in section 6. The effects associated with the draft Plan are presented in Section 7, including cumulative effects.
The measures envisaged to prevent, reduce and as fully as possible offset any significant adverse effects on the environment of implementing the plan or programme.	Recommendations are presented for each sustainability topic within Section 7.
An outline of the reasons for selecting the alternatives dealt with, and a description of how the assessment was undertaken including any difficulties (such as technical deficiencies or lack of know-how) encountered in compiling the required information.	Section 3 sets out the rationale for selecting alternatives. Section 4 sets out the appraisal methodologies including difficulties. Section 6.4 presents the outline reasons for the selection of the draft spatial strategy in light of reasonable alternatives. Section 6.5 presents the outline reasons for the selection of the Final spatial strategy in light of reasonable alternatives.
A description of the measures envisaged concerning monitoring in accordance with regulation 17.	Table 7.2
A non-technical summary of the information provided under paragraphs 1 to 9.	Separate document prepared.

1.4 Report structure

1.4.1 The report is structured as follows:

Section 2: Scoping

This part of the report sets out a summary of the scope of the SA, which is contained in detail in a separate Scoping Report.

Section 3: Description of the options

This part of the report sets out the options that have been established by the Strategic Planning Group as part of the early stages of plan-making. It describes the assumptions behind each option, and how this translates into growth across the HMA. Understanding the options is fundamental in being able to undertake a robust and meaningful sustainability appraisal.

Section 4: Methodology

This part of the report sets out the methodology to aid in the understanding of the appraisal process.

Section 5: Appraisal findings

This part of the report sets out the detailed appraisal tables for each of the sustainability topics.

Section 6 – Summary of appraisal findings

This part of the report sets out a summary of the options appraisal findings.

Section 7 – Appraisal of the Plan

This part of the report sets out an appraisal of the Plan 'as a whole', taking into account the spatial strategy and supporting measures.

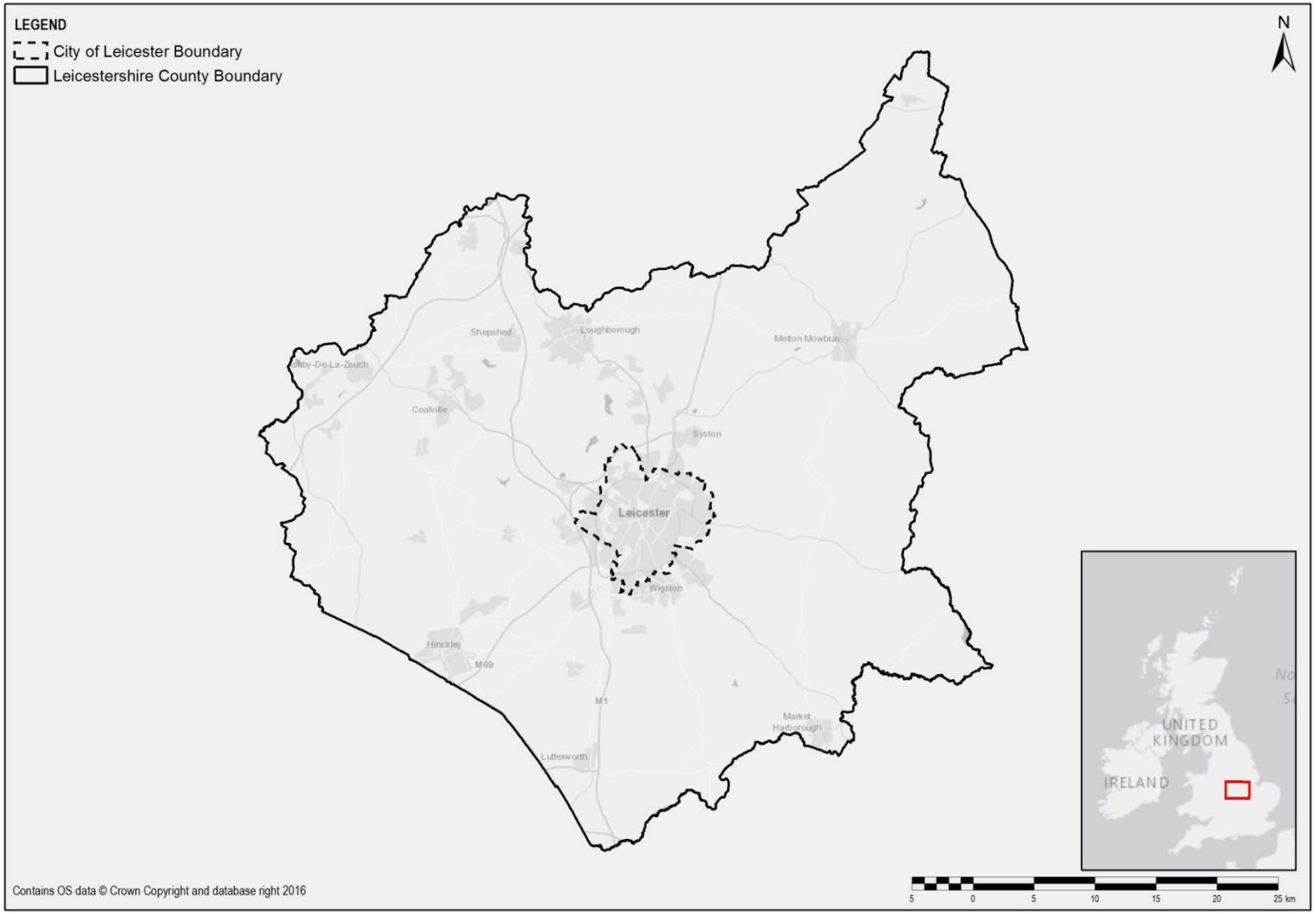
Section 8 – Next Steps

This last part of the report sets out how to make comments on the SA Report and what the key stages in the process will be going forward.

1.5 The Plan area

1.5.1 The Strategic Growth Plan covers the whole of the County of Leicestershire and the City of Leicester. This is shown in Figure 1.2.

***Figure 1.2** : The Plan Area*



2 Scoping

2.1 Background

2.1.1 The Scoping stage of the SA process is designed to establish the key issues that should be the focus of the appraisal, as well as proposing the assessment methodologies.

2.1.2 A Scoping Report was prepared and published for consultation with the three statutory bodies (Historic England, Environment Agency, Natural England) between August 25th, 2017 and September 29th, 2017. Following consideration of the comments received, the scope of the SA was 'determined' and has provided the baseline position against which appraisals have been undertaken.

2.1.3 It should be noted that the scope of the SA is fluid and has been updated throughout the plan making process in light of new evidence. The scope of the SA is presented in full within a separate scoping report (attached as **Appendix A**).

2.1.4 The scoping exercise involved gathering information about the baseline information relating to a range of sustainability factors. A review of relevant plans, policies and programmes was also undertaken in relation to each topic to identify key principles and sustainability objectives that ought to be taken into consideration in the SA process.

2.1.5 Drawing together all this information allowed a series of key issues to be identified, which formed the basis of the development of an SA Framework (a series of objectives and criteria for assessing the effects of the Strategic Growth Plan). The key issues and thirteen sustainability objectives are summarised in this section of the SA report. The full SA Framework can be found in the Scoping Report at **Appendix A**.

2.1.6 **Table 2.1** below sets out the sustainability topics that were identified within the scoping report, the associated key issues, and the corresponding sustainability objectives. Where a decision was made that topics could be 'scoped out' of the SA, no SA objectives were developed.

Table 2.1: Sustainability topics and corresponding SA Objectives

Key issues	SA Objective
Biodiversity and geodiversity The County has a relatively low level of designated biodiversity sites. However, these are in a mostly favourable or recovering position. Opportunities to strengthen ecological networks should therefore be taken advantage of. The quality of water could affect a range of biodiversity habitats and species across the Plan area, making strategic river networks an important feature to protect, maintain and enhance.	1. Create new, protect, maintain and enhance habitats, species and ecological networks.
Health and wellbeing The population is aging, with impacts for the delivery of health services. Another key issue due to a rising ageing population is the provision of sufficient and appropriate housing within the HMA / districts.	2. Maintain and improve levels of health, whilst reducing health inequalities
Housing There is a need to meet needs for housing as identified in the HEDNA (2017). In some districts it may be difficult to meet full needs 'locally' (i.e. within the district it arises). This could necessitate housing needs for some districts being met in other parts of the HMA. Housing affordability is an issue across the HMA. There is an increasing need to provide housing suitable for an ageing population.	3. Secure the delivery of high quality, market and affordable homes, to meet Objectively Assessed Need.

Key issues	SA Objective
Employment and economy The County is well positioned for growth in the strategic distribution sector; though there is a need to identify the appropriate distribution of growth opportunities. Unemployment rates are falling across the HMA, though remain the highest within the city.	4. Support the continued growth and diversification of the economy.
Transport and travel Accessibility to services, facilities and jobs is poor in rural areas. Access to strategic employment sites by public transport is not ideal. There may be constraints to the amount of development that can be accommodated on the edge or near the Leicester urban area in light of congestion along parts of the orbital road network.	5. Improve accessibility to services, jobs and facilities by reducing the need to travel, promoting sustainable modes of transport and securing strategic infrastructure improvements.
Though generally good, air pollution presents an issue in some parts of the Plan area, typically within areas that suffer from higher levels of traffic and congestion.	6. Minimise exposure to poor air quality, whilst managing contributing sources.
Climate change There are opportunities to increase the amount of low carbon and renewable sources of energy above the relatively low baseline position.	7. Contribute to a reduction in greenhouse gas emissions and an increase in the use of low carbon energy.

Key issues	SA Objective
Landscape and land There are parcels of high quality agricultural land throughout the district that should be protected given the relatively low amount of Grade 1 and 2 lands present. No nationally designated landscapes are present, but there are a variety of important landscapes which are important to the character of the countryside, preventing urban sprawl and supporting the natural environment. Whilst these are in relatively good condition, there are increasing pressures from development that need to be managed.	8. Protect, maintain and enhance landscapes whilst promoting their value to sustainable growth. 9. Protect high quality agricultural land from permanent development.
Cultural heritage There is a wealth and variety of heritage features, many of which are designated for their heritage value. It will be important to protect the condition and setting of these assets. There may be cross border heritage assets. Though the number of 'at risk' heritage assets has decreased slightly from 2015-2017, the majority of heritage assets that remain on the 'at risk' register are declining in condition.	10. Conserve and enhance the historic environment, heritage assets and their settings.

Key issues	SA Objective
Water The quality of many water resources across the Plan area is in need of improvement, yet could come under increased pressure from new development. SUDs should be encouraged to support the natural and sustainable management of water resources. There are locations across the Plan area sensitive to and at risk of flooding (which could be exacerbated by climate change). There is a need to ensure that future development does not put more people at risk of flooding whilst ensuring that overall levels of flooding do not increase. This could/should constrain development in some areas, such as the flood plains of the River Soar and watercourses leading to and through Leicester City.	11. Steer development away from the areas at the greatest risk of flooding, whilst supporting schemes that reduce the risk and impacts of flooding. 12. Protect, maintain and enhance the quality of water resources.
Waste and minerals Levels of recycling, reuse and composting are relatively high, and rates continue to improve. There has also been a general decrease in the amount of waste per capita. Growth in housing and employment is likely to generate more waste in terms of the overall volume. However, improved efficiency and continued drives to reduce the amount of waste sent to landfill should help to reduce the amount of waste generated per capita. There are mineral resources across the County, some of which could be sterilised by development. It is important to protect such reserves from sterilisation.	**Waste** – Scoped out. The trends are generally positive, and the planning for growth ought to be managed through the Leicester and Leicestershire Waste Plans. 13. Protect mineral resources from sterilisation, and support their sustainable extraction.

3 Description of the options

3.1 Background

3.1.1 The growth and distribution of development is a central element to the Strategic Growth Plan. It is therefore important to identify how development can be delivered most appropriately to meet the aims and objectives of the Plan in a sustainable manner.

3.1.2 The Leicester and Leicestershire Strategic Planning Group (consisting of representatives from all authorities) established a range of options for the growth and distribution of housing, making use of emerging evidence and existing work on Local Plans as a starting point. These options were tested in the SA and consulted upon in an interim SA Report.

Amount of growth

3.1.3 The first reasonable alternative for housing quantum is based on an extrapolation of objectively assessed needs (OAN) for the period 2011-2036. This would equate to an indicative requirement for new homes over the period 2031-2050 of 4,764 dwellings per annum (approximately 90,500 homes).

3.1.4 A higher target (20% more than projected OAN) has also been established to account for greater flexibility in achieving housing delivery and to support greater economic growth aspirations.

3.1.5 A lower level of growth than the projected OAN is considered to be an unreasonable alternative by the Strategic Planning Group because Government policy is clear that the OAN for the HMA as a whole must be accommodated unless it has been demonstrated that is not possible. The Strategic Planning Group considered that, while there are constraints within and across the HMA, these were not of such scale and importance, either individually or collectively, to prevent the OAN from being accommodated in a sustainable way.

3.1.6 The Strategic Planning Group take the view that the relative volatility of economic forecasting makes it inappropriate to simply extrapolate to 2050 an estimate of employment land requirements based on those established to 2031 and 2036 by the currently available evidence. As such there is no fixed assumption about the amount of employment land that may be required over the 2031-2050 period. However, it is reasonable to assume that the distribution of employment growth will reflect the view taken on the 'central city' role of the City of Leicester, on the likely continued creation of job opportunities at key locations referenced in the Midlands Engine Strategy and on the influence of infrastructure-related economic generators as referenced in the Midlands Connect Strategy. This is reflected in the distribution options as outlined below.

Housing distribution

3.1.7 The Strategic Planning Group established a range of options for the distribution of development. This work has been influenced by a range of factors including emerging evidence on growth opportunities, progress on individual authorities' Local Plans to 2031 or 2036, and options explored and tested as part of the Local Plan processes for each authority.

3.1.8 Development has already started in key locations and it makes sense to complete these works.

3.1.9 Several of the key economic generators and academic institutions are in fixed locations and it may be desirable to co-locate new investment where they can build upon existing facilities. Therefore, these existing frameworks have formed the starting point so that the Strategic Growth Plan will be a natural evolution of current policies and proposals, amended, developed, enhanced and justified with reference to the emerging evidence base.

3.1.10 The spatial options focus on the possible locations for the delivery of strategic sites, whether in the form of Sustainable Urban Extensions (SUEs), expanded or new settlements. Eight broad strategies were identified as follows, with the expectation that the final strategy would involve a combination of these approaches:

1. Urban intensification
2. Sustainable urban extensions
3. Urban concentration
4. Concentration on key settlements
5. Dispersed growth
6. New settlements
7. Employment-led
8. Growth corridors

3.1.11 Taking these broad spatial approaches into account, six options were established setting out the amount of growth that would be distributed to key locations across the Plan area. Each of the options involve differing levels of housing growth in each area to represent a greater or lesser focus on each of the broad strategies. Assumptions about the distribution of employment are identified for each of the options, with an emphasis on key strategic locations supported by the expansion of existing employment sites.

3.1.12 These options are considered to be reasonable because, without over-emphasis on any individual one, they incorporate a range of the available options and have regard to the policy objective of delivering an increased proportion of growth on strategic sites.

Option 1: Emphasise development in and immediately around the built framework of Leicester, with growth elsewhere constrained.

3.1.13 This alternative would involve a focus on the options of urban intensification and urban concentration; it would require the provision of housing on underused sites, but also on some sites currently in employment use and other sites that are undeveloped, including open spaces within the urban area.

3.1.14 There should be an assumption that the density of development will increase, both within but also adjacent to the built framework of the city. The option would look to expand existing Sustainable Urban Extensions (SUEs) and/or to introduce new SUEs on the edge of the built area.

3.1.15 Housing to be dispersed elsewhere would be numerically less than that planned for over the period 2011-2031. The amount of housing growth at the market towns, at other key settlements and in the rural area would be constrained.

3.1.16 The option of providing a new settlement would not be pursued. The emphasis on housing in and around Leicester would make it necessary to accommodate a greater proportion of employment growth in other locations, with the potential for job growth most likely to arise in the market towns or on new or expanded freestanding employment sites.

Option 2: Emphasise development in and immediately around the market towns of Coalville, Hinckley, Loughborough, Market Harborough and Melton Mowbray, with growth elsewhere constrained.

3.1.17 This alternative would involve a focus on the option of concentration on key settlements, namely the established market town settlements.

3.1.18 The availability of redevelopment sites within these towns is very unlikely to meet the level of growth required, although delivery on any sites identified should be assumed at an increased density (an element of urban intensification). The assumption must be that most development would be delivered via a number of SUEs around the market towns.

3.1.19 The housing growth within Leicester itself would proceed at a level beneath that currently identified as representing the likely development capacity. Housing growth beyond the built-up area of the city and in the rural areas would be limited. The option of providing a new settlement would not be pursued.

3.1.20 Under this alternative there would be scope to emphasise the employment-generating potential of Leicester, with the growth in jobs being significantly greater than that possible under alternative 1. The potential for job growth on new or expanded freestanding employment sites would remain.

Option 3: Emphasise development in the vicinity of known economic growth areas and associated infrastructure investment, with growth elsewhere constrained.

3.1.21 This alternative would involve a focus on the option of employment-led growth, linked to the option of growth corridors where there are employment areas that are well served by public transport. The acknowledged major economic generators include East Midlands Airport, the wider East Midlands Enterprise Gateway, Loughborough Science and Enterprise Park, Charnwood Bio Medical Campus, Leicester Science Park, Leicester city centre, and the MIRA Horiba Enterprise Zone.

3.1.22 Magna Park is an additional generator and may become more so assuming known plans for its expansion are realised prior to 2031. Given these growth locations, this alternative may include the option of providing one or more new settlements or the option of pursuing a growth corridor associated with major infrastructure investment.

3.1.23 The housing growth within Leicester should be assumed to proceed at the level currently identified as representing the likely development capacity. This would enable continued job growth within the city area. With the exceptions of Loughborough and Hinckley, both housing and job growth at the market towns would be constrained. Conversely, there could be significant housing growth at other key settlements that are closely associated with an economic growth point or in locations within a planned infrastructure investment corridor.

Option 4: Emphasise the option of growth being accommodated via new and expanded settlements, with constraints on growth in other key settlements and the urban area of Leicester.

3.1.24 This alternative would involve a focus on the option of delivering growth via the significant expansion of existing smaller scale settlements or the creation of entirely new settlements. For the purpose of assessing this alternative it should be assumed that four new or expanded settlements are to be brought forward, one each in the areas generally to the north, south, east and west of the City of Leicester. Each new settlement would make provision for job growth.

3.1.25 The housing growth within Leicester should be assumed to proceed at or below the level currently identified as representing the likely development capacity. This would enable continued job growth within the city area. Housing and job growth at the market towns and elsewhere across the rural areas would be more constrained.

Option 5: Dispersed growth

3.1.26 This alternative would involve a much less focused pattern of growth, involving in particular a higher proportion of development in the smaller settlements. A higher proportion of new homes would be provided on medium and small scale sites and many of the smaller settlements would be likely to grow at a rate in excess of that experienced historically.

3.1.27 There would be less likelihood that new homes and job opportunities would be created via mixed-use developments. A lower proportion of development is likely to be delivered on previously used land.

Option 6: Continuation of established trends

3.1.28 This alternative would involve a focus on the options of sustainable urban extensions (to both the main urban area of Leicester and the market towns), potentially with elements of urban intensification and more widely dispersed growth. It generally reflects the approach promoted by the RSS but subsequently influenced by speculative development proposals coming through the development management process.

3.1.29 Housing growth within Leicester should be assumed to proceed at the level currently identified as representing the likely development capacity, enabling continued job growth within the city. Housing growth would be accommodated in and adjacent to the established market towns, through limited urban intensification but more predominantly through SUEs.

3.1.30 A larger proportion of the housing growth would be accommodated within and around other key rural settlements and there would be some expansion on the periphery of the city. Job growth would also be more dispersed, although the likelihood of ongoing growth at and around the acknowledged major economic generators should be assumed.

3.2 Combining growth and distribution options

3.2.1 In order to give the appraisal greater context and meaning, the two housing growth scenarios were combined with each of the six spatial options. This allowed for a broad understanding of effects to be identified for each of the spatial options, and how these effects would differ should the level of growth be higher or lower.

3.2.2 This combination resulted in twelve discrete options (the reasonable alternatives) that have been tested in the SA (see tables 3.1 and 3.2 below). As outlined in both tables, each of the options involve different amounts of growth in the City, Leicester Urban Periphery, Market Towns, 'other settlements' and at new/expanded settlements.

3.2.3 The proportions identified for different areas under each option are based upon an understanding of theoretical land capacity and a greater or lesser focus on different strategic objectives.

3.2.4 The methodology for undertaking the appraisal is set out in section 4, with the appraisal findings set out in full in Section 5.

Table 3.1 *Projected OAN from 2031-2050 (90,500)*

	1a. Leicester urban periphery focus	**2a.Market Towns focus**	**3a.Employment/ infrastructure led**	**4a.New/expanded settlements focus**	**5a.Dispersal**	**6a.Trend**
City	20% *18,100*	10% *9,050*	10% *9,050*	10% *9,050*	10% *9,050*	25% 22,625
Urban periphery	40% *36,200*	15% *13,575*	30% *27,150*	15% *13,575*	20% *18,100*	25% 22,625
Market towns	20% *18,100*	60% *54,300*	45% *40,725*	15% *13,575*	30% *27,150*	30% *27,150*
Other settlements	20% *18,100*	15% *13,575*	15% *13,575*	10% *9,050*	40% *36,200*	20% *18,100*
New/expanded settlements	0%	0%	0%	50% *45,250*	0%	0%

Table 3.2 *Projected housing needs 2031-2050 including 20% flexibility (108,600)*

	1a. Leicester urban periphery focus	**2b.Market Towns focus**	**3b.Employment/ infrastructure led**	**4b.New/expanded settlements focus**	**5b.Dispersal**	**6b.Trend**
City	20% *21,720*	10% *10,860*	10% *10,860*	10% *10,860*	10% *10,860*	25% 22,625
Urban periphery	40% *43,440*	15% *16,290*	30% *32,580*	15% *16,290*	20% *21,720*	25% 27,150
Market towns	20% *21,720*	60% *65,160*	45% *48,870*	15% *16,290*	30% *32,580*	30% *32,580*
Other settlements	20% *21,720*	15% *16,290*	15% *16,290*	10% *10,860*	40% *43,440*	20% *21,720*
New/expanded settlements	0%	0%	0%	50% *54,300*	0%	0%

3.3 Hybrid Option

3.3.1 Following appraisal of the twelve options (the reasonable alternatives) an internal SA Report was sent to the Strategic Planning Group to assist them in the development of a preferred approach. Consequently, a 'hybrid option' was established that draws upon different elements of the original reasonable alternatives.

3.3.2 The approach developed is broadly the same as option 4b, which promotes 'new settlements'. However, the focus of the settlements is linked to employment and infrastructure, and much of the growth is within close proximity to Leicester City and its' urban periphery.

3.3.3 The hybrid approach is to plan for 90,600 homes (4,768 dpa) from 2031-2051.

3.3.4 In terms of distribution, the approach is built from several key elements including a focus on the A46 Growth Corridor mostly as 'new or expanded' settlements, but also linked to Leicester City and its' urban periphery.

3.3.5 There are also specified opportunities at key centres such as Lutterworth and Melton Mowbray.

3.3.6 There are secondary growth areas such as the Northern Gateway (10,000 homes) and the Southern Gateway (10,000 homes), which would involve a combination of 'new settlements' and extensions to the existing urban areas such as at Loughborough / Shepshed.

3.3.7 Growth would be at a more modest level at Market Towns of Coalville, Market Harborough, Loughborough and Hinckley, and limited growth would be distributed to the smaller 'other' settlements.

3.3.8 The growth associated with this hybrid option has been classified according to the same spatial building blocks used for the six original distribution options. However, these original typologies are not ideal categories for best describing the spread of development because a large element of the strategy involves growth along the A46 expressway. Whilst this would be more likely to be represented by 'new settlements' not immediately adjacent to the Leicester urban periphery, there are close links with the urban periphery and perhaps an element of overlap in these categories.

3.3.9 To ensure a consistent appraisal against the original twelve reasonable alternatives, the hybrid option has also been appraised using the same methodology and the findings are presented in the appraisal matrices in Section 6 of this report. Where there are connections between the different spatial areas / building blocks, these are discussed and conclusions are drawn on the overall effects.

3.3.10 Given that the hybrid approach was developed in response to the Strategic Planning Group's consideration of earlier assessment work, it was considered unnecessary to appraise the higher growth variant (as the Group had rejected the higher growth scenario).

Table 3.3: Housing distribution under the Hybrid Option

	Hybrid Option
City	12% (10,450)
Urban periphery	5% (4,500)
Market towns	20% (18,100)
Other settlements	10% (9,050)
New/expanded settlements	53% 28,000 (A46 corridor) 10,000 (Northern Gateway) 10,000 (Southern Gateway)

3.4 Reconsidering strategic options

3.4.1 Following consultation on the draft Plan and the interim SA Report (February 2018), the Strategic Planning Group took account of comments received and re-considered whether the reasonable alternatives to the proposed strategic approach remained appropriate.

3.4.2 The key issues raised with regards to the spatial options have been summarised below, followed by a discussion of whether suggested additional alternatives are considered to be reasonable or not.

3.4.3 Those options that have been determined to be reasonable have been appraised using the same methodology that was used at the previous options appraisal stage. Where options are considered to be unreasonable, outline reasons are provided by the Council to explain why.

***Alternative approach A** – A greater amount of growth should be focused into Leicester Urban Area:*

3.4.4 The seven options tested consider a range of growth in Leicester City from 9050 to 22,625 dwellings. This provided an understanding of the implications of different levels of growth in the City. The highest growth scenario for Leicester (22,625 dwellings as part of Option 6) is predicated

on maximizing growth in the City (there is only 10,500). To deliver beyond this number would require the release of even further open space within the City, which could have significant implications with regards to health and wellbeing, urban biodiversity and access to green space.

3.4.5 This is considered to be unacceptable and would have detrimental effects on existing communities. Promoting increased densities by building taller buildings has already been factored into capacity calculations. Pushing densities further is considered to be unreasonable because it would have an impact on transport networks and other infrastructure (health, education and utilities), the historic character of the City and the residential amenity of existing communities.

Alternative Approach B - An option which includes an Eastern Gateway ought to be tested.

3.4.6 No specific opportunities have been identified that would support the growth of a standalone 'eastern gateway'. There is therefore a question mark about the deliverability of such an approach. Furthermore, the transport infrastructure and access to major employment opportunities are limited in the rural areas of Melton and Harborough to the east.

3.4.7 An appropriate location for an eastern gateway may be an opportunity for higher growth at Melton Mowbray. However, this possibility has already been tested through Option 2 (Market Town focus), and so the implications of this are understood.

3.4.8 Another possible location for an 'eastern gateway' would be along the A46 corridor. This is something that could be explored by Local Authorities through the preparation of Local Plans. However in the context of this SA, a range of options have already been tested that involve different levels of growth at the 'Leicester urban periphery' and 'new settlements'. This provides a strategic understanding of the potential effects of growth in these locations.

3.4.9 For these reasons, it is considered unnecessary (unreasonable) to test further spatial strategies through the SA.

Alternative Approach C *– An approach that does not rely upon the A46 expressway should be tested:*

3.4.10 Several of the strategic options involve a more dispersed approach to development that would be less reliant upon improvements to the A46 expressway. In particular this is Options 5 (Dispersal) and Option 6 (Trend). Therefore, it is considered unnecessary to test additional strategic approaches addressing this issue.

Alternative approach D – An alternative that relies on less strategic sites ought to be tested

3.4.11 As a strategic growth plan, there is a need to provide a broad strategy for growth and the distribution of development. Intrinsically, this should involve the consideration of strategic sites that can be well-planned and help to achieve sustainable patterns of growth. For these reasons, the partnership group considers that strategic sites should be a key element of the growth Plan (as reflected in the Plans aims and objectives). Furthermore, the proposed strategy proposes 38% of growth non-strategic sites.

3.5 Comparison of the final Plan Strategy and the draft Plan

3.5.1 Following consultation on the draft Plan, the Strategic Planning Group has made minor amendments to the strategy. In the main, the strategy still focuses strongly on strategic developments in key locations including; the A46 corridor, a northern gateway (renamed the Leicestershire International Growth Area), an opportunity for growth and regeneration at Melton Mowbray, and more restrained growth in the rural areas.

3.5.2 A key change is the reframing of growth to the south of Leicester as the 'A5 Improvement Corridor' rather than the 'Southern Gateway' set out in the draft Plan. This clarifies the broader locations for growth along this corridor, but the overall distribution of housing between authorities would be expected to be similar. In addition, Lutterworth would no longer be a key location for growth.

3.5.3 With regards to the amount of housing proposed for each authority, there are no changes for Leicester, Blaby, Oadby and Wigston, Charnwood, and Hinckley and Bosworth. The key change is a decrease in the amount of growth proposed at Harborough (2000 dwellings) and a subsequent increase in Melton Mowbray (800 dwellings) and North West Leicestershire (1200 dwellings). Essentially, this reflects a slightly more ambitious plan for the Leicestershire International Growth Area, and greater growth at Melton Mowbray Market Town. The reduced growth in Harborough would be reflected in a reduction in the capacity of strategic developments along the A46 growth corridor.

3.5.4 Table 3.4 below demonstrates the differences between the draft Plan / Hybrid option and the final Plan with regards to housing distribution.

Table 3.4: *Amendments to housing distribution between the draft Plan (Hybrid Option) and the final Plan*

Authority	Proposed delivery: Hybrid Option	Proposed delivery: Final Plan	Change
Blaby DC	17,560	17,560	-
Charnwood BC	18,890	18,890	-
Harborough DC	17,930	15,930	-2000
Hinckley & Bosworth BC	10,090	10,090	-
Leicester City	10,450	10,450	-
Melton BC	4,520	5,320	+800
North West Leicestershire DC	8,520	9,720	+1200
Oadby & Wigston BC	2,640	2,640	-
Total (Leicester & Leicestershire)	90,600	90,600	-

3.5.5 It is evident from the table above that the strategy has been amended with regards to housing distribution between local authorities. However, this would not lead to a significant change to the overall strategic approach.

3.5.6 Therefore, with regards to testing reasonable alternatives, it is considered that the findings for the hybrid option remain relevant for the purposes of comparing the final Plan to alternative strategies.

3.5.7 The reconfiguration of housing growth from Harborough to Melton and North West Leicestershire does not drastically change the overall strategy, and therefore, the effects are likely to remain broadly the same. It is considered sufficient to address the impact of these changes through an updated appraisal of the final Plan (see Section 7).

4 Methodology for appraising strategic options

4.1.1 The appraisal has been undertaken and presented against each of the ten sustainability topics established through scoping. Each SA Topic includes one or more of the thirteen SA Objectives (see table 4.1 below), which have been taken into account as part of the appraisal for each topic. Where SA topics include more than one SA Objective, this is because there is a degree of overlap and close relationships between the objectives, and so the appraisal can be streamlined to avoid duplication. However, every SA Objective and the supporting criteria have been considered in the appraisal process, which is represented in the findings.

Table 4.1 *SA topics and corresponding SA Objectives*

SA Topic	SA Objective(s)
Biodiversity	1. Protect, maintain and enhance habitats, species and ecological networks.
Health and wellbeing	2. Maintain and improve levels of health, whilst reducing health inequalities 6. Minimise exposure to poor air quality, whilst managing contributing sources.
Housing	3. Secure the delivery of high quality, market and affordable homes, to meet Objectively Assessed Need.
Economy and employment	4. Support the continued growth and diversification of the economy.
Transport and travel	5. Improve accessibility to services, jobs and facilities by reducing the need to travel, promoting sustainable modes of transport and securing strategic infrastructure improvements.
Climate change	7. Contribute to a reduction in greenhouse gas emissions and an increase in the use of low carbon energy
Landscape and Land	8. Protect, maintain and enhance landscapes whilst promoting their value to sustainable growth. 9. Protect high quality agricultural land from permanent development.
Cultural Heritage	10. Protect, maintain and enhance the historic environment.
Water	11. Steer development away from the areas at the greatest risk of flooding, whilst supporting schemes that reduce the risk and impacts of flooding. 12. Protect, maintain and enhance the quality of water resources.
Minerals	13. Protect mineral resources from sterilisation, and support their sustainable extraction.

4.1.2 For each of the SA topics (see Appendix A for the full SA Framework within the scoping report) an appraisal table has been completed which discusses the likely effects for each option (at both growth projections).

4.1.3 An overall score for each option is derived from an appraisal and understanding of the effects across the Plan area in different spatial contexts. These 'building blocks' for each option are as follows (in-line with how the alternatives have been established):

- Effects on the City
- Effects on the Leicester Urban Periphery
- Effects on Market Towns
- Effects on 'other (rural) settlements'
- Effects at new settlements / expanded settlements.

4.1.4 These individual elements are then considered together (cumulatively) to establish an overall score for each option against the SA Objectives.

4.1.5 Where helpful, selected baseline information has been reproduced in the appraisal tables for reference and to aid in the identification of effects.

4.1.6 When determining the significance of any effects, a detailed appraisal of factors has been undertaken to take account of:

- the nature and magnitude of development;
- the sensitivity of receptors; and
- the likelihood of effects occurring.

4.1.7 Taking these factors into account allowed 'significance scores' to be established using the system outlined below.

Major positive	✓✓✓	Minor negative	×	Neutral / negligible effects	-
Moderate positive	✓✓	Moderate negative	××	Uncertain effects	?
Minor positive	✓	Major negative	×××		

4.1.8 The assessment has been undertaken making-use of baseline information presented in the scoping report and mapping data. Whilst it has not been possible to identify exact effects due to sites not being established at this stage, we have made assumptions on the potential locations of development by referring to SHLAA sites and potential opportunity areas identified by the Strategic Planning Group.

4.1.9 There is a focus on strategic impacts at a settlement-level and for the Plan area as a whole, rather than detailed local effects. Therefore, what might be 'significant' in the context of a particular settlement may not be significant when taken in the context of the entire Plan area.

4.1.10 Whilst every effort is made to make objective assessments, the findings are also based upon professional judgement and are therefore partly subjective.

5 Appraisal Findings

5.1.1 This section presents the appraisal findings for each of the ten sustainability topics.

5.1.2 For each topic a table is presented which discusses the effects at different spatial scales (City, Leicester Urban Periphery, Market Towns, Other Settlements, New / Expanded Settlements). The options are tested at two different levels of growth as illustrated in each table.

5.1.3 To introduce each topic and to provide context for the assessment of effect significance, baseline information has been summarised where appropriate.

5.2 Appraisal findings: Biodiversity

5.2.1 The findings relating to the Sustainability Topic 'Biodiversity' are presented in the following tables.

Biodiversity
Discussion of effects **City:** • Within the City of Leicester boundary there is 1 designated SSSI: Gypsy Lane Pit. Located approximately 2 miles to the north-west of the City centre, the SSSI was recorded as being in an 'unfavourable - declining' condition in 2016.There are also 7 LNR (Local Nature reserves) within the City of Leicester boundary, with the largest Aylestone Meadows located to the south of the city and Watermead Country Park on the northerly edge of the city boundary. • The quality of the River Soar and the Grand Union Canal was previously threatened, however in 2011, it was designated as a Biodiversity Enhancement Site (BES), which could help to protect and enhance quality. • Urban intensification would most likely require the loss of greenspace / parks and brownfield land, all of which can hold value for biodiversity as supporting or linking habitats. *OAN growth option:* Option 1 (20% - 18,100 homes) and to a greater extent option 6 (25% - 22,625 homes) could potentially put the most pressure upon biodiversity assets within the City in order to facilitate the required level of development. At these higher levels of growth a **minor negative effect** is predicted as it would be likely that green infrastructure in the City was affected negatively. Though the SSSI would be unlikely to be affected, effects on local wildlife and linkages could be generated. Options 2, 3, 4 & 5 all allocate 10% housing growth (9,050 homes) within the city boundary. Depending on the exact location of this development, it could still have an impact on the biodiversity assets due to an increase in the need for space for development and proximity to the SSSIs and LNRs (but to a much lesser degree). At this level of growth the effects are predicted to be **neutral,** as it is expected that growth could more readily avoid sensitive areas, and have lesser overall effects on green infrastructure in the City.

Biodiversity

The hybrid option proposes a similar amount of growth as options 2, 3, 4 and 5; therefore the effects are also predicted to be **neutral.**

Higher growth projection: A further increase of 20% on top of the options above would only add to the risk of biodiversity assets being impacted upon by additional development. However, the overall increase in growth would not be enough to lead to a more significant effect upon the City's biodiversity resources for options 1, 2, 3, 4 or 5. The effects predicted for option 6 however are more substantial and constitute a **moderate negative effect**.

Urban Periphery

- The urban periphery of Leicester City accommodates numerous SSSI's, but the majority of these sites are situated to the north-west of the city. Groby Pool and Woods lies to the north-west and is made up of 6 units; Groby Grassland, Groby Wood, Slate Wood West and Slate wood East all in a 'favourable' condition, Groby Pool is in an 'unfavourable – no change condition' and Groby Tail Pool in an 'unfavourable – declining' condition. Sheet Hedges Wood is made up of 5 woodland units; 1 in a favourable condition, 3 in an 'unfavourable – recovering' condition, and 1 in an unfavourable – declining' condition. Bradgate Park and Cropston is made up of 5 units; 3 in an 'unfavourable – recovering' condition and 2 in an 'unfavourable – declining' condition.
- Two SSSI sites lie to the South West of the city. Enderby Warren Quarry is in a 'unfavourable no change' condition. Narborough Bog is split into 3 units; Willow Car in a 'favourable' condition, Fen (Swamp) in an 'unfavourable – recovering' position and the Meadow also in an unfavourable - recovering position. Most of the land directly to the north-west of the city of Leicester falls into SSSI impact risk zones due to the density of SSSIs in such close proximity to one another, which Leicester council seeks to maintain due to the region having a much lower biodiverse value than most other regions in England.
- There are also numerous local nature reserves that are within close proximity to the City boundary. Reedbed and Birstall lie to the north of the city, Scaptoft to the east and Lucas Marsh and Glen Hills to the south.
- Around the periphery of the City (to the north-west) there are also a number of small forest clusters that form part of the National Forest Strategy, which aim to seek an increase overall forest cover throughout the region.

OAN growth projection: Most sites identified in the SHLAA are to the north-east of the city where there are minimal designated biodiversity assets and to the south west where assets are slightly more prevalent. Potential opportunity areas for development beyond 2031 have also been identified to the east and south-east of the City, which are not characterised by sensitive / designated biodiversity assets.

At a lower scale of growth proposed under options 2 and 4 could probably accommodate growth in the less sensitive areas to the south-east, east and south-west, and thus the effects on designated sites could be less likely to occur. The scale of growth is also the lowest of all the options, and so the effects on green infrastructure and ecological networks (non-designated habitats for example) would be of a lesser magnitude. This is not to say that a focus of growth in these areas would not have a disruptive effect on habitats. However, growth at strategic urban extensions in these areas ought to be possible to incorporate strategic green infrastructure improvements. Therefore, the overall effects predicted for options 4 and 6 are **neutral.**

Option 1 has the potential to have the greatest impact on the biodiversity of the urban periphery by designating 40% (36,000) of the housing growth in this location. At this level of growth, it might be more likely that sites in the more sensitive areas would need to be considered and / or a more intensive loss of greenfield land around the urban periphery. Mitigation and enhancement ought to help ensure that the effects on biodiversity are not significant.

Biodiversity

However, a **moderate negative effect** is predicted due to the scale of growth and likely disruption to green infrastructure networks in the short and medium term. Option 3 (30%) could also have adverse effects on biodiversity habitats surrounding the city, but these would be at a lesser extent compared to the higher growth under option 1. Therefore a **minor negative effect** is identified. Options 5 & 6 provide a lesser amount of growth than options 1 and 3, but more than options 2 and 4. There would still be approximately 20,000 dwellings at the urban periphery under each of these approaches, which has the potential for pressure on greenfield land (and thus ecological networks). This scale of growth should give some flexibility in the choice of locations and / or intensity of growth, and therefore the effects ought to be manageable. At this stage an **uncertain negative effect** is predicted. The scale of development through any of the options, if directed to the north-west of the city's boundary, could have the greatest impact on the biodiversity of the area due to designated biodiversity assets being most prevalent in these locations.

For the hybrid option, the scale of growth immediately adjacent to the Leicester urban area is likely to be very low at only 4500 homes. This level of growth ought to be deliverable without having substantial permanent effects on biodiversity. Growth at the A46 corridor nearby could potentially have cumulative effects should growth at the urban periphery be within close proximity to 'new settlements' along this corridor. However, these effects are discussed under the 'new settlements' category. At the urban periphery, the effects are predicted to be **neutral** in terms of biodiversity.

Higher growth projection: At a higher scale of growth the effects of option 1 are predicted to be major, as it would require 43,440 dwellings focused around the Leicester urban area. The additional 7720 dwellings compared to the OAN projection for option 1 could necessitate further growth in sensitive areas, or more intense growth. Therefore a **significant negative effect** is predicted. For similar reasons the effects for option 3 are predicted to be **moderately negative** at this higher scale of growth. Likewise, the higher scale of growth for options 5 and 6 is predicted to be a **minor negative**, as it is more likely/certain that effects could occur. For options 2 and 4, the levels of growth are still fairly modest, and therefore **uncertain minor negative effects** are predicted.

Market Towns:

Hinckley

- Burbage Wood and Aston Firs SSSI is located 1.5 miles to the East of Hinckley Town centre. The SSSI is split up into 4 units, all of which are in an 'unfavourable – recovering' position. Burbage common and Woods (LNR) is also located 1.5miles to the east of Hinckley.

Coalville

- Coalville is surrounded by a number of SSSI's; Coalville Meadows SSSI located approx. 1.3miles north-east of the town in an 'unfavourable – recovering' condition, Bardon Hill Quarry approx. 1.7miles to east in a 'favourable' condition and Charnwood lodge SSSI 2.2miles to the south east. Parts of Charnwood lodge have also been designated as a National Nature reserve (NNR).
- There are small pockets of woodland included in the National Forest Inventory surrounding the market town.

Loughborough

- Small pockets of woodland included in the National Forest Inventory to the West of the town. There is a woodland SSSI to the south of the town, as well as the Charnwood Forest, and to the north-east there are two SSSIs. Development in these locations has the potential for disturbance and / or recreational pressure.

Melton Mowbray

- The River Eye runs through the town and is a designated SSSI. It is made up of six units, all of which are in an 'unfavourable – no change' condition.

Biodiversity

Market Harborough

- There is 1 small SSSI site that lies approx. 1.6 miles to the north of the town centre and is in a 'favourable' condition and not considered likely to be the subject of recreational pressure.

OAN growth projection: Overall, option 2, which aims to deliver 60% (10,860 per market town pro rata) of homes throughout all 5 market towns would have the potential to most adversely impact upon each town's biodiversity assets. Coalville in particular is surrounded by designated sites and a network of green infrastructure and could therefore be sensitive to development. Development in Loughborough at the scale proposed under option 2 could also put pressure on SSSI sites and other locally important ecological networks. The scale of growth might necessitate growth on multiple SUEs, which could have direct effects upon wildlife depending upon wildlife, or cumulative effects – for example increased recreational pressure. For Market Harborough the effects ought to be more manageable given that there are fewer designated habitats. However, the scale of growth could still affect ecology. For Hinckley, this scale of growth could possibly require growth in close proximity to the SSSI to the east, and / or the overall scale of growth could put recreational pressure on ecology. For Melton, there could be cumulative effects on the condition of the river SSSI. Overall, option 2 could lead to **significant negative effects** on one or several of the market towns due to direct disruption of designated habitats (or surrounding 'supporting' habitats) or due to increased recreational pressure. A major negative effect is therefore predicted.

Option 3 is predicted to have similar effects to option 2, but at a slightly lower scale of growth (8,145 of new homes within and around each of the market towns). This constitutes a **moderate negative effect**. Options 5 & 6 both aim to deliver 30% (5,430 per market town) of homes, which ought to be much more manageable in terms of locating development and also the overall effect of concentrated growth into these locations. Consequently, the effects on the market towns overall are predicted to be a **minor negative** for options 5 and 6.

Whilst options 1 & 4 aim to deliver the least number of homes to the market towns (2715-3,620 per market town), this level of development could still potentially impact upon biodiversity on dependant on the location of the selected housing sites (which are more likely to be greenfield in the longer term). However, this would be to a much lesser extent than the more concentrated delivery options, and it ought to be much easier to accommodate growth in the less sensitive locations. Consequently, a **neutral effect** is predicted for these two options.

The hybrid option seeks to achieve controlled growth at the market towns in-line with existing Local Plans. The overall growth at each market town has not been determined, but the overall amount of growth for each authority has been established (which takes account of other aspects of the growth strategy). The overall level of growth at the market towns will be approximately 18,100. This is similar to option 1, and thus a **neutral effect** is predicted.

Higher growth projection: At a higher level of growth, the effects would be increased for each option. For option 2, this would still constitute a **significant (major) negative effect**. For option 4, which delivers lower levels of growth, the effects would remain **neutral,** as the level of growth would still be lower than any of the other options even at the lower OAN growth projections. For option 1, the increased level of growth could start to make it more likely that effects would occur, and so an **uncertain negative effect** is predicted. For options 5 and 6, the growth level would not be significant enough to constitute moderate negative effects, and so whilst the effects would most likely to be more prominent, the effects are still recorded as **minor negative**.

Biodiversity

Other settlements:

OAN growth projection: Option 5 allocates 40% housing provision for 'other settlements' throughout the Plan area. 36,200 homes dispersed across these other settlements has the potential to adversely affect biodiversity in some locations. However this is very much dependent upon the precise location of development. Given the rural nature of many of the smaller settlements across the Plan area, there is potential for the loss of greenfield land that supports biodiversity. However, the effects on biodiversity in any one location are unlikely to be of the same magnitude compared to the options that focus growth. There should also be a greater choice of sites overall to choose from to avoid harm. Some settlements should be able to accommodate growth without significant effects on biodiversity, whilst others could have negative effects. On balance, a high level of dispersed growth ought to have the potential for only minor negative effects on nationally designated sites, but the loss of locally important wildlife habitat could be more substantial. The opportunities for enhancement may also be lower due to the less strategic nature of development. On balance an **uncertain minor negative effect** is predicted.

Options 1 & 6 aim to provide 20% of the housing delivery through other settlements which equates to the dispersal of 18,100 new homes. At this level of growth, the effects ought to be diluted compared to Option 5. A **neutral effect** is predicted, but there is still uncertainty.

Option 2, 3, 4 and the hybrid option have the least likelihood to impact on the small surrounding settlements due to the dispersal of between 9,050-13,575 homes across the whole Plan area. At this level it ought to be easier still to avoid pressure on sensitive sites both individually or cumulatively. Therefore, **neutral effects** are predicted with greater certainty.

Higher growth projection: At the higher growth projection, there would be a greater level of dispersed growth, which would lead to an overall greater loss of greenfield land as well as limiting the choice of sites more. Therefore, the potential for negative effects to be of greater significance are increased. On balance a **moderate negative effect** is predicted for Option 5. For options 1 and 6, a **minor negative effect** is predicted, whilst for options 2, 3, and 4, the effects are still **neutral** but with some greater uncertainty.

New / expanded settlements: *(the creation of new settlements at 'sustainable nodes' or locations promoted by developers)*

East Midlands Airport

- No strategic biodiversity, geodiversity or green infrastructure assets are located within the close vicinity of East-Midlands Airport.

Six Hills

- Adjacent to Twenty Acre Piece SSSI classified for its demonstration of acidic clay grassland that supports breeding birds and invertebrates.

East of Loughborough

- Land to the east of Loughborough falls within close proximity to two SSSIs, Loughborough Meadows SSSI, and Cotes Grassland SSSI.

Stoney Stanton

- There are no nationally designated sites adjacent to Stoney Stanton.

Biodiversity

Lutterworth

- There is a SSSI approx. 0.9 miles to the East of the village, Misterton Marshes. It is made up of 3 units all in an 'unfavourable- recovering' position. Small pockets of land forming the National Forest Inventory lies to the east of the village.

Ibstock

- There is 1 SSSI approx. 1.8 miles to the south west of the village - Newton Burgoland Marshes. The site is made up on 3 units, 2 in a 'favourable' condition and the third in a managed 'unfavourable – recovering' condition.

Kibworth

- Running along the westerly edge of the village is the Kilby - Foxton Canal, which is a designated SSSI. The site is made up on 15 units, all in an 'unfavourable – no change' condition.

OAN growth projection: Option 5 is the only option that suggests housing delivery throughout new settlements and expansion to some of the smaller settlements within the Plan area. Any effects on biodiversity and geodiversity would be dependent on the location and scale of growth in each of these locations. Broadly speaking, there are designated habitats nearby to each of the existing settlements, and the locations for new settlements (with the exception of the Airport and Stoney Stanton). The potential for disturbance to designated sites, and / or supporting habitats is possible at some of these locations due to the large scale of growth involved. However, it should be possible to secure mitigation measures to ensure that growth does not affect existing sites (for example enhancement of green infrastructure and open space to avoid increased recreational pressure). An **uncertain moderate negative effect** is predicted. The possibility of biodiversity being adversely affected exists, but mitigation ought to ensure major effects are avoided. Effects may also be lesser or greater depending on the settlements where growth occurs. Options 1, 2, 3, 4 and 6 would all have **neutral effects** as they do not involve any growth in these locations.

The hybrid option will involve substantial growth at new settlements, but these would not necessarily be the same as those identified for the six original spatial options. The focus of growth would be along the A46 expressway corridor, which brings in development opportunities at a short distance from the Leicester urban fringes to the north-east and arching round to the south / south-west where it meets the Southern Gateway. The level of growth in these locations would be in the region of 28,000 homes, and a further 10,000 at the southern gateway (which may involve Stoney Stanton for example) and the Northern Gateway (which covers the 'airport' opportunities described above).

In the main, the opportunities along the A46 corridor through to the Southern Gateway would avoid effects upon SSSIs, though there could be some pressure on the Kilby-Foxton Canal SSSI through increased recreational pressure and water quality changes. These ought to be manageable though. There are local wildlife sites and potentially protected species that may be affected by growth, but strategic opportunities ought to provide the potential for green infrastructure enhancement and to retain important habitats. It will be important to ensure that development along the A46 corridor does not sever green infrastructure links into/out of the City, particularly along the River Sence.

The Northern Gateway is not particularly constrained by sensitive habitats, and therefore associated development ought to be able to be accommodated without having significant effects. Though local wildlife sites and natural green space could be affected, the strategic nature of sites ought to allow for green infrastructure enhancement to be secured to protect and enhance wildlife.

Biodiversity

Overall **moderate negative effects** are predicted, mainly associated with the cumulative loss of open space across the A46 corridor. Whilst these areas are not particularity sensitive to development in the main, the effects in terms of habitat fragmentation ought to be acknowledged.

Higher growth projection: At a higher level of growth, the intensity of growth at new/expanded settlements would be greater, and thus a major negative effect is more likely. However, uncertainties still remain.

Overall effects

Leicestershire has a lower than average biodiversity value than the rest of the UK. Therefore, future development should try minimise the impact on the existing assets and look to enhance ecological networks.

Option 1 is predicted to have a **minor negative effect** overall. Though there could be moderate negative effects at the urban periphery due to focused growth here, the effects at other parts of the Plan area would be minor or neutral. At the higher growth projection a **moderate negative effect** is predicted overall. The effects on the urban periphery would be more prominent, and the likelihood of there being minor negative effects in other parts of the Plan area would also increase.

Option 2 is predicted to have a moderate negative effect overall. Though there would likely be major negative effects at the market towns, the effects in the rest of the Plan area would be broadly neutral; which 'offsets' the effects in the market towns somewhat. At the higher growth projection, a **major negative effect** is predicted. The effects at the market towns would be further exacerbated, and could be more difficult to mitigate, there is also potential for negative effects to arise in the urban periphery and the other settlements (albeit only minor).

Option 3 is predicted to have a **minor negative effect** overall. Though a moderate negative effect could occur in the market towns, the effects are neutral for the City and other settlements, and only minor for the urban periphery. At the higher growth projection, a **moderate negative effect** is predicted as the effects are more pronounced (major) for the market towns, and moderate for the urban periphery.

Option 4 is predicted to have a **minor negative effect** overall. The effects are broadly minor for the majority of the Plan area. However there is the potential for moderate negative effects at new/extended settlements, which form a large proportion of the housing total.

Option 5 is predicted to have an **uncertain minor negative effect**. A neutral or minor effect is predicted for most of the Plan area and those effects at 'other settlements' are uncertain given the large amount of locations that growth could possibly be located. Broadly though, a dispersed approach avoids more significant negative effects, but is also the least likely to support strategic enhancements. At the higher growth projection, the effects are predicted to rise to an **uncertain moderate negative effect**.

Similar to option 5, option 6 s predicted to have mainly minor effects across the Plan area. Overall a **minor negative effect** is predicted, rising to a **moderate negative effect** at the higher growth projection.

Biodiversity

The hybrid option is predicted to have a mostly limited effect on biodiversity across the Plan area. Whilst moderate negative effects could be experienced in association with new settlements (particularly along the A46 corridor), these ought to be possible to mitigate through good planning and putting green infrastructure at the heart of the development opportunities. Overall, **minor negative effects** are predicted in the context of the entire Plan area.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1 *Leicester urban periphery focus*	1a	×	××	-	?	-	×
	1b	×	×××	?	×	-	××
Option 2 *Market town focus*	2a	-	-	×××	-	-	××
	2b	-	?	×××	?	-	×××
Option 3 *Employment-led*	3a	-	×	××	-	-	×
	3c	-	××	×××	?	-	××
Option 4 *New settlements*	4a	-	-	-	-	××?	×
	4b	-	?	-	?	×××?	××
Option 5 *Dispersal*	5a	-	?	×	×?	-	×?
	5b	-	×	×	××?	-	××?
Option 6 *Trends*	6a	×	?	×	?	-	×
	6b	××	×	×	×	-	××
Hybrid option *Emerging approach*	7a	-	-	-	-	××	×

5.3 Appraisal findings: Health and Wellbeing

5.3.1 The findings relating to the Sustainability Topic 'Health and Wellbeing' are presented in the following tables.

Health and Wellbeing
Discussion of effects **City** According to the 2017 Public Health England Health Profile for the Leicester City area, the health of people in Leicester is varied compared with the England average. *Health in Summary* Leicester is one of the 20% most deprived districts/unitary authorities in England and about 29% (21,100) of children live in low income families. Life expectancy for both men and women is lower than the England average. *Health inequalities* Life expectancy is 8.2 years lower for men and 6.6 years lower for women in the most deprived areas of Leicester than in the least deprived areas. *Child health* In Year 6, 23.0% (947) of children are classified as obese, worse than the average for England. Levels of teenage pregnancy and GCSE attainment are worse than the England average. Levels of breastfeeding initiation are better than the England average. *Adult health* The rate of alcohol-related harm hospital stays is 753 per 100,000 population, worse than the average for England. This represents 2,145 stays per year. The rate of self-harm hospital stays is 151 per 100,000 population, better than the average for England. This represents 546 stays per year. The rate of smoking related deaths is 328 per 100,000 population, worse than the average for England. This represents 426 deaths per year. Estimated levels of adult physical activity are worse than the England average. The rate of TB is worse than average. Rates of sexually transmitted infections and people killed and seriously injured on roads are better than average. Rates of violent crime and early deaths from cardiovascular diseases are worse than average. *Local priorities* Priorities in Leicester include giving children the best start in life, reducing early deaths and health inequalities, improving mental health and well-being, and including health in all policies. Increased levels of development in an already densely populated city could have a number of effects, with regards to air quality and pressure on valuable urban green spaces, which may have a negative effect on people's health and wellbeing.

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However, there is also increased opportunity for those living in the city to use sustainable and active travel routes to access employment, services and facilities. Access to health is mixed, with high reliance due to an ageing population. The main reliance is on Leicester hospital due to development being very close Leicester City; accessibility to health services could be relatively good, but could increase the pressure on the existing services. It is presumed that new / enhanced facilities would support new development. Increased housing provision in the City could have positive effects in respect to health by helping to provide for housing needs.

OAN growth projection : Option 1 (20% - 18,100 homes) and to a greater extent option 6 (25% - 22,625 homes) could potentially put the most pressure upon open space assets within and around the city and increase air quality issues, as these options aim to deliver the highest number of homes within the city boundary through urban intensification/ concentration. This is identified as a **minor negative effect** on health and wellbeing for some communities. However, these options should also reduce journey times and congestion when attempting to access services, facilities and jobs compared to a more dispersed pattern of growth across the Plan area as a whole. They would also provide the most housing in the City, which ought to help tackle affordability issues and potentially factors contributing to deprivation. Therefore there could also be a **moderate positive effect** for some communities. Overall, the effects are considered to be mixed for option 1 with regards to health and wellbeing.

Options 2, 3, 4 & 5 all allocate 10% housing growth (9,050 homes) within the City boundary, which would still contribute to pressure on health services, open space and air quality but at a lower level. This level of growth would also still provide benefits with regards to access to services and housing provision though. On balance a **minor positive effect** is predicted for options 2, 3, 4 and 5.

The hybrid option would have the same effects as options 2, 3, 4 and 5 given that it allocates a very similar amount of growth. A **minor positive effect** is predicted.

Higher growth projection: A further increase of 20% on top of the OAN options is predicted to have broadly the same effects for option 1 (mixed effects with a **moderate positive** and **minor negative effect**). The scale of growth under option 6 could be difficult to accommodate, and there would likely be increased effects on air quality and open spaces. However, these effects ought to be offset to an extent by the promotion and use of sustainable travel. Nevertheless, a **moderate negative effect** on health and wellbeing is predicted at this scale of growth (alongside a **moderate positive effect**). For options 2, 3, 4, and 5, the increased scale of growth is unlikely to lead to significant negative effects upon health and wellbeing in the City. It should still be possible to maintain open space, and effects on air quality would not be anticipated to be substantial. At a slightly higher level of growth, the benefits in terms of housing access and development investment are considered to be a **minor positive effect** for options 2, 3, 4 and 5.

Urban periphery:

OAN growth projection: Option 1, involves the greatest amount of housing within the urban periphery (36,200 homes). This level of housing development should have positive effects on health and wellbeing for some communities by providing affordable housing. However, there would be increased pressure on green spaces around the City, which could affect access to open space. Having said this, it is likely that growth at the urban periphery would be predominantly through sustainable urban extensions. These would be more than likely to include elements of green infrastructure enhancement, which ought to mitigate the loss of greenfield somewhat. There could also be an increased potential for negative effects on health (in the City and the urban periphery) due to air quality, as large amounts of growth around the City could contribute to increased car trips. Overall, the effects of option 1 are mixed, with a **major positive effect** predicted to reflect the benefits of housing provision and potential green infrastructure enhancement, but a **moderate negative effect** to reflect pressures on greenspace, health facilities and air quality. Option 3 (27,150 homes) is predicted to have similar effects to option 1, but the positive effects are predicted to be moderate.

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Other options that would be likely to have a **minor negative effect** as a result of pressure on green space along the urban periphery are option 5 (18,100) and 6 (22,625 homes). Benefits would still be generated at this level of growth though, so a **moderate positive effect** is predicted. The options with the least significant impact are considered to be options 2 and 4 (both 13,575 homes). At this scale of growth, it ought to be possible to avoid negative effects, but still generate some **minor positive effects** due to housing provision, green infrastructure enhancement and community infrastructure improvements.

The hybrid option would place little growth within the immediate urban periphery, though substantial growth would be supported nearby at 'new settlements' along the A46 corridor. The benefits of development in the urban periphery are likely to be limited as a result of direct growth here, which only amounts to 4500 homes. However, conversely, negative effects in terms of a loss of open space would be avoided. Growth along the A46 corridor could provide opportunities for communities in the urban periphery to seek housing nearby, which is positive. But the benefits in terms of new facilities, services and infrastructure would be less likely to be felt by communities in the Leicester urban periphery (for example, on site recreation, retail and public services would not be readily accessible by foot). An increase in growth could also lead to increased congestion in the City, affecting the quality of life (and perhaps air quality) along major routes into the City. This could have negative implications for communities in the urban periphery. On balance, mixed effects are predicted, both of a minor nature.

Higher growth projection: At a higher scale of growth the effects of option 1 are predicted to be a **major negative effect**, as it would require 43,440 dwellings focused around the Leicester urban area. The additional 7720 dwellings compared to the OAN projection for option 1 could increase negative air quality issues, pressures on open space and public services. The positive effects associated with housing, increased investment, infrastructure improvement and green infrastructure enhancement would still be generated though and ought to mitigate such negative effects somewhat. In reality, this option could have mixed effects for different communities, with some benefiting greatly, and others suffering from negative effects. At the level of growth under option 3, the positive effects ought to be enhanced, so a **major positive effect** is predicted, whilst the negative effects (though greater) are still considered to be **moderately negative**. For options 2 and 4, the levels of growth are still fairly modest, but a **minor negative effect** is predicted. The positive elements of this option would remain a **minor positive effect.**

Market Towns, Other Settlements and new or expanded settlements

For the wider Leicestershire area, a summary of the general health issues as per the 2017 Public Health England Health Profile for Leicestershire is provided as context to the assessment.

Health in summary
The health of people in Leicestershire is generally better than the England average. Leicestershire is one of the 20% least deprived counties/unitary authorities in England, however about 12% (14,100) of children live in low income families. Life expectancy for both men and women is higher than the England average.

Health inequalities
Life expectancy is 6.1 years lower for men and 4.8 years lower for women in the most deprived areas of Leicestershire than in the least deprived areas.

Child health
In Year 6, 16.5% (1,059) of children are classified as obese, better than the average for England. The rate of alcohol-specific hospital stays among those under 18 is 20*, better than the average for England. This represents 27 stays per year. Levels of teenage pregnancy are better than the England average.

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Adult health

The rate of alcohol-related harm hospital stays is 592 per 100,000 population, better than the average for England. This represents 3,994 stays per year. The rate of self-harm hospital stays is 130 per 100,000 population, better than the average for England. This represents 882 stays per year. The rate of smoking related deaths is 239 per 100,000 population, better than the average for England. This represents 943 deaths per year. Estimated levels of adult smoking and physical activity are better than the England average. Rates of hip fractures, sexually transmitted infections, people killed and seriously injured on roads and TB are better than average. Rates of statutory homelessness, violent crime, long term unemployment, early deaths from cardiovascular diseases and early deaths from cancer are better than average.

Local priorities

The priorities in Leicestershire include enabling people to take control of their own health & wellbeing; reducing the gap between health outcomes for different people & places; ensuring children & young people are safely living in families where they can achieve their full potential with good health and wellbeing; ensuring people plan ahead to stay healthy & age well with a good quality of life; and ensuring people give equal priority to their mental health & wellbeing and can access the right support throughout their life course.

***Market towns**:*

OAN growth projection : Overall, option 2 (54,300 homes) has the potential for a **major negative effect** on health and wellbeing, as there would be substantial development pressure with regards to green spaces and the contribution they make to people's health and wellbeing. The scale of development proposed in each market town (10,860 per market town pro rata) may also put pressure on public services and infrastructure and could add to air quality issues in Coalville and Loughborough in particular. Conversely, there would be a positive effect on health and wellbeing through the provision of housing and associated investment in infrastructure. Levels of deprivation in the market towns vary, but in some areas such as Coalville, there could be benefits in terms of regeneration. Though there would be a loss of green space, development in the market towns should encourage access to recreational opportunities and open space. For example, the National Forest is accessible to Coalville and Charnwood Forest is accessible to Loughborough. Overall, a **moderate positive effect** is also predicted for the market towns under option 2; and thus the effects are mixed.

Option 3 (40,725 homes) would also lead to substantial development in the market towns (8,145 homes) which is predicted to have similar effects to option 2 but at a lesser magnitude. In terms of significance, a **moderate negative effect** is predicted (as the extent of pressures ought to be more manageable compared to option 2), and a **moderate positive effect** is predicted (as the benefits generated ought to still be greater than minor).

Options 1 (18,100 homes) and 4 (13,575 homes) are predicted have the least significant effects on health and wellbeing, as the spread of development at each town ought to be accommodated easier by existing services, infrastructure and land capacity. The loss of greenspace would therefore be lesser, and pressure in terms of air quality would also be unlikely to be significant. Nevertheless, a **minor positive effect** could be generated as a result of improved housing choice, investment in services and infrastructure.

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Options 5 and 6 (both propose 27,150 homes across the market towns), which ought to generate a **minor to moderate positive effect**, but due to the increased scale of growth compared to options 1 and 4, a **minor negative effect** is generated.

The hybrid option seeks to achieve controlled growth at the market towns in-line with existing Local Plans. This should help to ensure steady growth in these locations that would be less likely to require major infrastructure investment. It ought to be possible to avoid major loss of open space, but development opportunities in the longer term may be more likely to encroach upon more sensitive / valued areas, therefore an uncertain negative effect exists. Nevertheless, a **minor positive effect** could be generated as a result of improved housing choice, and modest investment in health, education and other facilities and services (from development contributions).

Higher growth projection: At a higher level of growth, the effects could be increased for each option. For option 2, this would still constitute a **major negative effect,** but the positive effects ought to be even greater (i.e. a **major positive effect**). The level of growth for Option 3 would be similar to the level under option 2 (under the OAN projection), therefore the effects are similar (i.e. a **moderate positive effect** and **major negative effect**). Options 5 and 6 are predicted to have similar effects at this scale of growth, as the overall additional housing in each settlement is not vastly different (i.e. an additional c1000 dwellings per market town). Option 4 would still have a relatively low level of growth at the market towns, and thus a minor positive effect is predicted even at this slightly higher level of growth. However, option 1 is predicted to have a **minor negative effect**, as the additional growth could start to create more prominent issues with services, loss of open space and air quality.

Other settlements:

OAN growth projection: The most significant effect on the health and wellbeing objective would occur from option 5 (36,200 homes). This would place a large amount of housing in areas that are less well connected to public transport and services, and may not have good access to health facilities. Though facilities could be supported through development, it is possible that this scale of growth could have negative effects in some settlements. A dispersed settlement pattern can also reinforce social exclusion especially in the more rural parts of the HMA, affecting access to health facilities. Conversely, the provision of affordable housing in areas that are in need should help to contribute to improved health and wellbeing in these areas. Development may also support new open space and recreational facilities (though there may also be a small loss of greenfield land in the first place). Access to the countryside ought to be good. Overall the effects are mixed, with a **moderate negative effect** associated with poor accessibility and potential effects on services, but a **moderate positive effect** to reflect the delivery of housing and associated investment (which would be more likely to benefit rural areas too).

Options 1 and 6 (both propose 18,100 homes), the effects would be similar to option 5, but at a much lower level, and thus the effects are predicted to be minor, rather than moderate (for both the positive and negative elements).

Options 2, 3, 4 and 7 involve a low level of growth (9,050 – 13,575 homes), and it would be spread thinly across a number of smaller settlements. It is therefore considered to have a **neutral effect** overall for these options.

Higher growth projection: As with the OAN projections, option 5 and the dispersal of growth would have potential negative effects on health and wellbeing. However, the increased amount of growth would be more likely to have a **major negative effect**. The positive effects remain **moderately positive**, as the benefits on health obtained from housing and new facilities in smaller settlements are unlikely to be major in any one location.

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The increased pressure on land would also make it more difficult to ensure access to open space, and there may be a limit to how much facilities can be expanded / improved in smaller settlements.

Options 2 and 3 would involve similar levels of growth to options 1 and 6 at the OAN growth projections. Therefore, the effects are predicted to be similar (i.e. **minor negative effects** and **minor positive effects** together). The level of growth for Option 4 would remain low and is predicted to still have a **neutral effect**. Though the effects for options 1 and 6 would be intensified too, this would not constitute a significant change in effects. Therefore, a **minor negative effect** and **minor positive effect** is also predicted at this higher level of growth.

New / expanded settlements:

OAN growth projection: Option 5 is the only option that suggests housing provision through new settlements or through expansion to existing settlements such as Lutterworth. This option has the potential for **major positive effects** for new settlements through the creation of new sustainable communities with their own health facilities and recreational facilities. The benefits achieved however, would most likely be reliant on the successful implementation of substantial new infrastructure.

However, expansion of existing settlements could put pressure on existing facilities, open space and exacerbate existing problems. As an example, substantial further growth to Lutterworth could have negative effects on air quality. Consequently, a **major negative effect** is also predicted.

The hybrid option, like option 5, involves new / expanded settlements, but the focus is along the A46 corridor and the Northern/Southern Gateway. New settlements ought to have their own health facilities and recreational opportunities, but this would be dependent upon the scale of growth. Nevertheless positive effects would be anticipated. New settlements in close proximity to the Leicester urban periphery could also benefit communities in these areas (through access to affordable housing and new community facilities), though access to new facilities would be most likely by car. Overall, these amount to **significant positive effects**. Conversely, growth at existing settlements could put pressure on existing services, without creating the critical mass to deliver new facilities locally. There would also be a loss of open space, though green infrastructure could potentially be incorporated into new developments. Increased growth at the A46 corridor could also potentially increase traffic into the City, having negative implications for communities in these areas, particularly where air quality is an issue. Consequently, a **moderate negative effect** is also predicted.

Higher growth projection: At a higher level of growth, (54,300 homes) the intensity of growth at new/expanded settlements would be greater, and thus the effects would likely be similar. Major negative effects are still predicted due to the pressures described above. Though the positive effects are also predicted to be major, there is slightly more uncertainty, as the higher level of growth would necessitate increased support through infrastructure upgrades.

Overall effects

The overall effects for each of the options do not differ substantially. Each is predicted to have significant positive effects and significant negative effects. The main difference is how these effects would be felt across the Plan area. For option 1, the majority of the effects are focused upon the City, and urban periphery, with only minor effects elsewhere. This is beneficial with regards to tackling deprivation and focusing growth into accessible areas, but would mean that positive effects elsewhere across the County were limited, and there could be negative effects for some communities close to the City. Likewise, the effects for option 2 are focused most prominently on the market towns and for option 4 at new settlements. Whilst these approaches would have specific benefits in those locations, they miss an

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opportunity to deliver greater benefits around the City. The dispersed and trend approaches (5 and 6) have a more even spread of effects.

The positive effects are predicted to be major for options 1, 3 5 and 6, but only moderate for 2 and 6. For options 5 and 6, the effects are spread quite widely across the district, and so overall, the benefits accrued are not major in any one place. The overall negative effects are considered to be greatest for Options 1,2 3 and 4, as these focus growth most intensely in areas that may not be able to accommodate such growth without detrimental effects upon health and wellbeing. Ultimately, many of the negative effects could be mitigated through the delivery of infrastructure improvements (though this could be limited in some areas such as under a dispersed approach) but specific schemes have not been factored into the appraisal as it is uncertain what would be secured under each growth / distribution alternative.

The hybrid option is predicted to have mixed effects on health and wellbeing. Some communities could benefit from better access to affordable homes, jobs, facilities and services. This is the case in the City, the market towns and at the urban periphery. At new / expanded settlements, the effects are predicted to be significantly positive. Considered in combination **major positive effects** are predicted. Conversely, some communities could experience negative effects from growth due to increased traffic and congestion and / or a loss of pressure on existing services and a loss of open space. Consequently **moderate negative effects** are also predicted.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓××	✓✓✓××	✓	✓/×	-	✓✓✓××
Urban periphery	1b	✓✓××	✓✓✓×××	✓	✓/×	-	✓✓✓×××
Option 2	2a	✓	✓	✓✓×××	-	-	✓✓××
Market town focus	2b	✓	✓/×	✓✓×××	✓/×	-	✓✓×××
Option 3	3a	✓	✓✓××	✓✓××	-	-	✓✓✓××
Employment-led	3c	✓	✓✓✓××	✓✓×××	✓/×	-	✓✓✓×××
Option 4	4a	✓	✓	✓	-	✓✓×××	✓✓××
New settlements	4b	✓	✓/×	✓/×	-	✓✓✓×××	✓✓✓×××
Option 5	5a	✓	✓✓×	✓✓?×	✓✓/××	-	✓✓✓×
Dispersal	5b	✓	✓✓××	✓✓×	✓✓/×××	-	✓✓✓××
Option 6	6a	✓×	✓✓×	✓✓?×	✓/×	-	✓✓✓×
Trends	6b	✓✓××	✓✓××	✓✓×	✓/×	-	✓✓✓××
Hybrid Option *Emerging approach*	7a	✓	✓/×	✓	-	✓✓✓××	✓✓✓/××

5.4 Appraisal findings: Housing

5.4.1 The findings relating to the Sustainability Topic 'Housing' are presented in the following tables.

Housing
Discussion of effects The whole of Leicester and Leicestershire has been defined a 'housing market area' (HMA), across which people travel to work and move house. Over the pre-recession period from 2000-2007, Leicester saw the greatest growth in median house prices in the county, which rose from £40,000 to £125,000 (+178%). During 2008 – 2012 there was a 4% fall in median house values in the City authority. Over the period of 2005 to 2015, house price increase in Leicester (189%) was higher than the regional (154%) and national (158%) rates of growth. Stronger rates of growth in overcrowded households during 2001 to 2011 would appear to be affected in part by the growth of the student population in the City. Across the HMA Leicester has the lowest cost semi-detached and terraced homes, and is notably more affordable than elsewhere in the County. As is the case in many areas, the proportion of older person headed households is expected to increase at least until 2033. ***City:*** *OAN growth projection:* Option 1 (20% - 18,100 homes) and to a greater extent option 6 (25% - 22,625 homes) would deliver the highest level of housing and therefore have a major positive effect on this objective. Delivery of this level of housing and to a lesser extent all other options is likely to require the provision of housing on underused sites but also on sites currently in employment use and other sites that are undeveloped, including open spaces. Options 2, 3, 4 & 5 all allocate 10% housing growth (9,050 homes) within the City boundary, and whilst the significance of the effects may be less than options 1 and 6, the effects remain as **minor positive**. The same is the case for the hybrid option, despite the allocation of slightly more homes (10, 450). *Higher growth projection:* A further increase of 20% on top of the OAN options above would only add to the **major positive effects** as a result of options 1 and 6. Given that the higher growth projection only results in a modest increase of homes for the remaining options these stay as a **minor positive effect**. ***Urban periphery****:* *OAN growth projection*: Development within the urban periphery is likely to make a positive contribution to delivery and affordability in these areas, although would do little to address affordability in rural areas. In terms of the urban periphery, option 1 (40% - 36,200 homes) and to a lesser extent option 3 (30% - 27,150) would have a **major positive effect** on housing provision as they should contribute significantly towards the identified housing need for the HMA. There is likely to be sufficient land capacity to deliver all the options, but at higher levels of growth there could be particular needs for supporting infrastructure to make such growth deliverable. Due to these peripheral locations typically having higher house prices than the areas within the City itself, growth here could help to improve affordability. Options 6 (25% - 22,625 homes) and 5 (20% - 18,100 homes) are predicted to have a **moderate positive effect** on housing provision. At lower levels of growth (options 2 and 4) positive effects on housing would still be generated at the urban periphery, but these would be minor.

Housing

The hybrid option would provide opportunities for limited growth at the urban periphery, mainly to the west and south. This ought to provide homes in areas of need, particularly for those who wish to live within close proximity to Leicester, given that the ability to meet needs in the City is limited. Though the levels of growth in the Leicester urban periphery itself are low, there could be benefits for communities in these areas from housing growth along the A46 corridor (see 'new / expanded settlements). However, given the low level of growth in the Leicester urban periphery itself, only **minor positive effects** are predicted.

Higher growth projection: At a higher scale of growth options 1 and 3 continue to have a **major positive effect,** whilst the higher scale of growth for option 6 sees the significance rise from a moderate to a **major positive effect**. Option 5 would continue to have a **moderate positive effect**. The effects for option 2 would rise from minor to a **moderate positive effect**, but the level of growth for option 4 would still be classed as a **minor positive effect**.

Market towns:

Development within the market towns is likely to make a positive contribution to delivery and affordability in these areas.

OAN growth projection: Focusing developments to the market towns could help deliver housing in areas that have generally good access to services and jobs. At higher levels of growth though, it may be necessary to secure improved transport infrastructure. The options with a **major positive effect** are options 2 (60% - 54,300 homes) and 3 (45% - 40,725 homes). Such a level of development would involve 8,145 - 10,860 per market town, which would make a significant contribution towards meeting identified housing need in each of the towns and as a whole across the HMA. However, it is unclear whether this level of growth could be accommodated in all of the market towns, and so there is some uncertainty associated with these options.

Options that would have a **moderate positive effect** upon housing are options 5 and 6 (30% - 27,150 homes). These levels of growth would still lead to fairly substantial growth at the market towns but it ought to be easier to identify sufficient available and deliverable land compared to options 2 and 3. Therefore, there is less uncertainty associated with these options.

Those options that would deliver the least level of housing are options 1 and 7 (20% - 18,100 homes) and option 4 (15% - 13,575 homes). Nevertheless, both options would have a **minor positive effect** on housing growth by supporting steady growth.

Higher growth projection: With regards to the increased level of development, options 5 and 6 increase from a moderate to a **major positive effect** on housing. Option 3 would still have a major positive effect, though the uncertainty of delivery increases. Option 2 is predicted to still have a **major positive effect**, but there is even more uncertainty about whether the level of growth proposed could be achieved in these locations. Option 1 increase so as to have a **moderate positive effect** compared to the OAN projections, whilst option 4 remains a **minor positive effect**.

Other settlements:

OAN growth projection: With regards to the 'other settlements' the option that has a **major positive effect** by proposing the highest proportion of housing is option 5 (40%-36,200 homes). This option also disperses growth the most and ought to benefit the most communities. The diverse range of sites could also help to create greater flexibility in delivery of the housing target.

Housing

Options 1 and 6, which both deliver 20% (18,100 homes), are predicted to generate **minor to moderate positive effects**. Options 2 and 3 (15% - 13,575 homes), 4 and 7 (10% - 12%) would deliver a smaller scale of housing and have **minor positive effects**.

Higher growth projection: The increased level of proposed growth does not change the **significant positive effects** in relation to option 5. However, both options 1 and 6 propose 21,720 homes, which results in a **moderate positive effect** due to the uplift compared to the OAN growth projections. Although options 2, 3, and 4 all propose an increase in proposed dwellings, they remain as having a **minor positive effect** on housing delivery, as the amounts delivered at any one settlement would continue to be relatively modest.

New / expanded settlements:

OAN growth projection: Option 5 involves housing provision through sites at new settlements and expansion to other settlements within the Plan area. This would contribute a significant amount of housing in these locations (45,250 homes), providing a mix of types that could generate more affordable housing compared to other 'sub' market areas with well-established values. Given the concentration of housing in a small amount of large developments, the delivery of growth may be slower, and reliant on infrastructure support, so there may be some uncertainty associated with this option. Nevertheless, a **significant positive effect** is predicted. For all other options a **neutral effect** is predicted as there would be no growth through new or expanded settlements.

The hybrid option seeks to provide much of the housing land at 'new settlements', though many of these would have close relations to the Leicester urban area along the A46 expressway corridor. The total number of houses provided for in these locations would be approximately 48,000, and would help to meet needs in close proximity to job opportunities in the City and the Northern and Southern Gateways. Although the delivery of some of the sites could take longer due to phasing and build out rates, a **significant positive effect** is still predicted.

Higher growth projection: At a higher level of growth, (54,300 homes) the intensity of growth at new/expanded settlements would be greater, and thus a **major positive effect** would remain.

Overall effects

The overall effects on housing are positive for each option. The differences lie in where the benefits would be most profound, and whether there are uncertainties about the delivery of housing, or the timing of delivery or requirements for supporting infrastructure. For option 1, the City and urban Periphery benefit from significant effects, but the positive effects generated elsewhere throughout the HMA are only minor. At the OAN growth scenario, effects are predicted to be moderate positive overall. At a higher level of growth to allow for flexibility, a major positive effect is predicted, as there would be greater choice in the market towns and other settlements too.

Option 2 presents the opportunity to generate major positive effects in the market towns, helping to spread the benefit somewhat. However, it is unclear whether there would be sufficient land available to allow for such as strategy to be delivered. There is therefore uncertainty associated with the magnitude of the positive effects. The effects in other parts of the HMA would only be minor, and in the case of the City/urban periphery, this approach would not best meet needs that arise in those areas 'close to source. Overall a moderate positive effect is predicted for the OAN growth projection, as there is uncertainty about the deliverability of such high levels of growth in the market towns.

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The situation would be similar for the higher growth projections, as the majority of growth under these options is directed to the market towns. The increase in the City / urban periphery and other settlements would therefore not be substantial.

Option 3 would have major positive effects associated with housing growth on the urban periphery, helping to meet needs where they arise and in locations close to employment opportunities. Additionally there ought to be positive effects for the market towns, but the certainty of such high levels of growth being delivered are uncertain. There would also be benefits for the City and other settlements, but at a lower level. Overall, the effects across the HMA are predicted to be major for both the OAN projection and the higher growth projection.

Option 4 much focuses to majority of development to new or expanded settlements. This approach has benefits in terms of creating new communities with affordable homes. However, it does not necessarily place housing close to areas with existing infrastructure, or where needs are most prominent. There are some uncertainties with this approach given that housing would be focused into a small number of locations which would require substantial infrastructure provision. The effects in the other parts of the HMA would mostly be minor, but nevertheless positive. Overall a moderate positive effect is predicted at both the OAN and higher growth scenarios.

Option 5 would disperse growth the most, but this would still generate positive effects at the urban periphery and market towns, and to a lesser extent at the City (though the capacity to absorb higher levels of growth could be difficult anyway). Under the dispersed approach, affordability in rural areas ought to be better tackled, and there ought to be a more diverse range of housing sites across the HMA. Therefore, this approach could have a major positive effect on housing provision across the HMA overall. The effects would be more positive at a higher growth projection, though this is still recorded as a **major positive effect**.

Option 6 would lead to major positive effects in the urban periphery and moderate positive effects for the market towns. However, it is unclear whether the levels proposed for the city could be accommodated. For the OAN level of growth a moderate positive effect is predicted overall, reflecting the major positives at the urban periphery, but more minor positive effects for the 'other settlements' and the city. At the higher level of growth the overall effects are predicted to be major positive, as the effects in the market towns and 'other settlements' should also increase.

The hybrid option is predicted to have a significant positive effect overall. This mostly relates to the benefits that would be generated by new settlements along the A46 corridor, which should also have knock on benefits for housing within the City and its' urban periphery. There would also be positive effects generated across the market towns and other settlements, though these would only be minor.

Housing							
		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓?	✓✓✓	✓	✓	-	✓✓
Leicester urban periphery focus	1b	✓✓?	✓✓✓	✓✓	✓✓	-	✓✓✓
Option 2	2a	✓	✓	✓✓✓?	✓	-	✓✓
Market town focus	2b	✓	✓	✓✓✓?	✓	-	✓✓
Option 3	3a	✓	✓✓✓	✓✓✓?	✓	-	✓✓✓
Employment-led	3c	✓	✓✓✓	✓✓✓?	✓	-	✓✓✓
Option 4	4a	✓	✓	✓	✓	✓✓✓?	✓✓
New settlements	4b	✓	✓	✓	✓	✓✓✓?	✓✓
Option 5	5a	✓	✓✓✓	✓✓	✓✓✓	-	✓✓✓
Dispersal	5b	✓	✓✓✓	✓✓✓	✓✓✓	-	✓✓✓
Option 6	6a	✓✓?	✓✓✓	✓✓	✓	-	✓✓
Trends	6b	✓✓?	✓✓✓	✓✓✓	✓✓	-	✓✓✓
Hybrid Option	7a	✓	✓	✓	✓	✓✓✓	✓✓✓

5.5 Appraisal findings: Employment and Economy

5.5.1 The findings relating to the Sustainability Topic 'Employment and Economy' are presented in the following tables.

Employment and Economy
Discussion of effects **City** *OAN growth projection*: Option 1 (20% - 18,100 homes) and to a greater extent option 6 (25% - 22,625 homes) would be likely to have the greatest effect on the City's economy and employment. An increase in homes would help to provide accommodation for workers in the City, and matches job opportunities to homes very well. If housing is located in accessible locations, via the transport network, this could help support the expansion of economic/employment hubs. This could also aid the continuation of business growth over the coming years in line with recent trends, allowing the maintenance of Leicester being the strongest economy in the east midlands. There would also be job creation to construct homes in the City. It is difficult to predict whether areas with higher levels of deprivation would benefit, as this depends upon the location of sites and other factors. However, growth in the city ought to help contribute to improved choice, and could bring with it improvements in infrastructure (physical and social) that could benefit such communities. It is assumed that increased housing in the City would help meet housing needs, rather than put more people into the city and therefore increase competition for jobs. Overall, a **moderate positive effect** is predicted for these options. Options 2, 3, 4 & 5 all propose 10% (9,050 homes) growth within the city boundary which could have a **minor positive effect** upon the economy and employment for the same reasons identified above. The same is the case for the hybrid option, despite the allocation of slightly more homes (10, 450). *Higher Growth projection:* An increase in 20% could have the potential to exacerbate the effects from the OAN growth projection, especially for option 6 where housing numbers would increase by 5,000 (approx.) homes. This is predicted to have a **major positive effect** in terms of providing homes in accessible locations to employment opportunities. However, it could lead to further competition for jobs in the City (assuming an increased in-migration), which could be a negative factor in tackling unemployment across the city. The effects are not considered likely to be significant though, so an **uncertain negative** is predicted. Options 2, 3, 4 & 5 are predicted to have a **minor positive effect** still. **Urban periphery** *OAN Growth projection:* The delivery of homes to the Leicester urban periphery could help to provide homes that have good access to jobs in the City, and further afield should there be connections to the strategic road networks. However, access to a large proportion of these jobs outside of Leicester would be reliant on the private car, and so certain communities might not benefit. Provision of homes in the periphery could help to tackle deprivation in the City itself, should it help to provide accommodation for such communities. Growth in the urban periphery would also require construction workers, which again, ought to provide jobs to people in the City, as well as providing an economic boost. Housing provision close to the City and surrounding employment hubs (for example the Global Technologies Hub) could also help to improve graduate retention (access to higher quality jobs) and fill gaps in the market (leisure and creative industries), which is something that is currently lacking across the whole of the Plan area.

Employment and Economy

Option 1 (40% - 36,000 homes) is most likely to generate benefits, and thus a **major positive effect** is predicted. Option 3 (30% - 27,150 homes) is predicted to have **moderate positive effects**. At a lower scale of growth proposed under options 5 and 6, **minor positive effects** are predicted. Options 2 & 4 propose the lowest level of growth around the urban periphery at 15% (13,575 homes). This level of growth may not help to accommodate significant expansion of the economy, but may allow for some jobs to be taken by existing communities in the City. A **neutral effect** is therefore predicted.

The hybrid option directs only a small level of growth into the Leicester urban periphery, which is likely to have **neutral effects** in terms of the economy and employment in this area. However, there may be benefits accrued through growth along the A46 corridor that could filter through to Leicester City and its' urban periphery.

Higher Growth projection: The higher growth projection could help further expansion of key employment hubs. Option 1 would require 43,440 new homes to be delivered around the Leicester urban area, in turn increasing the working age population concentrated in this area. Therefore, **major positive effects** would still be predicted. However, enabling an increase in the population above projected levels of employment growth (for the HMA as a whole) could lead to increased competition for jobs. Given that option 1 would focus a large proportion of jobs to the periphery, an **uncertain negative effect** is associated with this option to reflect these issues. Option 3 could also generate **major positive effects** by increasing support for economic expansion. The effects for option 6 would rise from minor to **moderate positive effects**, whilst for option 5, the effect would remain minor. For options 2 and 4 the effects are increased from neutral to a **minor positive effect**.

Market towns:

Hinckley

- The M69 linking the M1 to the M6 intersects the market town of Hinckley. Also, the A5 runs along the southern border. These two key transport routes make economic development highly attractive. Due to the location of Hinckley being on the most south-westerly boarder of Leicestershire, there is the opportunity to develop cross-border relations with surrounding areas such as Coventry.

Coalville

- The A511 runs through Coalville, linking the M1 to the A42. The key employment locations across the North West Leicestershire authority are East Midlands Gateway and the general regeneration of Coalville Urban Area.

Loughborough

- Charnwood Borough Council has identified Loughborough Science and Enterprise Park as a key employment location within the borough.

Melton Mowbray

- Agri-food and drink processing at Melton Mowbray is a key employment location in the area.

Market Harborough

- Key employment locations, as highlighted in the SA scoping report are the town centre itself, Magna Park in Lutterworth and other strategic development areas.

Employment and Economy

OAN Growth projection: New development could help to provide accommodation for the working age population due to the delivery of a diverse range of housing to the area. More housing within and around these market towns could help sustain the key economic hubs nearby to the market towns, as well as the vitality and viability of the Market Towns themselves. Each of the market towns also has relatively good transport networks, and so it still ought to be possible to access jobs in Leicester. In terms of tackling regeneration issues, a focus on areas such as Coalville and Hinckley ought to be beneficial.

For growth at any of the market towns though there would be a need for supporting infrastructure to ensure that growth can be accommodated. At higher levels of growth, impacts on infrastructure (for example increased congestion) could potentially have negative implications for businesses (particularly those that rely upon efficient transport networks).

Option 2, aiming to deliver the highest growth throughout the market towns (10,860 per town) could have the potential to tackle issues regarding the lack of job opportunities, particularly for skilled workers. It would also support an increase in economic activity at market towns and could tackle deprivation in some locations. However, by directing 60% of the overall growth to market towns, this could put pressure on infrastructure, and may also lead to increased competition for jobs locally. This could result in an increase in outward commuting to larger centres. On balance, a **major positive effect** is predicted, but there may also be a **minor negative effect**.

Option 3 is predicted to have similar effects to option 2, but at a slightly lower scale of growth (8,145). At this level of growth, the pressure on infrastructure would be reduced slightly, and the likelihood of out-commuting may also be lower. On balance a **moderate positive effect** is predicted. Both options 5 & 6 aim to deliver 30% of homes, therefore **minor positive effects** are predicted. This level of growth ought to support economic activity in the market towns and provide housing to help support economic growth. There would be fewer effects on infrastructure and levels of commuting at this level of growth.

Options 1 & 4 would provide fewer homes to support economic expansion within and surrounding the market towns. This would reduce the benefits associated with growth and would not help to support economic expansion as well as the other options. Therefore, a **neutral effect** is predicted.

The hybrid option would support growth in-line with existing local plans, and would not lead to substantial development in the longer term. Consequently, the effects on the economy and employment opportunities at the market towns are likely to be limited. However, other elements of the spatial strategy could lead to benefits for the market towns, such as the A46 corridor bringing improved connectivity and opportunities to Hinckley, and the Northern Gateway providing a location for a growing workforce that could support people working in Coalville and Loughborough. Overall, effects for the market towns are a **minor positive effect**.

Higher Growth projection: Whilst further housing delivery is positive with regards to construction, tackling deprivation and supporting economic growth, a further 20% growth for options 2 and 3 (to a lesser extent) could result in putting too much pressure on the infrastructure at the market towns. This could affect the efficiency and attractiveness of these towns as business locations in the longer term. Therefore, whilst **major positive effects** could be generated on one hand, **moderate negative effects** could be generated in the longer-term for option 2 and **minor negative effects** for option 3.

Options 5 & 6 would have **moderate positive effects** due to an increased support for economic growth, and increased local spending.

At the higher growth projection, option 1 is predicted to have a **minor positive effect**, whilst option 4 would still have broadly **neutral effects**.

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Other settlements

OAN Growth projection: Option 5 (40% -36,200) proposes the highest level of growth to other settlements across the Plan area. Whilst this could generate a **moderate positive effect** for quite a number of rural communities (i.e. local spending and construction), it would not place homes in areas that offer greatest potential for employment expansion. In general, the smaller towns and villages already struggle to provide local opportunities for skilled workers.

Therefore, large amounts of growth in these locations could exacerbate this problem, resulting in greater levels of commuting. Growth in the rural areas would also do little to address regeneration, as most of these locations are affluent. It would also draw investment away from more suitable locations for economic growth such as the market towns and the City. Therefore, a **moderate negative effect** is also predicted.

For options 1 and 6, the effects are predicted to be similar, but to a much lesser extent. Therefore a **minor positive effect** is predicted in terms of the benefits to communities, but only a **minor negative effect** is predicted. Options 2, 3, 4 and the hybrid option (9,050-13,575 homes) would be less likely to have significant effects, given that the scale of growth is lower and any benefits would be spread thinly. Therefore **neutral effects** are predicted. At this lower level of growth, negative effects are not likely to occur, given that it does not draw much growth away from other (more sustainable) locations.

Higher Growth projection: At the higher growth projection the level of growth proposed overall is greater than projected employment growth, and could (If increased housing provision encourages in-migration from outside the HMA) lead to increased competition for jobs. Conversely, it could drive/support further economic growth in the HMA. For option 5, the increase in growth would continue to have a **moderate positive effect** on the local economies of 'other settlements'. A **major negative effect** is also predicted. Although the proportion of growth drawn away from other parts of the Plan area remains the same, the overall increase in growth could potentially increase competition for jobs. For options 1 and 6, the benefits are increased, and so a **moderate positive effect** is predicted. Only a **minor negative effect** is predicted still. Options 2, 3 and 4, are predicted to have **minor positive effects** due to the higher level of growth.

New / expanded settlements:

Lutterworth

- Situated near the M1 and accessed directly off the A5, puts Lutterworth in a strong economic position for growth due it its locational appeal.
- Magna Park, near Lutterworth is a key employment location.

Ibstock

- High numbers of people commute to larger urban areas for work.

Kibworth

- Located just off the A6 with some potential to support economic growth.

Airport

- The area around the East Midlands Airport is particularly attractive to logistics operators, based upon findings from economic assessment for the area.

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- Public transport links to these areas could improve with investment, but they are likely to remain car-dominated without substantial intervention and investment.

Six Hills

- Fairly isolated from the key employment centres and an increase in growth in this location could lead to a higher dependency on the private car. The local area would not have the capacity to support a growth in population without substantial improvements to infrastructure.

East of Loughborough

- Land to the east of Loughborough is well connected to major transport routes which add to its economic appeal. The expansion of Loughborough Science Park could be support by housing growth to Loughborough.

Stoney Stanton

Could help promote growth corridors surrounding the M1, M69 and A5, all of which hold economic appeal. Housing could in turn increase the number and diversity of potential future employees to the area within a commutable distance.

OAN Growth projection: Option 4 (50% - 45,250) is the only option suggesting to direct growth towards new/expanded settlements. Growth at some of these areas could be attractive as it would provide homes in areas within close proximity to jobs and / or with good transport access to jobs (for example Lutterworth, Stoney Stanton) but in other areas would locate growth in areas that are less well related to employment opportunities (for example Ibstock and Six Hills). Growth at these new or expanded settlements would be unlikely to have significant effects on regeneration. On balance, this option is predicted to have a **moderate positive effect**. Though this option draws growth away from locations such as the City and the market towns, some of the new and expanded settlements could support strategic growth aspirations. Therefore, no negative effects are predicted for option 4. All other options are predicted to have **neutral effects** on the economy and employment for existing settlements as growth would be delivered elsewhere in the Plan area.

The hybrid option would provide a substantial amount of growth along the A46 expressway. This ought to provide opportunities for housing growth to support job opportunities in Leicester City, MIRA Technology Park and Loughborough and Leicester Enterprise Zone which have all been identified as key locations for economic growth in the Midlands Engine Strategy. Accessibility to these opportunities ought to be good, though this might be through a reliance on the private car in some locations. Though regeneration is not a priority along these corridors, there could be knock on benefits for nearby communities at Leicester City and its' urban periphery (for example employment in construction jobs, and provision of a workforce to support economic growth in the City.

Overall, a **major positive effect** is predicted.

Higher Growth projection: For the higher growth projection the effects on the employment and economy at the new settlements are predicted to be a **major positive effect**. However, there could be greater uncertainty about the delivery of supporting infrastructure. The overall increase in housing provision might also lead to greater competition for jobs, should there be increased in-migration. This is recorded as a potential minor negative effect.

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Overall effects

Option 1 places the majority of growth into the City and the urban periphery. This ought to have major positive effects in terms of supporting economic growth in these areas and helping to tackle regeneration priorities. However, this would be at the expense of no positive effects occurring at the market towns. There would be some small benefits for rural communities in 'other settlements', but also potential minor negative effects due to the potential to increase commuting, and not tackle regeneration. On balance a **moderate positive effect** is predicted overall, reflecting the major positives at the City, but the lack of benefits in the market towns and potential negatives in the other settlements.

At the higher scale of growth, the positive effects are enhanced to a major positive effect, but there are potential negative effects in terms of increased competition for jobs and pressure on infrastructure (which could affect the attractiveness of locations in the longer term).

Option 2 places the majority of growth to the market towns, which is of major benefit for these locations and also places a large amount of growth in areas that area accessible to jobs. However, this approach would not have many benefits in other parts of the Plan area, and therefore only a **moderate positive effect** is predicted overall. A **minor negative effect** is also recorded at the market towns as there could be significant pressure on infrastructure, and increased competition for jobs in these locations. At the higher growth projection, the positive effects increase across the Plan area as a whole, but so too would the potential negative effects for the market towns (Which make up a large proportion of growth across the Plan area for this option).

Option 3 is predicted to have a **major positive effect** overall across the Plan area. There would be benefits generated for the City, urban periphery and the market towns, which are all strong areas for growth. However, the growth proposed in these locations ought to be accommodated by infrastructure. A neutral effect would be generated for the new/expanded settlements though, which could perhaps be a missed opportunity where there are specific economic growth hubs. At the higher growth projection, the effects are enhanced, and include positive effects at the 'other settlements' too. However, a **minor negative effect** is predicted.

Option 4 is predicted to have a **moderate positive effect** overall. The benefits would mostly be accrued at the new/expanded settlements, some of which are good locations for housing to be located to support economic growth. There would be minor benefits for the City, but only neutral effects in most of the other areas of the HMA. At the higher growth projection, the positive effects are more pronounced, but the potential for negative effects arise. Therefore, a **major positive effect** and **minor negative effect** is predicted.

Option 5 is predicted to have mixed effects. On one hand it would generate **moderate positive effects** across the Plan area and would have particular benefits for 'rural' settlements through support for their local economies. However, directing a large amount of growth the smaller settlements would lead to increased commuting, would not tackle regeneration and draws growth away from more sustainable locations such as the City and market towns. Therefore, a **minor negative effect** is also predicted. At the higher growth projection, the positive effects would remain broadly the same for the City and urban periphery, bit would increase slightly for the market towns. Overall, a **moderate positive effect** is still predicted. The potential negative effects are predicted to rise from minor to **moderate negative effects** overall.

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Option 6 is predicted to have a **moderate positive effect** overall across the Plan area. Benefits would be generated in all parts of the Plan area, with the exception of 'new/expanded settlements'; though these would be mostly minor in nature. Though a minor negative effect is predicted due to growth directed to 'other settlements', this is not significant at the HMA level. At the higher growth projection, the positive effects would be more pronounced, and thus a major positive effect is predicted.

The hybrid option is predicted to have a **significant positive effect** on the economy and employment overall. New homes are mostly focused at key locations for employment growth and infrastructure improvements; which should help to support economic growth in key industries and provide jobs in construction. Though the effects would only be minor for the market towns, there could be knock on benefits as a result of the northern gateway (for example at Coalville and Loughborough), and as a result of the Southern Gateway (For example at Hinckley). Melton Mowbray is also identified as a key centre for growth, which ought to have positive implications.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓	✓✓✓	-	✓/×	-	✓✓
Leicester urban periphery focus	1b	✓✓✓ / ?	✓✓✓ / ?	✓	✓✓/×		✓✓✓/×
Option 2	2a	✓	-	✓✓✓ / ×	-	-	✓✓ / ×
Market town focus	2b	✓	✓	✓✓✓ / ××	✓		✓✓✓/××
Option 3	3a	✓	✓✓	✓✓	-	-	✓✓✓/×
Employment-led	3c	✓	✓✓✓	✓✓✓ / ×	✓		✓✓✓
Option 4	4a	✓	-	-	-	✓✓	✓✓
New settlements	4b	✓	✓	-	✓	✓✓✓/×	✓✓✓/×
Option 5	5a	✓	✓	✓	✓✓/××	-	✓✓/×
Dispersal	5b	✓	✓	✓✓	✓✓/×××		✓✓/××
Option 6	6a	✓✓	✓	✓	✓/×	-	✓✓
Trends	6b	✓✓✓ / ?	✓✓	✓✓	✓✓/×		✓✓✓/×
Hybrid Option	7a	✓	-	✓	✓	✓✓✓	✓✓✓

5.6 Appraisal findings: Transport and Travel

5.6.1 The findings relating to the Sustainability Topic 'Transport and Travel' are presented in the following tables.

Transport and Travel
Discussion of effects **City** According to the Leicester and Leicestershire Rail Strategy (2016), Leicester and Leicestershire have relatively poor rail connectivity compared with similar areas. Whilst the service to London is frequent from Leicester, the strategic connectivity to regional and national centres of economic activity is weak. Travelling from north to south is relatively easy, though congested at times, but links from east to west are slow and unreliable. Within the city of Leicester, accessibility is good and is predicted to remain this way with the potential to further improve. 96% of the population within the city live within 400m of a bus stop. However, these public transport links quickly dissipate beyond the city centre boundary. Even though the public transport offer is fairly strong within the city, car use is still highly popular which in turn leads to congestion on the roads in the urban area and it is worse than most comparator cities in England. *OAN Growth Projection:* Option 6 (25% - 22,625 homes) directs the most strategic growth to the City and option 1 (20%), to a slightly lesser extent. Development in the City ought to be accessible to services and employment by sustainable modes of travel, and therefore have a positive effect in terms of reducing the need to travel. Infrastructure improvements could also be secured to key junctions for example. Consequently, a **moderate positive effect** is predicted for options 1 and 6. Though increased housing in the centre could lead to increased car trips, it is less likely than would be the case for locations outside the City boundary. Therefore, negative effects are less likely to occur. Options 2, 3, 4, & 5 all allocate 10% housing growth for the City, which should allow developments to contribute to strategic infrastructure improvements and place a proportion of the HMA housing in an accessible location that ought to reduce the need to travel. Consequently a **minor positive effect** is predicted for these options. The same is the case for the hybrid option, despite the allocation of slightly more homes (10, 450). *Higher Growth projection:* The higher growth projection would lead to a greater number of people living in the City, though the proportion of new growth remains the same as for the OAN projection. The overall increased growth could put slightly greater pressure on infrastructure, which might be difficult to accommodate even with upgrades. Therefore a potential **minor negative effect** is predicted, but this is uncertain. A **moderate positive effect** would still remain, due to the sustainable location of the City for the most part. Options 2, 3, 4, & 5 are still predicted to have a **minor positive effect.**

Transport and Travel

Urban periphery

Several authorities (Harborough, Oadby and Wigston, Charnwood) have highlighted that there may be constraints to the amount of development that can be accommodated on the edge or near the Leicester urban area in light of a poor orbital road network in some locations at specific times. Growth could exacerbate congestion along A6 / A453 (Ring Road) for example.

OAN Growth Projection: Growth in the urban periphery could help to reduce the length of trips made into the city (compared to travel from more distant settlements), which ought to reduce the length of trips made to access jobs and services. The urban periphery and City itself are also the focus of several key economic growth areas, and so homes ought to be well located in relation to job opportunities. Conversely, promoting growth throughout areas surrounding the urban periphery may result in a heavier reliance on the private car. Though public transport from some parts of the periphery may support sustainable travel, many areas would be reliant on the private car without substantial upgrades to the public transport network. Consequently, further development in this location could have a negative effect on congestion, unless major investment can be generated to fund public transport improvements to the area and upgrades to the strategic road network. Option 1 has the potential to result in the highest amount of congestion by directing 40% (36,200 homes) of future growth to the city periphery. If future development sites are well integrated into and enhance Leicester's current transport network, this could have a positive effect on accessibility. However, it is uncertain whether such upgrades would be made at this stage. Option 1 is predicted to have mixed effects for transport and travel. A **moderate negative effect** reflects the potential for pressure on the road network, whilst a **moderate positive effect** is predicted to reflect the likely reduction in trip length and good access to jobs.

Option 3 & 6 would deliver around 25,000 homes to the city's periphery, and therefore still has the potential to put an increased amount of pressure on the road network surrounding the city. Therefore, it's predicted that **minor negative effects** would occur. A **minor positive effect** is predicted to account for reduced trips and good access to jobs.

Options 2, 4, and 5 would deliver lower amounts of growth to the City's periphery and would put the least amount of pressure on the current transport network, whilst also creating possible links to the public transport network that already exists within the City's boundaries. On balance a **neutral effect** is predicted, as these options would be easier to accommodate within existing infrastructure. The positive effects of reduced travel would be relatively modest.

The hybrid option allocates the least amount of growth to the Leicester urban periphery, which would result in very limited effects on transport and travel assuming that a variety of site options would come forward across these areas. However, the effects of growth along the A46 Corridor could extend into the urban periphery and the City itself (see new settlements).

Higher Growth projection: At the higher growth projection, option 1 is predicted to have a **major negative effect**, as the level of growth would be difficult to accommodate and it is uncertain whether suitable mitigation/infrastructure upgrades could be secured. A **moderate positive effect** is predicted. For options 3 and 6 a **moderate negative effect** is predicted, whilst a **minor positive effect** remains. For 2, 4 and 5 a **minor negative effect** is predicted.

Market towns

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OAN Growth Projection: Each of the Market Towns has its own specific transport issues, but town centre congestion at peak times is a common issue, which could be exacerbated by development. Accessibility in the market towns is generally good, but nevertheless, levels of car use are still high. Growth at the market towns would likely be at strategic development areas at the edge of the towns. With expansion of public transport networks, housing could be well positioned to access to services, jobs and facilities in the towns. However, commuting to other locations along the strategic route network would also be likely. Spreading growth to five market towns, should however, put less pressure on the City and urban periphery, whilst also allowing communities to access public transport to job opportunities in the City. Growth around the market towns could also involve employment expansion, which would support a reduction in travel itself. There is therefore potential for mixed effects with regards to transport and travel.

Option 2 is likely to have the greatest effects by directing 60% (10,860 homes) of the future housing in the Plan area to these locations. This could put pressure on the current road networks without prior investment in infrastructure. Town centre networks may also be unable to cope with such an increase in growth. This would lead to **major negative effects**. Conversely, a high level of growth at the market towns would place housing in areas that are relatively accessible to jobs and transport hubs. In particular, there are key economic growth areas at Hinckley, Melton and the East Midlands Gateway (located close to Coalville). Therefore, the length of car trips ought to be minimised, as well as ensuring new development has good accessibility. In this respect a **moderate positive effect** is predicted for option 2.

Option 3 (40%) would have similar effects but to a lesser magnitude and therefore **moderate negative effects** are predicted. **Moderate positive effects** are still likely to occur at this scale of growth. Options 5&6 (30%) are predicted to have **minor negative effects** relating to congestion and car travel. However **minor positive effects** are also predicted due to good accessibility. Options 1, 4 and the hybrid option (15-20%) would deliver the least growth and therefore have the potential to generate a practical amount of growth that ought to be easier to accommodate without major infrastructure enhancement. The positive effects of accessibility would still be achieved though and so a **minor positive effect** is predicted.

Higher Growth projection: At the higher growth projection the negative effects are likely to be exacerbated, and so a **major negative effect** is predicted. The positive effects are predicted to be the same for each option, as the proportion of growth in these areas remains the same across the Plan area. The effects for option 3 would rise to **major negative effects**. For options 5 and 6, a **moderate negative effect** is predicted, whilst for options 1 and 4 a **minor negative effect** may start to be generated

Other settlements

OAN Growth Projection: Directing growth to 'other settlements' is predicted to have broadly negative effects in terms of travel, as it would place homes in the most inaccessible locations, and the most distant (overall) from sources of employment. It would therefore encourage longer trips and greater amounts of car travel compared to more accessible locations such as the City and market towns. Dispersing growth however, could have some minor benefits (if growth is sufficient) in terms of supporting the viability of rural public transport services and could also contribute to improvements in local health/education. This could contribute to improved accessibility to services and facilities in some instances. Dispersed growth would also be less likely to focus congestion in any one particular location, though trips to the major employment locations would still contribute to overall levels of congestion in those areas.

For option 5 which proposes 40% growth in other settlements, a **major negative effect** is predicted due to new homes being located in the least accessible locations, and likely leading to increased and longer car trips. Conversely, a minor positive effect is predicted as new growth could help to support local service improvements

Transport and Travel

that could maintain or improve access for existing rural communities. The level of growth under option 5 could perhaps support a **minor positive effect** in this respect.

Options 1 & 6 (20%) are predicted to have a **moderate negative effect**, but the scale of growth would perhaps be too low to have a significant positive effect on rural public transport and other infrastructure. Therefore an **uncertain minor positive effect** is predicted.

Options 2, 3, 4 and the hybrid option (10-15%) are predicted likely to have a **minor negative effect.** No positive effects would be likely.

Higher Growth projection: At the higher growth projection the effects (both positive and negative) would be enhanced. Therefore, for option 1 a major negative effect remains. However, a **moderate positive effect** is predicted as the high scale of growth could support service improvements and access in rural areas. For Options 1 and 6 a **major negative effect** is predicted, but the positive effects are predicted to be minor. For options 2 and 3 **moderate negative effects** are predicted and an **uncertain positive effect**. For option 4, the effects remain the same (minor).

New / expanded settlements:

OAN Growth Projection: Growth at new or existing settlements is likely to have mixed effects on transport and travel depending upon the locations developed. For example, East of Loughborough, Lutterworth, and the East Midlands Airport are all in close proximity to areas of key economic activity/growth. Therefore, housing here ought to be in close proximity to job opportunities (though this is not to say that all residents would access these jobs). However, the likely mode of transport is car travel. For other nodes such as Six Hills and Ibstock, immediate links to the key employment centres are not as strong. Therefore, proposing growth in these locations could draw it away from areas that are more accessible and better connected. New settlements would also need supporting infrastructure, none of which would be likely to include rail travel though. In terms of congestion, major new settlements could put pressure on specific points in the road network, and these issues would need to be explored and mitigated. Due to the varied locations, and potential for both beneficial and adverse consequences, mixed effects are likely as a result of growth at new / expanded settlements.

Option 5 (50% - 45,250 homes) looks to expand growth in new/expanded settlement areas. This would involve a large proportion of the total growth. Given that some locations do not have the best accessibility by public transport, and will likely result in increased car trips, major negative effects are possible. However, other locations are better located in terms of access to jobs and employment (though this may be via car travel), and could help to improve local infrastructure and services. This mitigates the negative effects likely to be felt across the Plan area in terms of car travel and sustainable travel, and so overall a **moderate negative effect** is predicted. For the new communities, access to local services and employment ought to be good as it is assumed that such large scale growth would require a new district/local centre, health and education facilities, and may also involve retail/employment. A **minor positive effect** is predicted to account for this.

No growth is proposed for options 1,2,3,4 and 6. Therefore **neutral effects** are predicted.

New settlements are also promoted as a key element of the hybrid option, but some of these would differ to those discussed under option 5 above. The focus would be on new/expanded settlements along the A46 corridor through to the Southern Gateway and also at the Northern Gateway. Given that homes should be well related to economic growth, the need to travel long distances ought to be reduced. New settlements also offer the opportunity to create communities with good access to local services. **Moderate positive effects** are predicted to reflect these factors.

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However, given that growth is focused along major new road infrastructure, the dominant mode of travel is still likely to be by private car. Therefore, significant growth in close proximity to Leicester could generate increased trips and congestion into the urban area, which could have **moderate negative effects**.

Higher Growth projection: A 20% increase in growth would exacerbate the effects and therefore **major negative effects** are predicted for option 5. The positive effects would remain minor.

Overall effects

Option 1 is predicted to have mixed effects on transport across the Plan area. There is likely to be a major positive effect associated with good accessibility and reduced trip lengths associated with growth in the City, the urban periphery and the market towns. However, this is offset somewhat by a notable portion of growth being located in other settlements. There ought to also be some minor positive effects in terms of rural accessibility. Overall, a **moderate positive effect** is predicted. However, substantial growth in the urban periphery could lead to negative effects in terms of congestion. This equates to a **minor negative effect** in terms of the Plan area as a whole, as substantial congestion issues should be avoided elsewhere. At the higher growth projection the negative effects are predicted to be more prominent, though the positive effects would remain the same.

Option 2 is predicted to have mixed effects on travel and transport across the Plan area. The effects on the City and urban periphery ought to be mostly positive, and a large focus of growth to the market towns should also foster relatively good access to services and jobs. However, the level of growth at the market towns could contribute significantly to congestion in these areas. Overall, a **moderate positive effect** is predicted, along with a **moderate negative effect.** At the higher growth projection the negative effects, particularly at the market towns would be exacerbated, leading to a **major negative effect**. The positives would remain moderate.

Option 3 is predicted to have mixed effects on travel and transport across the Plan area. As would be expected, homes are in good proximity to key employment areas and ought to lead to shorter car trips. Growth in the City and to a lesser extent the market towns and periphery should also support sustainable modes of travel. A proportion of homes are in the other settlements though, which would have poor accessibility and encourage longer trips, which offsets some of these positive effects somewhat. The level of growth in the market towns and urban periphery could also contribute to congestion problems without sufficient infrastructure upgrades. Overall, a **moderate positive effect** is predicted, along with a **moderate negative effect.** At the higher growth projection, the negative effects at the urban periphery and the market towns would be exacerbated, and the overall increase in growth in other settlements would also be negative. Consequently, a **major negative effect** is predicted, but the positive effects would remain moderate.

Option 4 is predicted to have mixed effects on travel and transport across the Plan area. There would be mostly positive effects in the City and market towns due to a modest amount of growth in these locations. The lower levels of growth would also be less likely to generate negative effects in terms of congestion. However, at new / expanded settlements there would be potential for major negative effects due to some locations having poor accessibility and likely to encourage car travel. Overall a **moderate negative effect** is predicted along with **minor positive effect**. At the higher growth projection the negative effects would be increased across the Plan area, and so a **major negative effect** is predicted. The positive effects would remain minor.

Option 5 is predicted to have mixed effects on transport and travel across the Plan area. The effects on the City the urban periphery and the market towns would be relatively minor (but positive) or neutral. However, the large amount of growth in more rural areas is predicted to lead to substantial increases in car travel and more

Transport and Travel

homes in areas with poor accessibility overall. Though growth would still contribute to congestion overall, this would be less concentrated in any one location, and so is positive in this respect. The high level of growth in rural areas may also be enough to contribute to the viability of services in rural areas, but these effects would be minor. On balance, a **major negative effect** is predicted, alongside a **minor positive effect**. At the higher growth projection the negative effects would be exaggerated, and so a **major negative effect** remains. However, even greater amounts of growth in the rural areas could perhaps help to improve the viability for new or expanded services in rural areas, helping to tackle current accessibility issues. Consequently, a **moderate positive effect** is predicted.

Option 6 is predicted to have mixed effects on transport and travel across the Plan area. A focus of growth into the city ought to be positive given that this has the greatest concentration of job opportunities and good transport links. Modest growth in the periphery and market towns should also be positive in this respect. However, a fairly high amount of growth in the other settlements could offset these effects somewhat by drawing a proportion of growth to areas with poor accessibility. There may also be minor effects in terms of congestion. Overall, a **minor positive effect** is predicted, alongside a **minor negative effect**. At the higher growth projection the positive effects are likely to remain the same given that the proportions of growth are similar. However, the negative effects could increase due to more car travel overall. Therefore a **moderate negative effect** is predicted alongside a **minor positive effect**.

The hybrid option is predicted to have mixed effects (**moderate positive** and **moderate negative** effects) on transport and travel across the Plan area. Though there would likely be minor positive effects at market towns, there could be minor negative effects by locating growth at smaller settlements with poorer accessibility. A large focus on new settlements along the A46 expressway ought to have significant benefits in terms of reducing trip lengths by placing new homes in areas of economic growth. However, this could also put pressure on routes into the City as the dominant mode of transport would likely be private car.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓	✓✓/××	✓	✓?/××	-	✓✓/×
Leicester urban periphery focus	1b	✓✓/×	✓✓/×××	✓/×	✓/×××	-	✓✓/××
Option 2	2a	✓	-	✓✓✓/×××	×	-	✓✓/××
Market town focus	2b	✓	×	✓✓✓/×××	✓?/××	-	✓✓/×××
Option 3	3a	✓	✓/×	✓✓/××	×	-	✓✓/××
Employment-led	3c	✓	✓/××	✓✓/×××	✓?/××	-	✓✓/×××
Option 4	4a	✓	-	✓	×	✓/×××	✓/××
New settlements	4b	✓	×	✓/×	×	✓/×××	✓/×××
Option 5	5a	✓	-	✓/×	✓/×××	-	✓/×××
Dispersal	5b	✓	×	✓/××	✓✓/×××	-	✓✓/×××
Option 6	6a	✓✓	✓/×	✓/×	✓?/××	-	✓/×
Trends	6b	✓✓/×	✓/××	✓/××	✓/×××	-	✓/××
Hybrid Option		✓	-	✓	×	✓✓/××	✓✓/××

5.7 Appraisal findings: Climate Change

5.7.1 The findings relating to the Sustainability Topic 'Climate Change' are presented in the following tables.

Climate change

Discussion of effects

City

Within the City area, there is potential for reducing energy use through passive solar design and solar technologies. Due to the concentration of services, employment and housing there may also be good opportunities for district heat networks. This is supported by winning government funding (2016) for such measures. In terms of key issues and trends for the City area, in 2016 road emissions accounted for 18.4% of all emissions in the City, per capita $C0^2$ emissions reduced from 6.9t in 2005 to 4.7t in 2014.

OAN growth projection: Each of the options could have a positive effect as increased development within the City would likely be high density, and this could assist in mitigating climate change impacts. For example, high density development increases the viability of sustainable travel modes, and also would reduce the need to travel long distances to access employment, services, and other facilities, all of which would assist in reducing pollution and greenhouse gases. A densely developed area could also increase the viability and take up of district heat networks. These factors are likely to help reduce carbon emissions. At the highest level of growth in the City under option 6 (25% - 22,625 homes) and option 1 (20% - 18,100 homes) this could have **moderate positive effects** with regards to a reduction in greenhouse gases. Options 2, 3, 4 and 5 (10% - 9,050 homes) whilst still having benefits, would be to a lesser extent, and so only **minor positive effects** are predicted. The same is the case for the hybrid option, despite the allocation of slightly more homes (10, 450).

In terms of climate change resilience, a loss of open space, and increased development in the City could contribute to an urban heat island effect, which would be negative in terms of climate change resilience. The design of development could help to address such issues, but at higher levels of growth a negative effect on resilience is more likely. An **uncertain negative effect** is predicted for options 6 and option 1. **Neutral effects** are predicted for all other options, as it would be easier to avoid open space loss, and density could be lower.

Higher growth projection: With regards to the higher growth projection figures, options 1 and 6 remain as having a **moderate positive effect.** Although more growth would be directed to the City, which is accessible and ought to help reduce emissions, the amount of growth overall is higher, which would increase carbon emissions. Although there is a slight increase in proposed housing numbers in options 2, 3, 4 and 5 the effect remains as a **minor positive**. The overall levels of carbon emissions under this higher growth option would be likely to be higher. However, the effects are still predicted to be positive. Negative effects in terms of resilience to climate change could be exacerbated under options 1 and 6, and so **minor negative effects** are predicted (without the uncertainty).

Urban periphery

OAN growth projection: With regards to the urban periphery, option 1 (40% - 36,200 homes) and option 3 (30% - 27,150 homes) would have a **minor positive effect**. Developing the urban periphery retains some of the opportunities to increase sustainable travel options due to the proximity to the City and the potential for public

Climate change

transport improvements as part of large-scale strategic development areas.

Increased development in these areas may lessen the potential to cause conflict with renewable schemes that generally need a rural location, such as mid to large-scale wind energy. However, despite a large proportion of homes being located in the urban periphery for these two options, the effects are predicted only to be minor, given that a proportion of growth in these locations would be anticipated to be by car.

Other options that may also have a **minor positive effect** are options 6 (25% - 22,625 homes) and 5 (20%- 18,100 homes), but there is greater uncertainty. Those options with a **neutral effect** (although the level of development could still support the objective) are options 2 and 4 (15% - 13,575 homes). At the urban periphery, the effects in terms of resilience ought to be easier to manage, as there would be more space to incorporate green infrastructure into strategic developments, and perhaps improve links into the City.

The hybrid option would have limited effects on climate change as the level of growth involved is minor. Therefore **neutral effects** are predicted.

Higher growth projection: Again, as with the OAN projections, development in this area retains the opportunities to increase sustainable travel options, and therefore options 1 (43,440 homes) and option 3 (32,580 homes) continue to have positive effects in this respect. However, given the additional scale of development the overall level of emissions could be higher than for the OAN growth projection. Therefore a **minor positive effect** is predicted overall. Options 5 and 6 remain as having a **minor positive effect**, whilst options 2 and 4 would also have a **minor positive effect.**

Market towns

OAN growth projection: There is a train station with good links to Leicester and other major centres of employment and leisure from Market Harborough, Loughborough, Melton Mowbray and Hinckley. The exception is Coalville, which is more reliant on bus travel to access a train station with strong links. Bus travel from each of the market towns is relatively good, but trends suggest that levels of car usage in these areas are still high. It is likely that growth at the market towns would be on large urban extension sites. This might not fully support access to public transport close to their centres, but the opportunities to access jobs in the market towns or in other locations would be relatively good; helping to ensure that carbon emissions do not increase drastically as a result of commuting / access to recreation. Having said this, focusing the highest level of growth to the market towns (option 2 - 54,300 homes) diverts growth from the City/periphery somewhat, which might perhaps be better placed to help reduce carbon emissions. It is unclear whether there would be opportunities to establish district heating schemes at the market towns, but it is not thought likely if the focus is on housing growth only, and at distant locations from current centres. For option 2, which could result in 10,860 new homes in each of the five main market towns, carbon emissions from transport ought to be reduced slightly as these locations are generally accessible (though in the longer term, development opportunities may be more distant from central facilities and services). Therefore a **moderate positive effect** is predicted. The effects are similar for option 3 (45% - 40,725 homes). For options 5 and 6 (30% - 27,150 homes) a **minor positive effect** is predicted. At a strategic level, options 1 (18,100 homes) and option 4 (15% - 13,575 homes) are predicted to have a mostly **neutral effect**. Growth here would not be likely to generate significant levels of carbon emissions, nor would it encourage access to services, facilities and public transport links in these areas.

The hybrid option is likely to have **neutral effects**, as it would mostly be a continuation of current trends at the market towns. As accessible locations, growth here ought to encourage a reduction in emissions from travel. However, in the longer term, development opportunities are more likely to be distant from centres at or beyond the urban fringes.

Climate change

Higher growth projection: An increase across the options in housing numbers and the associated land required is likely to increase the level of carbon emissions overall across the Plan area. The proportion at the market towns would remain the same under each of the options, but the increased growth overall could offset any potential benefits generated through distribution. Therefore, for options 2 and 3, the effects are predicted to be **minor positive**, rather than moderate. The effects for options 5 and 6 are predicted to remain **minor positive**, whist for options 1 and 4 the effects are predicted to be **neutral**.

Other settlements

OAN growth projection: Though access to services and facilities might be good in some locations, accessibility is broadly reliant upon increased amounts of and lengths of private car travel. Therefore, higher levels of growth in smaller and more rural settlements is likely to lead to an increase in emissions rather than a decrease. The likelihood of growth in these areas supporting district energy schemes is also lower given the less concentrated nature of services, leisure facilities, employment and other uses that are required to support such schemes. Furthermore, a dispersed approach could have greater potential to sterilise energy opportunities such as wind and / or large scale solar, as it would be assumed to require more rural land. Option 5 (40% - 36,200 homes) would lead to the highest levels of dispersed development, and is predicted to have a **moderate negative effect** in terms of climate change mitigation in these areas. Option 6 represents 'trends' (20% - 18,100 homes) and so it is reasonable to assume that this level of growth in other settlements may occur anyway; hence a **neutral effect** is predicted. The same level of growth is involved for option 1, and thus this is also predicted to have **neutral effects**. For alternatives 2 and 3 (15% - 13,575 homes) which would both lead to lower levels of growth than trends, then a **minor positive effect** ought to be generated, as the growth would be diverted away from rural areas, which are most likely to contribute to increases in greenhouse gas emissions and least likely to have the infrastructure already in place to support development. For option 4 and the hybrid option (9,050 – 10,450 homes), there would be approximately half as much growth directed to the rural / other settlements compared to current trends, which ought to have a **moderate positive effect** in terms of reducing car trips and associated greenhouse gases.

Higher growth projection: Option 5 increases growth overall and directs a large proportion to the other settlements, which is predicted to have a **major negative effect** on climate change mitigation. Options 1 and 6 would increase growth in rural / smaller settlements beyond current trends, and thus a **minor negative effect** is predicted at the higher level of growth. For options 2 and 3, the level of growth would be slightly lower than OAN trends even at the higher projected growth levels. Therefore, **neutral effects** are predicted. For option 4, there would still be a lower amount of growth in the rural areas compared to trends, and so a positive effect is still predicted, though this is minor rather than moderate.

New / expanded settlements

OAN growth projection: With a focus on new and expanded settlements, there would be substantial growth in 'sustainable nodes' or new settlements. Whilst some locations such as Lutterworth, Ibstock and Loughborough could help to support sustainable modes of travel (though to a lesser extent compared to the market towns), the new settlements (i.e. Stoney Stanton, Six Hills for example) would be distant from current services and transport nodes. Consequently, on balance, the overall effect on travel is likely to be an increase in car transport and associated emissions. A focus on new settlements in the locations identified is unlikely to support district energy networks unless the demand is created by the new development itself. Option 4 would deliver 50% (45,250 homes) to these locations, which could lead to a **minor negative effect** in terms of carbon emissions. One way that the effect could be lessened is if a new settlement with necessary infrastructure and services was developed which may reduce the need to travel and would offer an opportunity to increase adaptive measures (passive solar gain, green infrastructure etc.).
Each of the other options do not involve growth at these settlements, and thus a **neutral effect** is recorded.

Climate change

The hybrid option directs substantial growth at new settlements along the A46 corridor, and at major employment areas near the East Midlands Gateway and Hinckley. Broadly speaking, this places homes in close proximity to employment opportunities and a wide range of other services in Leicester City. There may also be opportunities to expand sustainable modes of travel outwards into new residential areas. However, it is likely that car travel will continue to dominate given that the approach seeks to take advantage of the A46 expressway linkages. Consequently, the positive effects of locating growth close to jobs and services is offset somewhat, and a **neutral effect** is predicted with regards to emissions from transport. In terms of low carbon energy schemes, the location of new settlements do not present particular opportunities for the development of heat networks, though large scale mixed-use developments could create such opportunities themselves. At this stage, **neutral effects** are predicted in this respect also.

Higher growth projection: At a higher level of growth, a **moderate negative effect** is predicted, as the overall level of carbon emissions resulting from new settlements would likely be higher. Similar mitigation measures could be implemented as suggested against the OAN projections.

Overall effects

Option 1 is predicted to have mixed effects overall. The focus on the City and to a lesser extent the Leicester urban periphery is likely to promote sustainable access to services and less need to travel, which could lead to an overall reduction in carbon emissions across the Plan area, though these, would be fairly **minor positive effects**. The effects in other parts of the HMA (i.e. market towns and 'other settlements') are likely to be neutral on balance. Conversely, there is potential for a negative effect in terms of a potential contribution to the urban heat island effect in the city in particular. This is reflected by an **uncertain negative effect**.

Option 2 and 3 perform similarly, and are both predicted to have a **moderate positive effect** overall across the HMA. Growth in the City and Market towns should contribute to a reduction in carbon emissions across the HMA, particularly as this would draw development away from 'other settlements' and the urban periphery, which are not quite well connected in terms of access to public transport, local services and facilities. At a higher level of growth, the positive effects would be lessened due to the overall increase in growth, which would have the opposite effect (i.e. an increase in emissions) regardless of distribution.

Option 4 would have some minor positive effects due to focusing some growth in the City, but would generate some increases in emissions due to new/expanded settlements that are not all located in areas that would support carbon emission reductions. Conversely, this approach draws the most development away from other settlements, and so benefits would be generated by discouraging a dispersed approach. Overall, a **minor positive effect** is predicted. At the higher growth projection, the positive effects accrued would be offset somewhat by an overall increase in growth, and so the effects are recorded as **neutral.**

Option 5 could have some minor benefits through the location of a proportion of growth in accessible locations such as the City, urban periphery and market towns. However, a much higher proportion of growth would be dispersed, which is likely to lead to high levels of greenhouse gas emissions from transport. The opportunities for energy schemes may also be lower under such an approach. Taking into account the overall effects for the Plan area a **minor negative effect** is predicted. At the higher scale of growth, the effects would be magnified and thus a **moderate negative effect** is predicted.

Option 6 is predicted to have mixed effects. In the main, this approach ought to direct growth to areas that are well located to reduce carbon emissions. However, the high amount of growth in the City could perhaps have negative connotations for resilience in terms of an urban heat island effect.

Climate change

A **minor positive effect** and an **uncertain negative effect** are recorded.

At higher levels of growth, the positive effects would be dampened by an overall increase in emissions and hence a neutral effect is predicted with regards to greenhouse gases. In terms of resilience, the effects on the City (heat island) are more certain to occur and so a **minor negative effect** is predicted.

The hybrid option is predicted to have a **minor positive effect** overall, reflecting a potential reduction in emissions by directing growth away from rural areas, and a continued focus on accessible locations such as the City and market towns, and locating housing in close proximity to major economic growth opportunities. However, though trip lengths may be shortened, the private car would be likely to remain the dominant mode of travel, and so the benefits would be offset somewhat.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓/ ?	✓	-	-	-	✓ / ?
Leicester urban periphery focus	1b	✓✓ / ×	✓	-	×	-	✓ / ×
Option 2	2a	✓	-	✓✓	✓	-	✓✓
Market town focus	2b	✓	✓	✓	-	-	✓
Option 3	3a	✓	✓	✓✓	✓	-	✓✓
Employment-led	3c	✓	✓	✓	-	-	✓
Option 4	4a	✓	-	-	✓✓	×	✓
New settlements	4b	✓	✓	-	✓	××	-
Option 5	5a	✓	✓	✓	××	-	×
Dispersal	5b	✓	✓	✓	×××	-	××
Option 6	6a	✓✓/ ?	✓	✓	-	-	✓ / ?
Trends	6b	✓✓ / ×	✓	✓	×	-	- / ×
Hybrid Option		✓	-	-	✓✓	-	✓

5.8 Appraisal findings: Landscape and land

5.8.1 The findings relating to the Sustainability Topic 'Landscape and Land' are presented in the following tables.

Landscape and Land

Discussion of effects

City:

The land within the City of Leicester is almost all classified as urban. There is a small amount of land to the north, north-west and east and the south-west of the City that falls into a grade 3 agricultural land classification. Urban intensification in the areas where the land classification is the highest quality is most likely to affect the status of this land. However, keeping development within the Leicester City urban periphery could help contain growth and restrict sprawl to ensure rural areas are safeguarded from dispersed development.

OAN Growth option: With regards to agricultural land, directing growth to the City is generally positive, as the majority of land is urban. Options 2, 3, 4, & 5 all allocate 10% housing delivery within the City boundary. This low level of growth is likely to have **neutral effects** on agricultural land as it ought to be possible to avoid the small areas of Grade 3 agricultural land. At a higher level of growth as per option 1 (20% - 18,100 homes) and option 6 (25% - 22,625 homes) pressure on agricultural land in the City could be higher, and thus an **uncertain minor negative effect** is predicted.

In terms of effects on landscape character and the countryside, growth in the City ought to have a positive effect by drawing growth away from the more rural areas within the Plan area. Intensification in the City and maximisation of brownfield land use could also be positive. For options 1 and 6, a **minor positive effect** is predicted, as these options would deliver at least 20% of the housing requirement in areas of relatively low sensitivity.

For options 2, 3, 4 and 5 a **neutral effect** is predicted, as the magnitude of growth is only small. The same is the case for the hybrid option, despite the allocation of slightly more homes (10, 450).

Higher growth projection: A further increase of 20% of housing delivery within the City could increase the pressures on agricultural land, especially for options 1 and 6. However, the effects are still predicted to be minor, as the amount of agricultural land in the City is limited. With regards to landscape, the proportion of development would remain the same across the Plan area, and so the effects are predicted to remain the same for each option.

Urban periphery:

Most of the land surrounding Leicester's urban periphery is classified as grade 3 agricultural land. However, to the south and south-east of the city boundary, there are small pockets of land that still fall into the urban land classification. Development at the majority of the urban periphery of Leicester has the potential to affect the rural character outside of the out of City boundary. Development would 'extend' the current urban area, which in turn could lead to a decrease in sustainable access to the countryside for residents in the City. However establishing green infrastructure links from new sites into the City and to the countryside could have the opposite effect.

Landscape and Land

In terms of landscape character and sensitivity, growth in some parts of the urban periphery could be seen to 'close the gap' between nearby smaller settlements, such as Thurmaston and Syston, Oadby and Great Glen, Birstall and Rothwell. This could have negative effects on landscape character.

OAN Growth projection: Potential opportunity areas for development up to and beyond 2031 have been identified in areas that correlate with land classified as urban or grade 3 agricultural lands. Option 1 (40% - 36,000) would propose the largest amount of growth to the urban periphery and would therefore be most likely to have negative effects upon landscape character, and a loss of grade 3 agricultural land. At this scale of growth, it would be more difficult to avoid the most sensitive locations, and thus a **moderate negative effect** is predicted to occur.

Option 3, could also have an adverse effect on the landscape and agricultural land surrounding the urban area but to a lesser extent than growth option 1. Therefore a **minor negative effect** is identified.

Options 5 & 6 provide a lesser amount of growth than options 1 and 3, but more than options 2 and 4. There would still be approximately 20,000 dwellings at the urban periphery under each of these approaches, which has the potential for pressure on agricultural land and sensitive landscapes. This scale of growth should give some flexibility in the choice of locations and / or intensity of growth though, and therefore the effects ought to be more manageable. At this stage an **uncertain negative effect** is predicted for these options.

For options 2 and 4, the effects are predicted to be **neutral.**

For the hybrid option, the effects are likely to be neutral as the level of growth in the Leicester urban periphery is very low. It therefore should be possible to avoid the more sensitive areas of open space and the overall feel of the urban fringe should be retained. However, nearby growth along the A46 at new settlements could in some locations affect the character of the urban periphery. Therefore, an **uncertain (minor) negative effect** is predicted.

Higher growth projection: A further 20% of growth to the urban periphery could exacerbate the effects felt on the land and landscape. At a higher scale of growth the effects of option 1 are predicted to be major, as it would require 43,440 dwellings focused around the Leicester urban area. The additional 7720 dwellings compared to the OAN projection for option 1 could necessitate further growth in more rural land areas, or more intense growth. Therefore a **major negative effect** is predicted in the urban periphery. For similar reasons the effects for option 3 are predicted to be **moderately negative** at this higher scale of growth. Likewise, the higher scale of growth for options 5 and 6 is predicted to be a **minor negative**, as it is more likely that effects could occur. For options 2 and 4, the levels of growth are still fairly modest, and therefore **uncertain minor negative effects** are predicted.

Market towns:

Hinckley

- Most of the land surrounding Hinckley is made up of grade 3 land classification.

Landscape and Land

Coalville

- Segments of the market town centre itself are classified as urban land whilst being surrounded by mainly grade 3 land with small pockets of grade 2 running through the town centre and to the south-west.

Loughborough

- Land that could potentially be developed is classified mainly as grade 3 agricultural land. The market town centre itself is classified as urban land. Landscape sensitivity varies, but is generally of medium sensitivity to the north and west, and low to medium sensitivity in the south. The extent and location of development would determine the effects.

Melton

- There are pockets of land surrounding Melton that could be developed that are classified as Grade 1-2 agricultural land.
- Further land surrounding the town is grade 3 agricultural land. It may be difficult to avoid the loss of best and most versatile agricultural land due to its extent around the market town. Much of the land identified as potential development areas (i.e. in the SHLAA) falls to the north and south of the town. The landscape here has been classified as a mix of highly sensitive, to moderately sensitive, with some lower sensitivity in small parcels (Melton Landscape Character Assessment Update, 2011). At higher levels of growth it is most likely that sensitive areas of land would need to be released.

Market Harborough

- Surrounded predominantly by grade 3 agricultural land. The sensitivity of the landscape to change differs around the town, but some areas identified as development opportunities have medium capacity or low capacity to change, which suggests negative effects would be possible in these areas.

OAN Growth projection: Option 2 which aims to deliver 60% of homes throughout the market towns would have the potential to most adversely affect the land and landscape of each of the towns. At this scale of growth it would be likely that there would be significant loss of grade 3 land across each of the market towns, and potential grade 2 land at Melton. The effects on landscape character are also likely to be significant, as it would likely be necessary to encroach upon the areas of higher sensitivity to change. In some areas, there may be potential coalescence with nearby smaller villages. Overall, option 2 could lead to major negative effects on one or several market towns. However, should green infrastructure enhancement be incorporated into development, these effects could be minimised. Growth in these areas should also ensure that communities have good access to the countryside. For example, Coalville could strengthen links to the National Forest, Loughborough to Charnwood Forest and Melton along the River Eye corridor. On balance a **moderate negative effect** is predicted.

Option 3 (45%- 8,145 per market town) could also affect the landscape and land of the market towns, but at a slightly lower scale. This would still constitute a **moderate negative effect** though.

Options 5 & 6 both aim to deliver 30% (5,430 per market town) of homes, which ought to be more manageable in terms of locating development and also the overall effect of concentrated growth into these locations. Consequently, the effects on the market towns overall are predicted to be a **minor negative** for options 5 and 6.

Landscape and Land

Whilst options 1 & 4 aim to deliver the least number of homes to the market towns (2715-3,620 per market town), this level of development could still potentially impact upon the land and landscape, dependant on the location of the selected housing sites. This is particularly the case given that development opportunities in the longer term could put pressure on the more sensitive areas. However, this would be to a much lesser extent than the more concentrated delivery options, and it ought to be much easier to accommodate growth in the least sensitive locations. Consequently, an **uncertain (minor) negative effect** is predicted for these two options.

The hybrid option is likely to have similar effects to option 1, which involves the same level of growth (**uncertain minor negative effect**).

Higher growth projection: At a higher level of growth, the effects would be more prominent. For option 2, this would constitute a **major negative effect,** but the effects would remain moderate for option 3. For option 4, which delivers lower levels of growth, the effects would remain as an uncertain negative as the level of growth would still be lower than any of the other options even at the lower OAN growth projections. For option 1, the increased level of growth could start to make it more likely that effects would occur, and so a **minor negative effect** is predicted.

For options 5 and 6, the growth level would not be significant enough to constitute moderate negative effects, and so whilst the effects would most likely to be more prominent, the effects are still recorded as **minor negative**.

Other settlements: There are numerous smaller settlements across the Plan area, some of which lie fairly close to market towns, whilst others are more rural in nature. The dispersed pattern of growth that would be involved at other settlements would mean that growth was 'spread more thinly', and therefore the effects on any one area ought to be of a lower magnitude. The small, rural nature of many settlements means they are vulnerable to change, and in the main are surrounded by agricultural land of mainly grade 3 classification.

OAN Growth projection: Option 5 (40%) aims to deliver to highest amount of growth to other settlements within the Leicestershire area. At this scale of growth, the total amount of agricultural land lost would likely be substantial. There would also be likely effects on individual settlements in terms of landscape character and the appearance and function of the countryside. The effects in any one settlement might not be major, but overall, the effects are predicted to be a **major significant effect**. Development might be likely to have good access to the countryside, but the ability to secure strategic improvements to green infrastructure would likely be lower with dispersed, smaller scale and piecemeal development.

Options 1 and 6 involve a lower scale of growth and are therefore predicted to have a **moderate negative effect**.

Options 2 and 3 would have lower growth still, and thus a **minor negative effect** is predicted. For options 4 and the hybrid option the level of growth is the lowest of all options, and could be spread fairly lightly across the Plan area, allowing for the most sensitive areas to be avoided. The overall loss of agricultural land in these locations would also be low. Consequently a **neutral effect** is predicted.

Higher growth projection: At a higher growth projection the effects of option 5 would remain a **major negative effect**. The effects of options 1 and 6 would increase, but would still represent a **moderate negative effect**. However, the effects for options 2 and 3 would rise to a **moderate negative effect**, and option 4 a **minor negative effect**.

Landscape and Land

New / expanded settlements:

Airport - All land is classified as grade 3 surrounding East midlands Airport. *Six Hills* - Most of the land surrounding six hills consists of grade 2 agricultural land and is rural in nature / open countryside. *East of Loughborough* - Small pockets of grade 2 land are present to the east of Loughborough outside of the urban area. The rest of the land to the east is grade 3 agricultural land. *Stoney Stanton* - Land covered by, and surrounded by entirely grade 3 land and is rural in nature. *Lutterworth* - Land east of the village falls within grade 2/3 agricultural land classification. To the west land is all grade 3 land. Sensitivity of landscape varies, but at higher levels of growth areas with low capacity to change could be affected. *Ibstock* - Land surrounding the settlement is made up of a mixture of grade 2 and 3 agricultural land. *Kibworth* - Land covered by, and surrounded by entirely grade 3 land classifications. Landscape sensitivity is mixed, to the north and north-east at potential SDA development sites, land is sensitive.

OAN Growth projection: Option 4 aims to deliver 50% of growth to new/expanded settlements and would therefore have the potential to impact on the land and landscape required to accommodate this level of development. The effects would be dependent upon the location and scale of growth at these different opportunity areas. However, it is clear that there would likely be a loss of agricultural land regardless of location. This could be grade 2 land, but more likely would be grade 3.

The rural nature of much of these development areas would also present the potential for negative effects on the nature of the countryside and upon landscape character. Overall, a major negative effect could be generated. Should large-scale growth at new settlements / expansions involve green infrastructure enhancement, these effects could be mitigated though. New settlements ought to also bring communities into close contact with the countryside. On balance a **moderate negative effect** is predicted. For all other options, there would be **neutral effects** as no growth is proposed.

The hybrid option involves growth at new settlements, most of which would be located along the A46 corridor. There are some landscapes that are sensitive to development in these locations including Areas of Separation at Thurnby, Bushby and Stoughton. These areas may not be directly affected but nearby development could alter the setting of the urban periphery of Leicester, as in some locations the 'gap' between the urban fringes and new settlements could be narrow.

Growth could potentially lead to coalescence (partially or fully) between settlements such as Thurmaston, Syston and Barkby, Oadby and Great Glen and around the settlement areas of Narborough, Blaby, Whetstone and Countesthorpe. The effects would be dependent upon site locations, layout and design, but it is likely they would alter the character of the rural area along the A46 corridor and towards the Southern Gateway. Effects on landscape at the Northern Gateway are also likely to be negative, as new settlements would likely be in rural / open areas. With HS2 already passing through this area, substantial housing growth has potential to further erode the rural nature of this area. At all the new settlements, there should be good opportunities for green infrastructure form a key principle of the developments. This would help to mitigate negative effects on landscape to an extent. However, the potential for major negative effects does exist.

With regards to agricultural land, the majority of land at the Northern and Southern Gateways and at the A46 corridor would mostly be Grade 3. It is unknown what proportion of this is best and most versatile land (3a), but much of the land does appear to be in use for agricultural purposes. Whilst negative effects would be generated, these would not be significant in the context of the overall amount of agricultural land still remaining and the avoidance of the most sensitive areas.

Landscape and Land

Overall, an uncertain **major negative effect** is predicted, taking into account the loss of agricultural land and potentially major changes to the rural nature of landscape.

Higher growth projection: At a higher growth projection, the effects associated with new settlements would be more pronounced; therefore a **major negative effect** would be much more likely / certain. The effects of all other options remain **neutral.**

Overall effects

Overall, the Plan area is covered by a large amount of agricultural land that could potentially be affected by growth to the area. The only area that is unlikely to have significant effects with regards to agricultural land in the City. Land associated with the other growth option locations is broadly agricultural in nature. However, it is not certain whether the land is best and most versatile grade 3a or grade 3b. With regards to landscape character, and the function and tranquillity of the countryside, there is potential for negative effects at the market towns, new settlements, urban periphery and other settlements. The extent of effects ultimately would depend on the precise location of development, the amount of growth and mitigation / enhancement measures secured.

Option 1 is predicted to have mixed effects. Focusing a large amount of growth to the City ought to be **positive** in terms of reducing the amount of growth required elsewhere on more sensitive land. However, there would still be **potentially negative effects** at other settlements and at the urban periphery. At this higher level of growth, there may also be effects on the small amounts of agricultural land within the city boundary.

The effects on market towns would be neutral, as the level of growth would be at a level that ought to be manageable in terms of landscape impacts. The overall effect on landscape and land is predicted to be a **minor negative effect**. For the higher growth projection the overall increase in growth intensifies the effects on landscape at the urban periphery and the market towns, and therefore the overall effect is predicted to be a **major negative effect.**

Option 2 is predicted to have a **minor negative effect** overall. There would be neutral effects for the City and the urban periphery, but more pronounced effects at the market towns. For the higher growth projection the overall increase in growth intensifies the effects on landscape at the market towns and other settlements in particular, and therefore the overall effect is predicted to be a **major negative effect.**

Option 3 is predicted to have a **moderate negative effect** overall as there could be effects on market towns, other settlements and the urban periphery due to a loss of agricultural land and landscape character. For the higher growth projection the overall increase in growth intensifies the effects on landscape at the market towns and other settlements in particular, and therefore the overall effect is predicted to be a **major negative effect.**

Option 4 would avoid effects for the most part of the Plan area, though could have moderate negative effects at certain settlements. Overall this is considered to be a **minor negative effect**. For the higher growth projection the overall increase in growth intensifies the effects on landscape at the market towns and other settlements in particular, and therefore the overall effect is predicted to be a **moderate negative effect.**

Option 5 is predicted to have a **major negative effect**, due mainly to the major effects at other settlements, but also negative effects at market towns and possibly the urban periphery. For the higher growth projection the overall increase in growth intensifies the effects on landscape at the market towns and other settlements in particular, and therefore the overall effect is still predicted to be a **major negative effect.**

Landscape and Land

Option 6 is predicted to have a **moderate negative effect**, due mainly due to negative effects occurring in all parts of the Plan area (to differing magnitudes). For the higher growth projection the overall increase in growth intensifies the effects on landscape at the market towns and other settlements in particular, and therefore the overall effect is predicted to be a **major negative effect.**

The hybrid option is predicted to have an uncertain **moderate negative effect** overall. Though there could be potentially major negative effects on landscape as a result of new settlements along the A46 corridor, Northern and Southern Gateways, it ought to be possible to secure mitigation. The location of sites is also not known at this stage, so there is uncertainty whether these effects would be major. There would be mostly neutral effects across the rest of the plan area, and the most sensitive areas ought to be avoided. Some uncertain negative effects are recorded in terms of the market towns and at the urban periphery, but these ought only to be minor in any event.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓ / ?	××	?	××	-	×
Leicester urban periphery focus	1b	✓ / ×	×××	×	××	-	×××
Option 2	2a	-	-	××	×	-	×
Market town focus	2b	-	?	×××	××	-	×××
Option 3	3a	-	×	××	×	-	××
Employment-led	3c	-	××	××	××	-	×××
Option 4	4a	-	-	?	-	××	×
New settlements	4b	-	?	?	×	×××	××
Option 5	5a	-	?	×	×××	-	×××
Dispersal	5b	-	×	×	×××	-	×××
Option 6	6a	✓ / ?	?	×	××	-	××
Trends	6b	✓ / ×	×	×	××	-	×××
Hybrid Option	7a	-	?	?	-	×××?	××?

5.9 Appraisal findings: Cultural Heritage

5.9.1 The findings relating to the Sustainability Topic 'Cultural Heritage' are presented in the following tables.

Cultural Heritage

Discussion of effects

City

- There are 24 Conservation Areas covering approximately 322 ha.
- Within the city boundary there are green wedges that are important for the protection of settlement character.
- 11 Scheduled Monuments reside within the city of Leicester boundary, along with 401 Listed Buildings, 6 Registered Historic Parks and Gardens (2017).
- Of these sites, 14 are at-risk sites (4 Conservation Areas, 4 POW, 2 Scheduled Monuments, 4 Listed Buildings). 5 of these are considered to be in a 'Very Bad' condition, 5 in a 'Fair' condition, and 3 in a 'Poor' condition (2017).
- Within the boundary of the city there is a clearly defined historic core to the city centre, which should be preserved.

Development has the potential to impact the cultural heritage of Leicester City due to the strong historic value the city holds. At higher levels of growth there may greater loss of greenfield sites, which are important to character. Alternatively, growth would need to be higher density, which may also be inappropriate in some locations. Conversely, by focusing development within the built up urban areas, this could help to maintain the character and landscape of the more rural locations around the city boundary. Development within the City centre also has the potential to enhance the fabric, function and setting of historic assets by being sympathetic in design and particular in where the development involves derelict land or vacant buildings.

OAN Growth projection: Option 6 which looks to deliver the highest level of growth within the City boundary (25% - 22,625 homes) would have the greatest potential to have effects upon the cultural assets within the City. Negative effects could occur on the setting of listed buildings, or more generally on the character of the City more generally due to a greater need for higher density or to consider greenfield sites. A **moderate negative effect** is predicted as most development ought to be on brownfield sites, and managed through the application of design policies. Conversely, increased growth ought to create opportunities to tackle dereliction, vacant buildings and to drive regeneration. This is predicted to have a **moderate positive effect**.

Option 1 would also deliver a similar number of homes to the city therefore the same effects are predicted as for option 6.

Options 2, 3, 4 & 5 aim to deliver 10% growth to the Leicester, which would affect the City's cultural heritage to a much lesser degree. Whilst there could be site specific effects due to development, it ought to be easier to avoid greenfield sites and design more appropriate schemes. Nevertheless, the potential for negative effects still remains and so **minor negative effects** are predicted. Likewise to options 1 and 6, the potential for enhancement in the City is likely to be greater than other areas in the HMA, and therefore a **minor positive effect** is predicted. The hybrid option is predicted to have the same effects despite a slightly higher level of growth (10,450).

Higher Growth projection: An additional 20% growth across all 6 options could put further pressures upon the cultural heritage throughout the City. For options 1 and 6,

Cultural Heritage

the increased scale of growth would be likely to have **major negative effects**, but could still have **moderate positive effects** in terms of regeneration.

For options 2, 3, 4 and 5, the effects would still be predicted to be **minor negative effects,** as the increase in growth would not be substantial.

Urban periphery

Oadby and Wigston (to the south and south-east of the urban periphery) – The urban fringe does not have any listed buildings to the south or east (though substantial development could affect Stoughton).

Harborough (to the east and south east of the urban periphery) – There are listed buildings at several parts of the urban fringe including in Scraptoft, Thurnby and Bushby and Stoughton.

Charnwood (to the north and north-east of the urban periphery) – Hamilton Medieval Village Scheduled Monument is located in the urban periphery to the north-east. There are also smaller villages in close proximity that could be affected by large scale development, for example Barkby and Beeby. North of the City, there are heritage assets to the fringe of Thurcaston, whilst assets further north at Rothley may also be affected depending upon the scale of growth.

Blaby (*to the west, south and south-west of the urban periphery*) - Development to the south between Glen Parva and Blaby could have an effect on the setting of designated heritage assets (Scheduled Monument at Glen Parva and Grand Union Canal Conservation Area). There are also designated assets including Scheduled Monuments to the west, including Kirby Muxloe Castle, Rabbit Warren (Lubbesthorpe) and the Lubbesthorpe Medieval Settlement and designated assets to the north at Glenfield.

Hinckley (to the north west of the urban periphery) – Development here could potentially affect the character of several settlements and / or the setting of designated assets. For example at Glenfield and Anstey (which is in Charnwood).

OAN Growth projection: Option 1 focuses the highest amount of growth to the urban periphery. As identified above, there are areas of greater sensitivity where it is likely that heritage assets could be negatively affected by development. In particular, to the north-west, north and north-east, and to the east of the urban periphery. There is perhaps greater scope for growth to the south and south-east. At this scale of growth, it is more likely that multiple locations along the periphery would need to be developed and / or larger scale extensions to particular areas. Therefore, it would be more difficult to avoid negative effects. Overall a **major negative effect** is predicted.

Option 3 would have similar effects but ought to allow for slightly greater flexibility. Therefore, a **moderate negative effect** is predicted.

Option 5 & 6 are predicted to have a **minor negative effect** as flexibility ought to be greater still.

Options 2, 4 and the hybrid option could still have negative effects depending upon the location of development, but it would be much less likely to occur. Therefore, **neutral effects** are predicted.

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Higher Growth projection: At a higher growth projection, the effects would be exacerbated. Therefore, a **major negative effect** would remain for option 1. For option 3 a **major negative effect** is predicted. Option 5 is still predicted to have a **minor negative effect**, whilst option 6 is predicted to have a **moderate negative effect**. Options 2 and 4 are predicted to have a **minor negative effect**.

Market towns

All development surrounding the urban fringes would have to potential to impact upon the character of the market towns due to urban expansion. Some specific features are present at each of the individual market towns.

Hinckley

- There are numerous listed buildings within the urban area of Hinckley. Designated heritage assets are only present in some locations around the urban fringe.

Coalville

There are numerous listed buildings within the urban areas of Coalville. Designated heritage assets are also present at the urban fringe and at surrounding smaller settlements such as Ravenstone, Hugglescote and Swannington.

Loughborough

- There are numerous listed buildings within the urban areas of Loughborough. Designated heritage assets are also present at the urban fringe on all edges of the town.

Melton Mowbray

- There are numerous listed buildings within the urban area of Melton Mowbray. Designated heritage assets are only present in some locations around the urban fringe.

Market Harborough

- There are numerous listed buildings within the urban areas of Market Harborough and nearby Great Bowden. Designated heritage assets are only present in some locations around the urban fringe.

OAN Growth projection: Option 2 focuses a large majority of the housing needs for the HMA to the market towns (60% - 54,300). At this scale of growth the potential for negative effects is heightened, as there would be less flexibility in the choice of sites. This could be particularly problematic at Loughborough and Coalville in particular (given the potential for settlements to 'merge' and / or the setting of numerous listed buildings to be affected. A **major negative effect** is predicted overall.

Cultural Heritage

For option 3 a **moderate negative effect** is predicted, as the level of growth is still fairly substantial, but it should be possible to avoid significant effects at less sensitive locations. A **minor negative effect** is predicted for options 5 and 6. For option 1, the hybrid option and 4 (in particular) the effects are lower in magnitude and ought to be more manageable for the market towns. Therefore, **neutral effects** are predicted.

Higher Growth projection: The effects would be exaggerated at a higher scale of growth. For option 2, the effects at the market towns would be significant, and therefore a **major negative effect** is still predicted. For option 3, the effects are also predicted to be **major negative effects** due to the higher scale of growth. Options 5 and 6 are still predicted to have **minor negative effects**. Option 1 is now also predicted to have an **uncertain negative effect**, whilst option 4 is still at a low enough scale of growth to be considered a **neutral effect**.

Other settlements

There are numerous settlements throughout Leicestershire that have historic and cultural value. Due to the small scale of many of these settlements, they are particularly sensitive to change in their character and historic value. Many settlements also have centres that contain listed buildings. Development at the fringe of these settlements has the potential to affect the character of such heritage assets. The rural nature of many settlements means that there are numerous buildings of historic importance in the surrounding countryside too.

OAN Growth projection: Option 5 directs a large amount of growth to the 'other settlements'. This is predicted to have a **major negative effect** on the rural and historic character of villages across the Plan area, which are typically small, with historical value. Though there may only be minor or moderate negative effects in some locations, the cumulative effects are considered to be major. The likelihood of securing enhancements under this approach is also unlikely, and thus no positive effects are identified.

Options 1 & 6 direct 18,100 homes to 'other settlements', which means that growth would be lower scale, and / or there would be greater flexibility in site choice. This should allow for effects to be more easily avoided or managed. Therefore, only a **minor negative effect** is predicted.

For options 2, 3, 4 and the hybrid option, the level of growth proposed could still have some minor effects in certain settlements, but the overall picture across the Plan area would be broadly **neutral**. This level of growth (particularly for options 4 and the hybrid option) ought to be manageable.

Higher Growth projection: At the higher growth projection, the effects would be exacerbated. For option 5, a **major negative effect** remains, whilst for options 1 and 6 the effects rise to a **moderate negative effect**. For options 2 and 3 the effects rise to a **minor negative effects**, but for option 4 a **neutral effect** remains given that growth would still be lower than all other options (even at the OAN level of growth).

New / expanded settlements

Airport

- There are a number of listed buildings around Diseworth site 1 & 2, identified as potential opportunity areas near the airport.

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Stoney Stanton

- There are several listed buildings within the urban centre. However, as a small settlement, its character is sensitive to change.

Six Hills

- As a very small settlement with no designated heritage assets. There is no historic core or features of particular cultural interest.

Lutterworth

- Number of listed buildings. Also, Scheduled Monument - Bowl Barrow at Misterton- to the east of Lutterworth.

Ibstock

- Contains several listed buildings, some of which are on the urban fringe to the south.

Kibworth

- There are numerous listed buildings within the urban area and on the settlement fringes to the north. There is also a Conservation Area that extends to the urban fringe.

OAN Growth projection: Option 4 directs 50% of housing to new/expanded settlements. There would likely be mixed effects depending upon where growth was located and at what scale. Stoney Stanton for example has little cultural heritage and would be less sensitive to growth compared to existing settlements such as Lutterworth, Ibstock and Kibworth. Six Hills, is also not identified as a particularly sensitive location in terms of cultural heritage. Growth in existing settlements could however have an effect on the urban fringes, with a change to the rural character, and potential to affect the setting of several listed buildings. The scale of growth would make it difficult to avoid effects given that the setting of many buildings is reliant on open countryside. Consequently, option 4 is predicted to have different effects in different locations. For some new settlements neutral or minor effects are likely, whilst at existing settlements, moderate to major effects are possible. On balance a **minor negative effect** is predicted overall.

The hybrid option focuses growth along the A46 corridor area through to the Southern Gateway, which encompasses a number of settlements including Barkby, Beeby, Keyham, Houghton on the Hill, Stoughton, Great Glen, Kilby, Countesthorpe, Cosby, Stoney Stanton and Croft . These settlements all contain a number of listed heritage assets, and there are some isolated heritage assets in the rural areas between these settlements and the Leicester urban periphery. The effects of new settlements on the character of existing villages and hamlets are uncertain, as specific sites are not identified at this stage. However, there is certainly potential for growth to affect the setting of heritage assets, especially where these are reliant upon an open, rural setting. This is more likely to be the case where the gap between the urban periphery and nearby settlements is narrowed.

There ought to be enough flexibility in site choices and in the layout of developments to avoid sensitive areas, and to mitigate potential effects on heritage assets and to ensure that the cumulative effects of growth are not major. Nevertheless, a **moderate negative effect** is predicted.

Higher Growth projection: At a higher growth projection the effects of options 1-6 are likely to be exacerbated, and so a **moderate negative effect** is predicted for each option.

Cultural Heritage

Overall effects

Option 1 is predicted to have mixed effects across the Plan area. Due to a focus on the City and the urban periphery, moderate to major negative effects are recorded in these areas due to pressure on heritage assets and the character of settlements.

As there would be less development at the market towns and other settlements, the effects here are neutral or minor, which offsets the negatives at the Leicester urban periphery somewhat. There is also potential for positive effects in the City associated with regeneration. On balance for the Plan area as a whole, a **moderate negative effect** is predicted, alongside a **moderate positive effect**. At the higher growth projection, the effects in the City would rise to major, and would also increase at other settlements to moderate. This equates to a **major negative effect** overall for the entire Plan area

Option 2 is predicted to have mixed effects across the Plan area. Due to a heavy focus on the market towns, major negative effects are predicted here. However, the effects at the urban periphery and in other settlements would be neutral, and those in the City would only be minor. Overall, due to the large amount of growth at the market towns, the effects across the Plan area overall are considered to be a **moderate negative effect**. Due to greater potential for enhancement in the City a **minor positive effect** is also recorded. At the higher growth projection the effects would be higher still in the market towns, whilst minor effects would also arise in the urban periphery and other settlements. Consequently, a **major negative effect** is predicted. The **minor positive effects** in the City are likely to remain.

Option 3 is predicted to have mixed effects across the Plan area. The spread of growth between the urban periphery and market towns is fairly high, and so moderate negative effects are predicted here. However, the effects in the City and other settlements would be lower than option 1 which focuses on the Leicester urban periphery. On balance a **moderate negative effect** is predicted for the Plan area as a whole, along with the **minor positive effect** generated in the City. At the higher growth projection, the negative effects would be increased in the urban periphery and market towns in particular and so a **major negative effect i**s predicted. The **minor positive effects** would remain.

Option 4 is predicted to have mainly neutral effects across the Plan area. However growth in the City could still lead to minor negative effects and a minor positive effect. Whilst there would be substantial growth at new/expanded settlements, it is considered likely that this would have minor effects in some settlements. Therefore, only a minor effect is predicted overall. Consequently, the overall effects for the Plan area are predicted to be a **minor negative effect** for option 4. A **minor positive effect** is still recorded for benefits in the City. At the higher growth projection, the negative effects at the new/expanded settlements rise to a moderate negative, whilst minor negative effects also emerge at the urban periphery. Consequently, a **moderate negative effect** is predicted for the Plan area as a whole. The **minor positive effects** at the City are still recorded.

Option 5 is predicted to have mainly negative effects across the Plan area. These are only minor in the City, urban periphery and market towns, but major at the 'other settlements'. Given that a large amount of growth is focused on the 'other settlements', a **major negative effect** is predicted for the Plan area overall. Though the effects elsewhere are lower, they are still negative, and so the overall picture is worse than for the other options. A **minor positive effect** is recorded for benefits in the City. At the higher growth projection the effects are exacerbated across the Plan area, though not leading to a change in any of the scores.

Option 6 is predicted to have mainly negative effects across the Plan area, with more prominent negative effects in the City. Overall a **moderate negative effect** is predicted for the Plan area. A **moderate positive effect** is also predicted to account for more opportunities for enhancement in the City.

Cultural Heritage

At the higher growth projection, the negative effects are increased in the City to major, as well as rising to moderate negatives in the urban periphery and other settlements. This is considered to be a **major negative effect** for the HMA overall. A **moderate positive effect** would remain though.

The hybrid option is predicted to have both **minor positive effects** and **minor negative effects** on heritage. On one hand, development at new / expanded settlements could potentially affect the setting of heritage assets in the countryside and / or affect the character of small settlements along the A46 corridor and in the Northern and Southern Gateways. There could also be minor negative effects in the City. However, growth in the City also presents opportunities to enhance heritage assets that are currently in poor condition. The avoidance of negative effects across much of the Plan area is also a positive factor.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	×× / ✓✓	×××	-	×	-	×× / ✓✓
Leicester urban periphery focus	1b	××× / ✓✓	×××	?	××	-	××× / ✓✓
Option 2	2a	× / ✓	-	×××	-	-	×× / ✓
Market town focus	2b	× / ✓	×	×××	×	-	××× / ✓
Option 3	3a	× / ✓	××	××	-	-	×× / ✓
Employment-led	3c	× / ✓	×××	×××	×	-	××× / ✓
Option 4	4a	× / ✓	-	-	-	×	× / ✓
New settlements	4b	× / ✓	×	-	-	××	×× / ✓
Option 5	5a	× / ✓	×	×	×××	-	××× / ✓
Dispersal	5b	× / ✓	×	×	×××	-	××× / ✓
Option 6	6a	×× / ✓✓	×	×	×	-	×× / ✓✓
Trends	6b	××× / ✓✓	××	×	××	-	××× / ✓✓
Hybrid Option		× / ✓	-	-	-	××	× / ✓

5.10 Appraisal findings: Water

5.10.1 The findings relating to the Sustainability Topic 'Water' are presented in the following tables.

Water

Discussion of effects

Water supply is generally good across the whole of the plan area, with some capacity to expand, but in some areas this is only at low flows. With regards to water resources, Severn Trent Water identifies that several areas are under moderate water stresses. In the longer term, Severn Trent Water recognises that, future supply/demand pressures will lead to a need for additional water resources and treatment capacity.

The whole of the Leicester and Leicestershire county area is designated as a nitrate vulnerable zone for surface water.

Climate change is likely to increase the risk of flooding within low-lying areas of Leicester and Leicestershire, and may also affect availability during warm and dry periods. There is therefore a need to maintain and upgrade flood defences, especially in areas which are currently susceptible to flood events, and to adopt sustainable drainage systems into new developments.

City

- Climate predictions indicate a potential increase of flood events (2016).
- The River Soar is susceptible to flooding.
- Infrastructure needs to be assessed against additional demand (2016).
- Biological river quality classified as good in 2009, which was an improvement from 2006.
- Chemical river quality classified as fair in 2009, with no change from 2006.
- To the north-west of the City's urban area there is a Eutrophic Nitrate Vulnerable Zone.

OAN Growth projection: Option 6, closely followed by option 1 could have negative effects in terms of the risk of fluvial and surface water flooding within the City. Some sites are unlikely to be within flood zones, but others may fall into areas of risk. Whilst the sequential approach would be taken, it is more likely at a higher scale of growth that site choice would be reduced. Therefore, the potential for negative effects is higher. There is also the potential for higher rates of surface water run-off overall in the City if more land is hard-surfaced. However, brownfield sites could actually provide opportunities to improve rates of run off by introducing SUDs. The use of sustainable drainage systems should also help to manage some of the effects of flooding; though in the City, there would be less space for natural drainage systems. Overall, a minor effect is predicted with regards to flood risk. Development could also have the potential to put further pressures on water supply and treatment facilities within the city. However, it is assumed that there would be investment in upgrading the current water management infrastructure. Overall a **minor negative effect** is predicted for options 1 and 6.

Options 2, 3, 4 & 5 propose growth at a lower scale within the city boundary; therefore the effects on the water network would be less significant. 10% growth across

Water

the whole City is more likely to be accommodated by infrastructure, as it isn't at maximum capacity at present.

However, there would likely be higher stresses in the longer term resulting from climate change.

With regards to flood risk, there ought to be greater flexibility and choice in sites, and the likelihood of changes to surface water run-off ought to be lower. Consequently, a **neutral effect** is predicted at this level of growth. The same is the case for the hybrid option despite a slightly higher level of growth (10,450).

Higher Growth projection: The higher growth option would exacerbate the effects due to a further 20% growth in housing through all options. Option 6 and option 1 could have the potential to have **moderate negative effects** on the city in relation to water, due to further increased pressures on the water supply, along with increasing the risks/consequences of flooding. For options 2, 3, 4 & 5 **minor negative effects** are predicted.

Urban periphery

- The majority of the urban periphery falls within Flood Zone 1, though there are pockets to the south that sit within flood zones 2 & 3 and a larger stretch of land subject to flooding in the north surrounding the River Soar.
- Flood plains particularly concentrated around the River Sence (2014) to the south of the urban periphery. Rothley Brook also has the potential for flood risk along the northern periphery, though to a lesser extent.
- The main length of the River Sence from Burton Brook to Countesthorpe Brook has moderate overall physical chemical quality (2009).

OAN Growth projection: Option 1 aims to deliver 40% growth to Leicester City urban periphery. Given the availability of land around the periphery that is not at risk of flooding, it ought to be possible to avoid locating development in areas of flood risk. The greenfield nature of many sites should also allow for green infrastructure and sustainable drainage systems to be incorporated. This would help manage any increases in surface water run-off. Overall, the effects on flooding ought to be neutral, but there is uncertainty as this level of growth may require development in areas of greater flood risk. However, this level of growth could put pressure on water supply and treatment infrastructure in the area, as well as potentially affecting the water quality of watercourses (through pollution in run-off, increased effluents etc.). Given that much of the land available for development consists of farmland, it is possible that pollution resulting from existing farming activities would be reduced through a change in land use. This could offset the potential negative effects on water quality. However, pressures on supply and treatment could remain at this level of growth. Overall, a **moderate negative effect** is predicted.

Options 3 aims to deliver 30% growth (27,150 homes). This would have similar effects to option 1, but at a lower magnitude. The potential for effects from flooding would be lower, as there would be greater flexibility in the choice of locations. The overall pressure on water infrastructure and water quality would also be lower, and thus a **minor negative effect** is predicted overall.

Options 5 & 6 aims to deliver 20-25% growth to the city boundary. The effects are considered to still be **minor negative (uncertain) effects** at this level of growth.

Options 2 & 4 aim to deliver 15% growth which ought to be much easier to accommodate without major infrastructure upgrades. The likelihood of development being on sites at risk of flooding would also be much lower. Therefore, a **neutral effect** would be predicted.

Water

The hybrid option delivers the lowest level of growth, but the cumulative effect of growth along the A46 corridor could potentially affect water quality in this area, so a **minor negative effect** is predicted.

Higher Growth projection: At the higher growth projection, option 1 which aims to deliver 43,440 new homes to the City boundary, could put greater pressures on water supply and water treatment facilities. There would also be greater potential for areas at risk of flooding to be developed given the increased demand for land. Consequently, a **major negative effect** is predicted. The effects for the other options would similarly be increased, and so option 3 is predicted to have a **moderate negative effect**. Though the effects would be greater in magnitude for options 5 and 6, the effects are predicted to remain minor. For options 2 and 4, an **uncertain minor negative effect** is predicted.

Market towns

There is a history of flooding within Leicestershire, with significant events occurring in 2012 and 2013, as defined in the Leicestershire Local Flood Risk Strategy. The strategy has also identified that any settlement that has more 100 properties shown to be at risk of surface water flooding have been classed as a 'priority settlement'. There are forty areas that have been classed as a priority settlement across Leicestershire. This includes the following settlements in the 'top ten': Loughborough (as the most at risk), Blaby, Narborough and Whetstone, Market Harborough, Wigston, Melton Mowbray, Hinckley and Burbage and Oadby.

Hinckley

- Parts identified as a priority settlement for surface water flooding.
- There are areas of land designated within flood zone 2 and 3 running through the middle of the town.

Coalville

- There is a small area lying to the south of the town that falls within flood zone 2/ 3, however it does not meet the criteria to be a priority settlement for surface water flooding.

Loughborough

- Identified in parts as a priority settlement for surface water flooding.

Melton

- Identified in parts a priority settlement for surface water flooding.
- Flood zones 2 and 3 cover approximately 60 ha of the borough, with areas running through Melton Mowbray itself.
- Groundwater Nitrate Vulnerable zones are also present in parts of Melton Mowbray.
- The River Wreake had very high levels of phosphates and nitrates (2009)

Market Harborough

- Identified in parts as a priority settlement for surface water flooding.
- The majority of land around the settlement of Market Harborough falls into Flood Zone 1.

Water

- The Environment Agency data (2014) demonstrates that across the district there are only two watercourses with good ecological status, both of which are canals. 10 watercourses have a 'moderate' status, 9 'poor' and 7 'bad'.

OAN Growth projection: Several of the market towns identified to accommodate further growth within the Plan area have been identified as 'priority settlements' for surface water flooding. There are also substantial areas of flood zone 2 and 3 to the east of Loughborough and running through Melton Mowbray. No sites have been allocated for development at this stage therefore it is hard to determine if development will have a direct impact on areas that are subject to flooding in these market towns. However, the scale of development through option 2, to deliver 10,080 homes across each market town could be anticipated to have negative effects by placing new development in areas of flood risk (less so for Market Harborough, Coalville and Hinckley, more so for Loughborough and Melton Mowbray). It should be possible to mitigate these effects somewhat given that development would likely be on large greenfield sites that should be able to accommodate SUDs. However, minor negative effects could remain depending upon the exact location and design of developments. With regards to water quality much of the land available for development consists of farmland, so it is possible that pollution resulting from existing farming activities would be reduced through a change in land use. This could offset the potential negative effects on water quality from development. However, pressures on supply and treatment could remain. Overall, a **moderate negative effect** is predicted at this scale of growth.

At a lower scale of growth, the effects are similar, but of a lower significance. Therefore, option 3 could is predicted to have **minor negative effects** on the water environment. Options 5 & 6 aim to deliver 30% growth through market towns (approx. 5,430 homes per town). This level of growth is still fairly substantial and so **minor negative effects** are predicted. Options 1 & 4 (15-20% growth) would have the least effects on water as they would provide greater flexibility in housing, as well as reducing pressure on infrastructure. Consequently a **neutral effect** is predicted.

The hybrid option proposes the same level of growth as option 1, and therefore, **neutral effects** are predicted.

Higher Growth projection: The higher growth projection would further increase the number of homes delivered within the plan area. Option 2 would need to accommodate 65,160 (60%) at the market towns, which could be difficult to manage without major infrastructure upgrades. There may also be a greater likelihood of development being at risk of flooding and / or contributing to flood risk elsewhere. Consequently a **major negative effect** is predicted. The effects would also be exacerbated for the other growth options. For option 3, there would be 48,870 (45%) homes directed to the market towns which would have a **moderate negative effect** on the water environment. Options 5 & 6 aim to deliver 32, 580 additional homes across the market towns, which is predicted to have a **moderate negative effect**. Options 1 & 4 (15-20%) aim to deliver 16,290-21,720 homes in total across the 5 market towns. For option 1 a **minor negative effect** is predicted; whilst for option 4 the effects could stay **neutral.**

Other settlements

Flood risk across the Plan area varies from settlement to settlement, and it is therefore difficult to accurately predict the likely effects of a dispersed approach. However, the majority of 'other settlements' across the County do contain areas of land that are within Flood Zone 1, and are not at significant risk of surface water flooding. Therefore, overall, it ought to be possible to avoid significant effects associated with flooding in most locations, even at higher scales of growth.

Development on agricultural land could also help to reduce pollution from agricultural practices. However, increased pressure on water supply/waste water treatment

Water

would be likely, and it may be more difficult to achieve efficient upgrades to infrastructure with a more dispersed pattern of growth.

OAN Growth projection: Option 5 (40%) directs a substantial portion of housing to 'other settlements'. This increases the possibility of flood risk in some areas, but the effects are likely to be minor overall. It also ought to be possible to incorporate mitigation measures and SUDs into developments, but these would be less likely to be strategic improvements given the smaller scale of development sites likely to be involved. With regards to water infrastructure, a negative effect is predicted, as a dispersed approach could lead to local pinch points in the system that would require upgrading, as well as overall upgrades to the wider network. This would be less efficient and more difficult to implement. Overall, a **minor negative effect** is predicted as this should avoid significant effects in any one location, but might lead to difficulties in managing infrastructure.

Options 1 & 6 (20%) aim to deliver 21,720 homes to each of the other identified settlements. The effects would be similar to those identified above, but at a lesser scale. Therefore an **uncertain minor negative effect** is predicted.

Options 2, 3, 4 and the hybrid option (10-15%) are predicted to have **neutral effects** as the level of growth would provide greater flexibility in site choice (to avoid flooding) and would put much less pressure on infrastructure in rural areas.

Higher Growth projection: Further 20% growth across all the 6 options is likely to increase the likelihood of development occurring in close proximity to flood risk areas. Increased growth would also increase the amount of pressure on the water network. For option 5, a **moderate negative effect** is predicted. For options 1 and 6 there is greater certainty of negative effects occurring, and thus a **minor negative effect** is predicted. An **uncertain negative effect** is also predicted for options 2 and 3, whilst option 4, which would still have the lowest scale of growth, would be **neutral**.

New / expanded settlements

Lutterworth / Ibstock / Kibworth - There are small areas within and around the settlements that lie within Flood Zones 2 and 3.

Airport - Much of the land located near to the airport is within Flood Zone 2/3.

Six Hills - Land in this area is mostly Flood Zone 1.

East of Loughborough - Much of the land located to the east of Loughborough falls within Flood Zones 2/3.

Stoney Stanton - Land in this area is mostly Flood Zone 1.

With regards to flood risk, development at new / expanded settlements would differ depending on the location (see above). In some locations, development would most certainly falls within or adjacent to areas of Flood Zone 2/3, and so there would be a need for thorough mitigation. In other locations, flood risk would be unlikely to be a major constraint. Similar to growth under the other approaches, most of the land involved would be agricultural, which could lead to improvements in terms of pollution from surface water run-off. Large-scale concentration of growth into these locations would put further pressure on water infrastructure though. This could require new or upgraded facilities. On a strategic level, the whole region is under moderate pressure and in order to accommodate further growth then the water network would also have to undergo significant growth.

Water

OAN Growth projection: Option 4 aims to deliver 50% of strategic growth to new/expanded settlements. This is likely to have either neutral or potentially up to major negative effects in terms of flood risk, dependent upon each location for growth. There could also be potential moderate negative effects associated with water infrastructure, though effects on water quality due to run-off pollutants may improve as a result in a change of land-use. On balance, a **moderate negative effect** is predicted taking account of these factors together. All other options are predicted to have **neutral effects** as no growth is proposed.

The hybrid option would direct growth to areas that are mostly within Flood Zone 1 (along the A46 corridor and the Southern Gateway). However, the Northern Gateway contains areas that are at a high risk of fluvial flooding. Whilst there may be pockets of surface water flooding to contend with, the strategic nature of sites that are likely to be developed ought to allow for green infrastructure/SUDs enhancements. Therefore, effects on flood risk are not anticipated to be major. However, the increase in development would lead to greater pressure on supply and treatment networks as well as generating pathways for pollution to reach watercourses. These effects ought to be possible to mitigate though, but infrastructure planning will be critical. A change in use from agricultural land at many sites could also contribute to a reduction in the run-off of nitrates, which could be a benefit for water quality. On balance, the overall effects are predicted to be **minor negative** at this stage. With good design and planning however, it is likely these effects could be neutralised.

Higher Growth projection: At 20% higher growth, the effects would be exacerbated, and so a **major negative effect** is predicted.

Overall effects

Option 1 is predicted to have mixed effects on water across the Plan area. Growth in and around the City could have negative effects on water infrastructure as well as increasing flood risk, but the effects would only be minor in the city. There may also be negative effects in 'other settlements' due to water infrastructure, though these are only likely to be minor should they occur. Overall a **minor negative effect** is predicted. At a higher scale of growth, the effects would be more substantial all across the Plan area, but particularly at the Leicester urban periphery and the City itself. Consequently, a **major negative effect** is predicted.

Option 2 is predicted to have mostly neutral effects on water across the Plan area, but the effects in the market towns would be moderately negative. Overall a **minor negative effect** is predicted. Though moderate negative effects are recorded for the market towns, and this constitutes a large portion of growth (60%), the neutral effects in all other locations offset these effects somewhat. At the higher growth projection, the negative effects increase to major in the market towns, but also start to arise in the City and potentially at the urban periphery and other settlements. Consequently, a **major negative effect** is predicted.

Option 3 is predicted to have neutral effects in the City and at other settlements, and a minor negative effect at the urban periphery and the market towns. Overall the effect across the Plan area is predicted to be a **minor negative effect**. At the higher growth projection the negative effects would be exacerbated and so a **moderate negative effect** is predicted

Option 4 is predicted to have mostly neutral effects across the Plan area. However, major negative effects are predicted at the new/expanded settlements due to some locations being likely to increase flood risk, and pressure on infrastructure. Though 50% of growth would be accommodated at new settlements, the rest would have mostly neutral effects, which somewhat offsets the major negative effects at the new/expanded settlements. Therefore, the overall effect is predicted to be a **moderate negative effect**. At the higher scale of growth the effects are likely to remain neutral for the majority of the Plan area, with the exception of the City. Though

Water

the effects would remain major at the new / expanded settlements the overall effects are predicted to be **moderate negative effects**.

Option 5 is predicted to have negative effects across much of the Plan area, though these are only minor in nature. These are associated mainly with increased pressure on infrastructure rather than flooding. Overall a **minor negative effect** is predicted. At the higher growth projection the effects rise across the Plan area, with moderate negative effects identified for the market towns and other settlements. This is considered to be a **major negative effect** overall.

Option 6 is predicted to have similar effects to option 5, though there would be greater negative effects in the City and slightly lower effects at the 'other settlements'. On balance a **minor negative effect** is predicted. At the higher growth projection the effects rise across the Plan area resulting in a **major negative effect**.

The hybrid option is predicted to have a **minor negative effect** overall, reflecting the potential for some development to be in areas at risk of flooding and an increase in the demands on water treatment infrastructure.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	×	××	-	?	-	×
Leicester urban periphery focus	1b	××	×××	×	×	-	×××
Option 2	2a	-	-	××	-	-	×
Market town focus	2b	×	?	×××	?	-	×××
Option 3	3a	-	×	×	-	-	×
Employment-led	3c	×	××	××	?	-	××
Option 4	4a	-	-	-	-	×××	××
New settlements	4b	×	-	-	-	×××	××
Option 5	5a	-	?	×	×	-	×
Dispersal	5b	×	×	××	××	-	×××
Option 6	6a	×	?	×	?	-	×
Trends	6b	××	×	××	×	-	×××
Hybrid Option		-	×	-	-	×	×

5.11 Appraisal findings: Minerals

5.11.1 The findings relating to the Sustainability Topic 'Minerals' are presented in the following tables.

Minerals

Discussion of effects

Leicestershire is a mineral rich County, and one of the principal producers of minerals within England, particularly with regards to igneous rock. Many of the active mineral extraction sites are located, or have previously been located, within the north-western areas of the County as governed by naturally occurring geology. There are also areas of active and previously active mineral sites in the south-west of Leicestershire. Igneous rocks are currently extensively worked in and around Charnwood Forest in Leicestershire, producing in excess of 10 million tonnes of aggregate each year. The quarry at Mountsorrel is one of the largest aggregate quarries in the UK. Rocks quarried also include intrusive igneous rocks and Charnian volcaniclastic sediments, much of which is then exported around England. Small quarries which extract Carboniferous Limestone are located in the north- west of Leicestershire at Breedon Hill and Cloud Hill. The Marlstone Rock Formation has been extensively quarried for Iron ore in the area surrounding Holwell, also north of the county. Concentrations of red and green mudstones, siltstones and sandstones are found in west Leicestershire, where associated brick quarrying takes place. There is a continuing demand for open-cast coal mining, although this has significantly declined since the 1990s. There are relatively few applications for deep-cast coal mining within the region. No safeguarded minerals sites have yet been identified in the County, although work is progressing on this for the County.

City:

OAN growth projection: With regards to the City, all options will have some effect on the demand for materials, although it is not clear at this stage as to the level of locally extracted minerals that would be involved in the development of the area. Assuming that a significant level of minerals are locally extracted are used in constructing the future growth of the area, option 1 (20% - 18100 homes) and option 6 (25% - 22625 homes) would place the most significant demand on mineral resources, whilst the impact arising from options 2, 3, 4, and 5 (10% - 9,050 homes) would be lower. However, as there are no current or proposed Mineral Safeguarding Areas (MSA) within the city boundary, development within this area is not expected to sterilise potential resources and increased levels of development within the City would be considered to have the a positive effect on minerals in this respect. With this in mind, higher development levels would in theory lessen the pressures on Mineral Safeguarded Areas elsewhere and therefore option 1 (20% - 18100 homes) and option 6 (25% - 22625 homes) are predicted to have a **minor positive effect** on minerals. The effects arising from options 2, 3, 4, and 5 (10% - 9,050 homes) would be lower, and less likely to help safeguard minerals elsewhere. Therefore, a **neutral effect** is predicted for each option. The hybrid option is predicted to have the same effects despite a slightly higher level of growth (10,450).

Higher growth projection: Increased levels of development within the City delivered through options 1 and 6 would continue to have a positive effect on minerals in terms of diverting growth to areas where sterilisation of minerals is less likely. However, an overall increase in the level of growth would be likely to lead to an increased demand for minerals overall. A mixed effect is predicted with a **minor positive effect** (relating to the avoidance of Minerals Safeguarded Areas) and **minor negative effect** (relating to the overall increase in demand for minerals). For all other options, there would also be an increase in minerals demand, but this would be relatively modest and so a **neutral effect** remains.

Minerals

Urban periphery:

OAN growth projection: As with all other potential growth areas, all options will have some effect on the demand for materials, although it is not clear at this stage as to the level of locally extracted minerals that would be involved in the development of the area. There are reserves of sand and gravel to the south and east of the urban periphery that could potentially be affected by development. Though this would depend on the precise location of development, it would perhaps be more likely at higher levels of growth. Option 1 (40% - 36,200 homes) and option 3 (30% - 27,150 homes) would place the most demand on mineral resources, and some of the development locations could be in areas containing sand and gravel resources. Whilst growth to the urban periphery is likely to help avoid Minerals Safeguarded Areas in other parts of the Plan area, at these higher levels of growth, some could be affected. On balance, a **minor positive effect** is predicted.
Options 6 (25% -22,625 homes) and 5 (20% - 18,100 homes) would also have potential for a **minor positive effect** through avoidance of Minerals Safeguarded Areas, and be less likely to encroach upon reserves at the urban periphery compared to options 1 and 3. The options that would have **neutral effects** are options 2 and 4 (15% - 13,575 homes). Whilst growth at the periphery could help draw it away from other areas that may contain mineral reserves, it would only be at a small scale.

The hybrid option involves a very low level of growth, and so **neutral effects** are predicted.

Higher growth projection: The effects of the higher growth projection compared to the OAN are similar. Though there would be an overall increase in the level of minerals demand, it is considered that this would not lead to a change in the significance of effects, either positive or negative.

Market towns:

OAN growth projection: As with all other potential growth areas, all options will have some effect on the demand for materials, although it is not clear at this stage as to the level of locally extracted minerals that would be involved in the development of the area.

All of the market towns are within districts are surrounded by MSAs for a number of minerals, but principally sand and gravel resources and igneous rock. Charnwood, which Loughborough lies in, also has an extensive area of gypsum that is proposed to be safeguarded. Alongside sand and gravel and igneous rock, North West Leicestershire has areas of Limestone and Clays that are also proposed for safeguarding, which could be affected by proposed growth options in Coalville. Melton also has a significant area of Limestone proposed as a MSA, although this is some distance from the town and therefore may not be affected by growth proposals within this district. Therefore, distributing a significant level of growth amongst the five market towns would have a potential negative impact on the mineral resources and proposed MSAs.

Dependent on the levels of locally extracted minerals used in the future growth of the area, option 2 (60% -54,300 homes) and option 3 (45% - 40,725 homes) could have a **moderate negative effect** on mineral resources. At these levels of growth, it may be more likely that land safeguarded for minerals would be encroached upon (though this does not necessarily means that workable reserves of minerals would be affected). For options 5 and 6 (30% - 27,150 homes), which involve lower levels of growth, **minor negative effects** are predicted. Those growth options with the least effect are options 1 and 7 (20% -18,100 homes), and option 4 (15% - 13,575 homes). It ought to be possible to avoid areas of minerals safeguarding more easily at this level of growth and thus the effects are predicted to be **neutral**.

Minerals

Higher growth projection: The effects of the higher growth projection compared to the OAN are similar, although the increase in option 2 (65,160 homes) would risk increasing the effect to a **major negative effect** given the pressure on land surrounding the market towns. There would also be an overall increase in the demand for minerals. It is not considered there would be an increase in the significance of effects for any of the other options.

Other settlements:

OAN growth projection: As with all other potential growth areas, all options will have some effect on the demand for materials, although it is not clear at this stage as to the level of locally extracted minerals that would be involved in the development of the area.

Dependent on the levels of locally extracted minerals used in the future growth of the area, whichever growth strategy is proposed, there is likely to be effects upon minerals. Though the precise location of development is not known at this stage, a dispersed pattern of growth could potentially affect areas safeguarded for minerals resources. Option 5 (40% - 36,200 homes) would have the most potential for negative effects, as it directs a large portion of overall needs to more rural areas, that could coincide with mineral resources. As such, a **moderate (but uncertain) negative effect** is predicted for option 5. The effects for options 1 and 6 (18,100 homes) are considered to be less likely to occur, and if so at a lower magnitude, therefore a **minor (but uncertain) negative effect** is predicted. Whilst options 2 and 3 (15%-13,575 homes), options 4 and 7 (10% - 9,050 homes) would distribute some growth to the more rural areas, the likelihood of affecting minerals and the magnitude of effects is low. Therefore, a **neutral effect** is predicted.

Higher growth projection: The effects of the higher growth projection compared to the OAN are similar; therefore it is not considered there would be an increase in the significance of effects, either positive or negative. However, the overall increase in growth is likely to put more pressure on minerals.

New / expanded settlements:

Some of the opportunity areas for expansion or new settlements would be unlikely to affect mineral resources (e.g. Six Hills, Kibworth). However, other locations could potentially affect known mineral resources such as at Stoney Stanton, and to the east of Loughborough (Sand and gravel). Mixed effects are therefore likely to occur, and there will be some uncertainty (as per the other options) regarding the precise location of development.

OAN growth projection: Option 5 (and the hybrid option) are the only options that suggests housing provision through a focus on new and expanded settlements. Therefore, this option of 50% of housing provision (45,250 homes) has the potential to have negative effects on mineral resources and reserves. Given that some opportunity areas would avoid mineral resources, and others could potentially be pressured, the overall effect is predicted to be an **uncertain minor negative effect**. All other options are recorded as having **neutral effects** as no growth is proposed.

Higher growth projection: The effects of the higher growth projection compared to the OAN are similar. However, the overall increase in the scale of growth could lead to **minor negative effects** with a greater degree of certainty.

Minerals

Overall effects

For all options, the impact on mineral reserves is dependent on the levels of levels of locally extracted minerals used in the future growth of the area, something that cannot be established at this time, but can be influenced by Local Plan policy.

Option 1 which focuses on delivering a majority of the development in the City, and the urban periphery should help to protect mineral resources by avoiding sterilisation of mineral resources, compared to dispersed development which would generally risk a greater impact on minerals. However, there would still be growth at 'other settlements' which could lead to potential negative effects. Overall, the effects of this approach are considered to be neutral taking into account the effects across the Plan area as a whole. At a higher level of growth, the overall increase in demand for minerals is recorded as a **minor negative effect**.

Option 2 focuses much of the growth to the market towns, which are mostly surrounded by areas of sand and gravel resources. At the high level of growth proposed it is likely that moderate negative effects would occur here. The effects would be tempered somewhat by neutral effects in other locations across the Plan area. On balance a **minor negative effect** is predicted overall. At the higher growth projection, the effects of increased mineral demand constitutes a **moderate negative effect** overall.

Option 3 also focuses housing to the market towns (though less than option 2), which could potentially have an effect on minerals resources / potential safeguarded areas. However, it also focuses growth at an amount at the urban periphery that ought to avoid effects on minerals. Effects on safeguarded minerals elsewhere are unlikely to occur. Overall, a **neutral effect** is predicted. At the higher growth projection, the effects of increased mineral demand constitute a **minor negative effect**.

Option 4 is predicted to have neutral effects in most parts of the Plan area due to the low levels of growth and likelihood of being able to avoid sterilising mineral resources. Substantial growth is proposed at new or expanded settlements though, and some of these could involve effects on minerals. Due to the magnitude of growth in these areas, the effects are considered to be minor, but uncertain as growth in some areas could have effects and others not. At the higher growth projection, the effects of increased minerals demand constitute a **minor negative effect**.

Option 5 is predicted to have a **minor negative effect** overall. This is due to the potential for negative effects in the 'other settlements' and minor effects associated with growth at the market towns. Effects elsewhere would be mostly neutral though. At the higher growth projection, the effects of increased minerals demand constitute a **moderate negative effect**, and could also increase the risk of minerals sterilisation in 'other settlements' due to the greater requirement for land.

Option 6 would have positive effects by directing growth to the City, which would avoid areas safeguarded or earmarked for minerals safeguarding. There would be neutral effects in the Leicester urban periphery, but minor negative effects associated with development in market towns and 'other settlements'. On balance this constitutes a potential minor negative effect. At the higher growth projection, the effects of increased minerals demand constitute a **minor negative effect** overall.

The Hybrid Option is likely to have **uncertain negative effects** on minerals resources across much of the Plan area. The greatest potential for effects upon Mineral Safeguarded Areas relates to development at new / expanded settlements, some of which fall within areas with potential sand and gravel resources. However, reserves across the County are likely to be avoided in the main and it should be possible to avoid sterilisation.

Minerals							
		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓	✓	-	×?	-	-
Leicester urban periphery focus	1b	✓/×	✓	-	×?	-	×
Option 2	2a	-	-	××	-	-	×
Market town focus	2b	-	-	×××	-	-	××
Option 3	3a	-	✓	××	-	-	-
Employment-led	3c	-	✓	××	-	-	×
Option 4	4a	-	-	-	-	?	?
New settlements	4b	-	-	-	-	-	×
Option 5	5a	-	-	×	××?	-	×
Dispersal	5b	-	-	×	×××?	-	××
Option 6	6a	✓	-	×	×?	-	?
Trends	6b	✓/×	-	×	×?	-	×
Hybrid Option		-	-	-	-	?	?

6 Alternatives appraisal: Summary of effects

6.1 Introduction

6.1.1 Table 6.1 below presents the overall scores recorded for all twelve of the original reasonable alternatives (i.e. the six distribution options at both scales of growth).

6.1.2 These effects have been drawn together from the detailed assessments presented in Section 5. The overall scores represent a summary of effects for the whole Plan area, which takes account of how the options could have different effects in different parts of the City/County.

6.1.3 First, a discussion of the distribution options is presented in the context of the OAN growth projection. This is followed by a discussion of the effects assuming a 20% increase in growth for each of the options (excluding the hybrid option).

6.1.4 The hybrid option was only assessed at the 'preferred' level of growth, to allow for comparison with the original six distribution options at that scale. The Strategic Planning Group had already ruled out the higher scale of growth at this stage based upon previous iterations of the appraisal (and other evidence).

Table 6.1 *Summary of appraisal scores for each option at both scales of growth*

		Biodiversity	Health & wellbeing	Housing	Economy	Transport	Climate change	Landscape and land	Heritage	Water	Minerals
Option 1	1a	×	✓✓✓××	✓✓	✓✓	✓✓/×	✓ / ?	×	×× / ✓✓	×	-
Urban periphery	1b	××	✓✓✓×××	✓✓✓	✓✓✓/×	✓✓/××	✓ / ×	×××	××× / ✓✓	×××	×
Option 2	2a	××	✓✓××	✓✓	✓✓ / ×	✓✓/××	✓✓	×	×× / ✓	×	×
Market town focus	2b	×××	✓✓×××	✓✓	✓✓✓/××	✓✓/×××	✓	×××	××× / ✓	×××	××
Option 3	3a	×	✓✓✓××	✓✓✓	✓✓✓/×	✓✓/××	✓✓	××	×× / ✓	×	-
Employment-led	3b	××	✓✓✓×××	✓✓✓	✓✓✓	✓✓/×××	✓	×××	××× / ✓	××	×
Option 4	4a	×	✓✓××	✓✓	✓✓	✓/××	✓	×	× / ✓	××	?
New settlements	4b	××	✓✓✓×××	✓✓	✓✓✓/×	✓/×××	-	××	×× / ✓	××	×
Option 5	5a	×?	✓✓✓×	✓✓✓	✓✓/×	✓/×××	×	×××	××× / ✓	×	×
Dispersal	5b	××?	✓✓✓××	✓✓✓	✓✓/××	✓✓/×××	××	×××	××× / ✓	×××	××
Option 6	6a	×	✓✓✓×	✓✓	✓✓	✓/×	✓ / ?	××	×× / ✓✓	×	?
Trends	6b	××	✓✓✓××	✓✓✓	✓✓✓/×	✓/××	- / ×	×××	××× / ✓✓	×××	×

6.2 Discussion of the options under growth scenario A (90,500 homes)

6.2.1 Table 6.2 below sets out the effects for the hybrid option and the six reasonable alternatives (at this scale of growth) that were appraised prior to the preferred approach being established.

6.2.2 Although the hybrid option is broadly the same as Option 4a (in terms of the numbers distributed to the different spatial areas), there are differences in the assumptions about the location of 'new settlements'. Therefore it is useful to compare how the hybrid option performs compared to the original spatial options.

Table 6.2 *Summary of appraisal scores for each option at the OAN growth projection (90,500 homes)*

		Biodiversity	Health & wellbeing	Housing	Economy	Transport	Climate change	Landscape and land	Heritage	Water	Minerals
Option 1 *Urban periphery*	1a	×	✓✓✓××	✓✓	✓✓	✓✓/×	✓ / ?	×	×× / ✓✓	×	-
Option 2 *Market town focus*	2a	××	✓✓××	✓✓	✓✓ / ×	✓✓/××	✓✓	×	×× / ✓	×	×
Option 3 *Employment-led*	3a	×	✓✓✓××	✓✓✓	✓✓✓/×	✓✓/××	✓✓	××	×× / ✓	×	-
Option 4 *New settlements*	4a	×	✓✓××	✓✓	✓✓	✓/××	✓	×	× / ✓	××	?
Option 5 *Dispersal*	5a	×?	✓✓✓×	✓✓✓	✓✓/×	✓/×××	×	×××	××× / ✓	×	×
Option 6 *Trends*	6a	×	✓✓✓×	✓✓	✓✓	✓/×	✓ / ?	××	×× / ✓✓	×	?
Hybrid Option		×	✓✓✓/××	✓✓✓	✓✓✓	✓✓/××	✓	××?	× / ✓	×	?

NB: Cells are shaded red where an option scores worse than all other options. Cells are shaded green where an option scores better than all other options.

6.2.3 The overall effects for each option do not differ greatly between options for most of the SA topics. This is largely due to the fact that each option could have positive or negative effects (or both) in different parts of the Plan area. Nevertheless, there are some differences between options that are discussed below.

6.2.4 **Option 1:** Option 1 is predicted to have moderate positive effects on housing, economy and transport as there is a focus on growth in accessible locations. There also ought to be positive effects on health and wellbeing, though there could also be issues in the City due to increased congestion and impacts on air quality. The environmental effects of this approach are broadly minor, with the most significant effects being identified in terms of cultural heritage. This approach would however present greater opportunities for enhancement of the built environment in the City.

6.2.5 **Option 2:** Similar to option 1, this option generates positive effects in terms of housing, economy and transport, as growth in the market towns is broadly accessible and close to areas of economic growth. However, despite moderate positive effects on health and wellbeing, this option could have negative effects in terms of congestion. The benefits in terms of climate change are thought to be moderately positive for this option.

6.2.6 Though effects on landscape, land, water and minerals are only predicted to be minor there could be moderate negative effects on biodiversity (the most for any option) and heritage, due to pressures on the built and natural environment.

6.2.7 **Option 3:** Option 3 generates significant positive effects in terms of housing (only option 5 and 7 perform as well) and is the only option apart from the hybrid option to have a significant positive effect on the economy. This is not surprising given that this option focuses on an employment-led distribution. Similar to options 1 and 2 though, this option could have negative effects in terms of congestion. Conversely, it performs well in terms of accessibility and climate change. The environmental effects are mostly negative, with moderate negative effects on landscape and land and heritage. This is mainly due to a loss of greenfield land at both the Leicester urban periphery and the market towns.

6.2.8 **Option 4:** This option generates moderate positive effects for housing and economy. However, the effects on transport are mostly negative, as growth in some locations would not make best use of existing infrastructure and could increase car dependence and trip length. Whilst the effects on environmental factors are mostly minor (i.e. biodiversity, landscape and land, heritage), the effects on flooding and infrastructure are more likely to be problematic, which is a negative effect for water, and transport.

6.2.9 **Option 5:** Option 5 is predicted to have a major positive effect on housing, as it would provide a wide range of locations and sites, helping to tackle housing needs across the whole Plan area. The effects on the economy would still be positive, and effects on health and wellbeing also ought to be very positive given that the benefits of development ought to be felt across the Plan area. However, with regards to landscape, land and cultural heritage, option 5 generates the most negative effects compared to all other options. This is largely due to effects on the countryside, and rural nature of settlements. This option also performs the most poorly in terms of transport and travel, as it would likely lead to greater reliance on cars, increased trip length and poorer accessibility.

6.2.10 **Option 6:** This option is predicted to have moderate positive effects on housing and economy, with major positive effects on health relating to housing provision and infrastructure improvement. Whilst the negative effects in terms of transport are only minor, so too are the positive effects. This option is also likely to have moderate negative effects on land, landscape and cultural heritage

6.2.11 **Hybrid Option:** This approach performs the best in relation to economy and employment as it is the only option to generate significant positive effects and no negative effects. This is largely due to the infrastructure-led approach and a focus on key centres of economic growth, but still planning for appropriate growth elsewhere to ensure that areas are not 'left behind'. From an environmental perspective, the option performs relatively well as it would only generate minor negative effects with regards to biodiversity, landscape and water. However, the potential for moderate negative effects in terms of travel and transport exist due to the focus on new settlements that will likely increase traffic and encourage car use. There is also a potential / uncertain moderate negative effect on landscape due to a focus along the A46 corridor.

Comparison of options

6.2.12 As illustrated in table 6.2, a dispersed approach is the least balanced overall; having the most negative effects for three sustainability objectives (transport and travel, landscape and land, cultural heritage). Therefore, despite having very positive effects for housing and health and wellbeing, it would be unlikely to achieve sustainable development.

6.2.13 From a social and economic perspective, the hybrid option appears to perform the best overall, as it is the only option that generates a major positive effect on both housing and economy without generating negative effects. The next best performing option is option 3, which also generates significant positive effects for housing and economy, but could generate some negatives. All other options would still generate positive effects on social and economic factors, but to a lesser extent. However, despite performing well in terms of social and economic factors, option 3 would have more negative effects on land and landscape and cultural heritage compared to options 1, 2 and 4. Those options are not without their own difficulties though, with option 2 performing worst of all options in terms of biodiversity and option 4 performing worst of all options in terms of water. The hybrid option, on the other hand, is one of the better performing options with regards to environmental protection, with the exception of landscape effects, which could be prominent at the A46 corridor.

6.2.14 It is clear that the overall performance of options 1, 2, 3 and 4 is fairly similar in terms of sustainability 'as a whole'. However, each approach has more merits or issues for different aspects of sustainability.

6.2.15 What can be concluded from this appraisal is that option 5 should not form a major element of the spatial strategy. However, there is still merit to dispersing some growth as demonstrated by positive effects on health and housing associated with option 5.

6.2.16 It is also clear that the hybrid option best meets the economic aspirations of the growth strategy and supports housing in accessible locations whilst performing as well as any other option in terms of environmental protection objectives.

6.3 Discussion of growth options at a higher level of growth

6.3.1 Before the preferred approach was established, the Strategic Planning Group considered the effects of the six distribution options at a higher level of growth (108,600 homes). Table 6.3 below summarises the effects for each option. This information contributed to the decision to discard the higher growth scenario (and therefore the hybrid option was not tested at this scale of growth).

Table 6.3 *Summary of appraisal scores for each option at the higher growth projection*

		Biodiversity	Health & wellbeing	Housing	Economy	Transport	Climate change	Landscape and land	Heritage	Water	Minerals
Option 1 *Urban periphery*	1b	✗✗	✓✓✓✗✗✗	✓✓✓	✓✓✓/✗	✓✓/✗✗	✓ / ✗	✗✗✗	✗✗✗ / ✓✓	✗✗✗	✗
Option 2 *Market town focus*	2b	✗✗✗	✓✓✗✗✗	✓✓	✓✓✓/✗✗	✓✓/✗✗✗	✓	✗✗✗	✗✗✗ / ✓	✗✗✗	✗✗
Option 3 *Employment-led*	3b	✗✗	✓✓✓✗✗✗	✓✓✓	✓✓✓	✓✓/✗✗✗	✓	✗✗✗	✗✗✗ / ✓	✗✗	✗
Option 4 *New settlements*	4b	✗✗	✓✓✓✗✗✗	✓✓	✓✓✓/✗	✓/✗✗✗	-	✗✗	✗✗ / ✓	✗✗	✗
Option 5 *Dispersal*	5b	✗✗?	✓✓✓✗✗	✓✓✓	✓✓/✗✗	✓✓/✗✗✗	✗✗	✗✗✗	✗✗✗ / ✓	✗✗✗	✗✗
Option 6 *Trends*	6b	✗✗	✓✓✓✗✗	✓✓✓	✓✓✓/✗	✓/✗✗	- / ✗	✗✗✗	✗✗✗ / ✓✓	✗✗✗	✗

NB: Cells are shaded red where an option scores worse than all other options. Cells are shaded green where an option scores better than all other options.

6.3.2 With a 20% increase in housing to allow for 'flexibility', the broad trend for all options is for the negative effects to become more prominent across the Plan area, whilst the positive effects do not increase as consistently or by the same magnitude.

6.3.3 For option 1, despite an improvement in the housing and economic factors, the effects on multiple environmental factors would become majorly negative and could be difficult to mitigate. There could also be major negative effects upon health and wellbeing.

6.3.4 The picture is similar for options 2 and 3, which would both see major negative effects for landscape and land and heritage, as well as more significant negative effects in terms of congestion, infrastructure and potential intrusion into minerals safeguarded areas.

6.3.5 Option 2 would have the most prominent negative effects on biodiversity at this level of growth compared to all other options (the same as for the lower growth scenario).

6.3.6 Option 3 would still remain the most positive with regards to the economy, even at this higher level of growth.

6.3.7 Option 4 would perhaps be best placed to accommodate even greater levels of growth, as the negative effects generated would be less significant compared to the other options. Nevertheless, the overall pattern is one of exacerbated negative effects on environmental factors compared to the OAN growth projection.

6.3.8 For option 5, major negative effects are also predicted for a range of environmental factors, including a rise in the significance of effects for water, biodiversity, climate change and minerals. The positive effects only rise in significance for transport and travel, as increased growth in rural areas could help to support/improve accessibility and services.

6.3.9 Option 6 would also see an increase in negative effects for many sustainability factors. The exception is an increase in significance of the positive effects on housing and economy.

6.3.10 For the higher growth scenario, option 5 does not score as badly in comparison to the other options; with it only scoring the poorest for climate change at this scale of growth. This is due to the negative effects of each other option rising with the higher level of growth.

6.4 Outline reasons for the selection of the spatial strategy

6.4.1 The Strategic Planning Group has come to a decision on the preferred approach based upon a range of factors including; national policy, regional priorities for the economy and infrastructure investment, the need to protect local environmental and historic assets, and the findings of the SA process (presented in an interim SA Report).

6.4.2 Whilst none of the original reasonable alternatives have been taken forward in their entirety, the preferred approach does reflect elements of each option where they are in accordance with the preferred strategy. For example, option 5 is rejected in terms of the focus on rural settlements, but the level of growth at the City and the market towns for this option is broadly the same as the preferred approach.

6.4.3 As in the case of the draft Plan, the revised Plan has been developed to take advantage of significant new infrastructure capacity that is close to the anticipated key economic growth points. The A46 corridor represents an excellent opportunity to accommodate housing growth close to and with good transport links into the City, where anticipated job growth requires a workforce well in excess of that likely to be accommodated within Leicester and the urban periphery. Growth along this corridor is anticipated to help reduce the length of journeys to work, improve the prospect of non-car journeys and create additional jobs associated with the new housing areas in the corridor.

6.4.4 It is anticipated that a large amount of growth would be accommodated at new / expanded settlements. Consequently, the broad approach of option 4 has formed the basis for the growth strategy (but also drawing from elements of the other distribution options as appropriate).

6.4.5 In the southern part of the County the Southern Gateway has been deleted and the revised plan emphasises the importance of improvements to the A5 Corridor, particularly in terms of their relationship to the delivery of development that is already committed in Local Plans or with planning permission (the A5 Improvement Corridor). New/expanded settlements will be accessible to job opportunities and the location is crossed by the Leicester-Nuneaton rail line providing good accessibility. Substantial numbers of new jobs are anticipated in in this part of the County, in addition to the proposed road and rail infrastructure investment. The area will also be connected to the A46/M69 to the south-west and, via the new southern/eastern Leicester bypass, will be connected to the M1 via the proposed new Junction 20a. The amount of new homes in Harborough District has been reduced by 2,000 dwellings in recognition of the very high annual rate of delivery that the original figure would have required. Similarly, Lutterworth is no longer designated as a key centre for growth; instead growth in this area will be managed in Local Plans.

6.4.6 In the revised Plan, the Leicestershire International Gateway replaces the Northern Gateway. In this area, the homes are again likely to be in new settlements and expansions to existing urban areas such as Loughborough / Shepshed. Housing growth is justified by the economic growth anticipated in this location including at Loughborough (which is an important university town), the strategic rail freight interchange, HS2 interchange at Toton just outside the County boundary and growth of East Midlands Airport. North West Leicestershire District Council has been assigned an additional 1,200 dwellings in recognition of these growth opportunities.

6.4.7 The strategy sets an appropriate level of growth in Leicester City, which represents the current assessment of maximum capacity in the City from the period 2031-2050. Planning for greater levels of growth here is considered likely to stifle the capacity for employment growth (office, retail, leisure) and could also have greater potential for effects on biodiversity, health and wellbeing due to the loss of open space. Consequently, options 1 and 6 which both propose substantially higher levels of growth in the City are considered to be inappropriate in this respect. Planning for lower levels of growth in the City (rather than maximising potential) is considered to be unreasonable given the ongoing shortage of homes and the inability to meet fully objectively assessed housing needs. Furthermore, the SA does not identify any significant issues with regards to the level of growth proposed in the City.

6.4.8 The level of growth focused at the market towns is considered to be appropriate given that there are already significant developments in the pipeline for these areas up to 2031 and beyond. Around Loughborough / Shepshed, the Leicestershire International Gateway will increase development opportunities in this location and, in the revised Plan, Melton Mowbray has been designated as 'key centre for regeneration and growth' (emphasising the importance of regeneration to the town and its relationship with new growth). In recognition of confirmed funding for the town centre bypass Melton Mowbray, in the revised plan, has been assigned an additional 800 dwellings. Focused growth at the other market towns would not take full advantage of economic opportunities and strategic infrastructure upgrades. Consequently, options 2 and 3, which focus substantial growth to the other market towns, are considered less attractive in this respect.

6.4.9 The level of growth proposed at the rural settlements is limited, and reflects the strategic focus on larger-scale opportunities in more accessible locations. Consequently, options 5 and 6, which propose substantial dispersal of growth, are considered to be unattractive in this respect.

6.4.10 The SA findings broadly support the preferred strategy, as it would generate the most benefits in terms of employment and housing growth. The focus of growth at key areas of economic growth and infrastructure capacity is also likely to reduce the length of car trips, and encourage sustainable modes of travel (particularly where there are strong rail and bus links into the City). In terms of environmental effects, the preferred approach does not generate any major negative effects and performs better or the same as the alternatives in this respect.

6.4.11 The role of the Strategic Growth Plan is to establish broad preferred locations for longer term growth and thus to provide a framework for statutory local plans. The broad locations would evidently be able to accommodate a range of different growth levels, so if subsequent work based on updated evidence confirms that a higher level of growth ought to be pursued in certain locations, then this can be considered at that stage and the impacts analysed accordingly. What is clear at this stage is that a higher level of growth (than the projected OAN) will have largely negative impacts. This is supported by the SA findings which suggest that the negative effects for every option would be likely to increase, and this could lead to major negative effects on the built and natural environment, water, and transport infrastructure.

7 Appraisal of the Plan

7.1 Introduction

7.1.1 This section presents an appraisal of the Plan considered 'as a whole'; setting out a discussion of the effects associated with the preferred option as well as taking into account the supporting Plan principles. Essentially, this section is an update of the appraisal that was undertaken for the draft Plan and presented in the interim SA Report (February 2018).

7.1.2 The effects of the preferred approach are already set out in Sections 5 and 6; allowing for a like-for-like comparison with the original reasonable alternatives and new reasonable alternatives that have been tested.

7.1.3 This section reproduces those effects, but provides further consideration of the additional elements within the Plan (which have been developed to support the spatial approach to development).

7.1.4 Whilst there are no policies as such proposed within the Plan (to support the spatial approach to development), it contains a range of broad principles that provide a framework for how growth should be delivered. These are summarised below:

<u>The Building blocks for development</u>

Respecting the existing settlement pattern - The long-standing relationship between Leicester, the market towns and the rural areas is a feature that will be enhanced.

National policies - The Strategic Growth Plan considers how existing employment areas can be supported and where new growth should be directed to make the most of Government funding and its Industrial and housing strategies.

Our Economy and The midlands Engine Strategy - The Midlands Engine Strategy recognises the growth potential of major employment areas such as East Midlands Airport, East Midlands Gateway, the two enterprise zones – MIRA Technology Park near Hinckley and the Loughborough and Leicester Enterprise Zone – the logistics and distribution industry and the potential of Leicester City Centre. The strategy also confirms that government funding will be put in place for key projects.

Infrastructure and the Midlands Connect Strategy - The fourth building block of the Plan is an understanding of the local road and rail networks and how they are supported by proposals in the Midlands Connect Strategy. This involves a consideration of key road schemes and rail improvements. Wider improvements to passenger rail services are currently far exceeding available funding. However, the strategy identifies that such matters ought to be reviewed in the future should opportunities arise.

Protecting environmental, historic and other assets - The fifth building block in the Plan has been recognition of the key environmental assets that are important to the area and will need to be protected and enhanced. Though all locally important assets have not been identified in the Plan, there is an acknowledgement that these hold value and should be protected and enhanced. It is envisaged that Local Plans will provide the appropriate mechanism for exploring this.

7.1.5 Four priorities have also been identified as follows:

- *Creating conditions for growth- Balancing the need for homes and jobs with protection of the environment and built heritage.*
- *Focusing on strategic locations and less on non-strategic sites.*
- *Securing essential infrastructure.*
- *Maintaining the essential qualities of Leicester and Leicestershire and ensuring high quality development.*

7.1.6 The key elements of the spatial strategy for growth are summarised below. As mentioned above, whilst the spatial strategy has already been appraised in the alternatives assessment section (i.e. the hybrid option), there are supporting features in the draft Plan that have been taken into account in more detail at this stage.

7.2 The Spatial Strategy

Securing essential infrastructure

- The strategy proposes to build more development in major strategic locations and to reduce the amount that takes place in existing towns, villages and rural areas. This is to plan for new housing and employment together with new and improved roads, public transport, schools, health services, local shops and open space.
- It is recognised that securing such infrastructure is challenging and will require public sector investment, securing the improvements set out in existing Local Plans and planning applications, and delivering infrastructure before major growth occurs.

High quality development

- The common agenda is to deliver 21st century garden towns, villages and suburbs within the strategic growth areas.

Primary Growth Areas

- The A46 Growth Priority Growth Corridor is critical to the strategy. There is an assumption that there will be improvements to railway services as well as the A46 expressway. This broad area will accommodate approximately 38,000 new homes.
- Leicester City is identified as playing a critical role in the strategy. Despite the growth strategy only allocating 10,450 homes to the City, the strategy highlights the importance of the City as a location for increased jobs, entertainment, arts, leisure and cultural facilities.
- Given the scale of development on the fringes of Leicester, proposals to build the A46 Expressway would need to be accompanied by measures to increase capacity on the radial roads and improve public transport.

The Leicestershire International Gateway

- This gateway will be supported by improvements to the A42, M1, railway lines and services – all set out in the Midlands Connect Strategy.
- The area has the potential to accommodate approximately 11,000 homes, with the concept of delivering 'Forest Towns'.

The A5 Improvement Corridor

- The expressway proposals will create opportunities for development on strategic sites well located relative to employment opportunities.

Melton Mowbray: Key Centre for Regeneration and Growth

- The recent approval for the Melton Mowbray Relief Road provides a catalyst for change to help improve congestion and accessibility.
- The town functions as a rural hub for surrounding areas and is therefore appropriate to accommodate further housing growth (approximately 3800 dwellings).

Areas of Managed Growth in Local Plans

- Further development should be consistent with the need to support local growth. This includes the settlements of Lutterworth, Market Harborough, Hinckley, Loughborough and Coalville.

Villages and Rural Areas

- There will be limited growth in these areas, consistent with providing for local needs.

Digital Connectivity

- Digital connectivity is an essential part of the infrastructure planning process and need to be funded as such.

7.3 Mitigation and enhancement

7.3.1 To allow for a consistent comparison at an earlier stage of plan-making, the alternatives assessment process made limited assumptions about mitigation. However, the Plan contains a number of elements that ought to be taken into consideration as they could help to mitigate any potential negative effects (for example, a focus on a Garden City Concept and high quality design). These factors have been taken into account in this part of the appraisal, including further recommendations where appropriate.

7.4 Methods

7.4.1 Similar to the previous sections, the appraisal is based upon the SA Framework, which consists of ten SA topics, with supporting objectives and guiding questions.

7.4.2 When determining the significance of any effects, a detailed appraisal of factors has been undertaken to take account of:

- the nature and magnitude of development;
- the sensitivity of receptors; *and*
- the likelihood of effects occurring.

7.4.3 Taking these factors into account allowed 'significance scores' to be established using the system outlined below. Major and moderate effects are considered to be significant, whilst minor effects are not.

Major positive	✓✓✓	Minor negative	×	Neutral / negligible effects	-
Moderate positive	✓✓	Moderate negative	××	Uncertain negative effects	?
Minor positive	✓	Major negative	×××	Uncertain positive effects	?

7.4.4 The assessment has been undertaken making-use of baseline information presented in the scoping report and mapping data. Whilst it has not been possible to identify exact effects due to sites not being established at this stage, we have made assumptions on the potential locations of development by referring to SHELAA sites and potential opportunity areas identified by the Strategic Planning Group.

7.4.5 There is a focus on strategic impacts at a settlement-level, rather than detailed local effects. Whilst every effort is made to make objective assessments, the findings are also based upon professional judgement and are therefore partly subjective.

7.5 Appraisal findings

7.5.1 The appraisal findings relating to the Plan are presented in this section. Table 7.1 below sets out a summary of the appraisal scores for each of the sustainability topics. In the first row, the scores are reproduced from the appraisal of the Hybrid Option, which most closely resembles the Plan approach.

7.5.2 The options appraisal considered the spatial distribution of growth only (with limited assumptions about mitigation). The second row presents the scores taking into account the broader principles, priorities and assumptions that are set out in the Plan in support of the approach to spatial distribution. In some instances, this has led to a change in the scores (mostly a reduction in negatives), reflecting the potential for effects to be mitigated.

Table 7.1 *Summary of appraisal findings for the Plan*

	Biodiversity	Health & wellbeing	Housing	Economy	Transport	Climate change	Landscape and land	Heritage	Water	Minerals
Hybrid option appraisal	×	✓✓✓/××	✓✓✓	✓✓✓	✓✓/××	✓	××	× / ✓	×	?
Effects of the Final Plan considered as a whole	?	✓✓✓/×	✓✓✓	✓✓✓	✓✓/××?	✓	××	× / ✓	×	?

Biodiversity

7.5.3 The Plan directs 10,450 homes within the City boundary. At this scale of growth, it is less likely that there would be a significant effect on biodiversity within the City, as there will be greater flexibility to ensure that sites are located at some distance from designated sites. Growth could more readily avoid sensitive areas, and have lesser overall effects on green infrastructure in the City.

7.5.4 Similarly, the level of growth at the market towns ought to have only minor effects on biodiversity as there should be some flexibility in the choice of site. The focus on large strategic sites and a Garden City concept should also help to ensure that biodiversity opportunities are taken where possible.

7.5.5 The focus of growth at Melton is higher than previously identified in the draft Plan (800 additional dwellings). This could involve greater amounts of development to the east of the town, which is in close proximity to the River Eye SSSI. This environment is reliant on good water quality as well as the management of the physical form and function of the watercourse and its banks. The potential effects from residential development are likely to involve the introduction of domestic animals, disturbance through recreation and potential run-off from increased areas of hard standing. Though these effects ought to be possible to avoid / manage, the potential for negative effects exists.

7.5.6 The level of growth in the rural settlements would also be relatively low, and therefore, it ought to be possible to avoid pressure on sensitive sites both individually or cumulatively. The scale of growth in these areas would be less likely to be on strategic sites though, and so the potential for enhancement would be lower.

7.5.7 The strategy proposes substantial growth at new or expanded settlements along the A46 expressway corridor, which brings in development opportunities at a short distance from the Leicester urban fringes to the north-east arching round to the south / south-west. There would also be a focus on growth along the A5 improvement corridor and Leicestershire International Gateway.

7.5.8 In the main, the opportunities along the A46 corridor should avoid effects upon SSSIs, though there could be some pressure on the Kilby-Foxton Canal SSSI through increased recreational pressure and water quality. Likewise, there are areas of importance for wildlife along the A5 Improvement Corridor. However, in both locations, effects ought to be manageable through sensitive layout and design and the application of green infrastructure enhancements. Compared to alternative locations, the proposed growth areas are less sensitive (for example, within the north west of Leicester).

7.5.9 There are local wildlife sites and potentially protected species that may be affected by growth, but strategic opportunities ought to provide the potential for green infrastructure enhancement and to retain important habitats.

7.5.10 It will be important to ensure that development along the A46 corridor does not sever green infrastructure links into/out of the City, particularly along the River Sence. As a key principle for development, the strategy promotes the Garden City Concept that focuses on large strategic sites and sustainable growth that has green infrastructure at the heart of growth. This ought to provide the framework for Local Plans to deliver growth that helps to strengthen links between habitats rather than lead to fragmentation. However, there are uncertainties at this stage given the high-level nature of the strategy.

7.5.11 The Leicestershire International Gateway location is not particularly constrained by sensitive habitats (in the main). Therefore associated development ought to be possible to accommodate without having significant effects on biodiversity. Growth at the edges of the National Forest could however, lead to disturbance during construction, and potential severance of wildlife corridors. Given the strategic nature of sites and a focus on green infrastructure; such growth may potentially lead to enhancements to biodiversity though.

7.5.12 Though local wildlife sites and natural green space could be affected, the strategic nature of sites ought to allow for green infrastructure enhancement to be secured to protect and enhance wildlife. Though an additional 1000 homes are identified in the final Pan at this location, it is unlikely that this would lead to any substantial further effects (*compared to those that would be generated at a scale of 10,000 homes*). Exploring the potential for 'forest towns' could also help to ensure that new settlements in this area help to support and enhance strategic green infrastructure networks.

7.5.13 Overall, the effects across the Plan area are likely to be insignificant, with only minor negative effects likely to occur. Provided that Local Plans promote the Garden City Concept, explore forest towns, and a strategic approach to green infrastructure is developed, it ought to be possible to avoid negative effects, even where there is a focus of growth along the A46. However, there is uncertainty at this stage. These effects will need to be explored and addressed in Local Plans and accompanying Sustainability Appraisals.

7.5.14 Overall, an **uncertain negative effect** is predicted. The effects were predicted to be minor negative at the alternatives assessment stage, but the Plan makes it clear that environmental protection and enhancement is a key element of the strategy and this ought to be possible with a focus on Garden City principles and strategic sites.

7.5.15 The final Plan focuses slightly more growth to North West Leicestershire, notably at the Leicestershire International Gateway. Dependent upon the location of growth, it should be possible to avoid negative effects and potentially enhance networks of green infrastructure.

Recommendations - It would be beneficial for a green infrastructure strategy to be developed to identify how links between the City and the A46 corridor could be strengthened, ensuring that wildlife habitats are better connected. The Plan could commit to the preparation of a joint strategy to enable such opportunities to be explored and taken advantage of.

Health and wellbeing

7.5.16 Though there is modest housing growth directed to the City itself, new homes here are likely to be well located in respect of access to services and facilities. This could help to tackle housing affordability, and help to address deprivation. The plan also acknowledges that the City should continue to be a major center for economic growth and provision of facilities.

7.5.17 According to the findings of this SA, the level of growth proposed is not predicted to have a significant effect on health services, open space or air quality, particularly as it is acknowledged that infrastructure provision is a key element of the Plan. On balance a minor positive effect is likely to be generated.

7.5.18 The Plan places little growth within the immediate Leicester urban periphery, but substantial growth would be supported nearby at 'new settlements' along the A46 corridor. The benefits of development in the urban periphery are likely to be limited as a result of direct growth here. However, negative effects in terms of a loss of open space would be avoided.

7.5.19 Growth along the A46 corridor could provide opportunities for communities in the urban periphery to seek housing nearby, which is positive. But the benefits in terms of new facilities, services and infrastructure would be less likely to be felt by communities in the Leicester urban periphery (for example, on site recreation, retail and public services would not be readily accessible by foot). An increase in growth could also lead to increased congestion in the City, affecting the quality of life (and perhaps air quality) along major routes into the City. This could have negative implications for communities in the urban periphery. However, the Plan does state that a precondition of growth in these locations is an upgrade to strategic and local transport infrastructure to limit effects on traffic and air quality.

7.5.20 The Plan seeks to achieve controlled growth at the market towns in-line with existing Local Plans. This should help to ensure steady growth in these locations that would be less likely to require major infrastructure investment. It ought to be possible to avoid major loss of open space, but development opportunities in the longer term may be more likely to encroach upon more sensitive / valued areas, therefore an uncertain negative effect exists. Nevertheless, a minor positive effect could be generated as a result of improved housing choice, and modest investment in health, education and other facilities and services (from development contributions). Furthermore, there is an acknowledgement of the importance of regeneration and investment in these towns, particularly in opportunity areas such as Melton where growth ought to be unlocked by improved infrastructure.

7.5.21 With limited growth at the rural settlements, the effects upon health and wellbeing are likely to be insignificant. Whilst growth could help to support wellbeing through improved access to housing in these areas, it would be unlikely to create a critical mass to support major improvements to health facilities or other services. Access to services for new homes in these areas may therefore continue to remain poor.

7.5.22 A focus on the A46 corridor, A5 Improvement Corridor and the Leicestershire International Gateway ought to have mixed effects. New / expanded settlements are likely to have their own health facilities and recreational opportunities. This would be dependent upon the scale of growth, but the Plan makes it clear that the approach is one based on large-scale strategic developments. Therefore, positive effects are anticipated in terms of the creation of new facilities.

7.5.23 New settlements in close proximity to the Leicester urban periphery could also benefit communities in these areas (through access to affordable housing and new community facilities), though access to new facilities would be most likely by car. Overall, these amount to **significant positive effects.**

7.5.24 Conversely, there would be a loss of open space, though green infrastructure would likely be incorporated into new developments given the focus on large-scale sites and the Garden City / Forest Towns concepts.

7.5.25 Increased growth at the A46 corridor could also potentially increase traffic into the City, having negative implications for communities in these areas, particularly where air quality is an issue. Likewise, growth along the A5 Improvement Corridor could lead to additional traffic movements into centres such as Hinckley and Lutterworth. However, the improvements to the A5 itself ought to ensure that traffic is managed and helps to support committed and planned growth in these areas.

7.5.26 However, the need for infrastructure improvements is identified as one of the key priorities and building blocks of the Plan. Therefore, only **minor negative effects** are predicted overall in this respect. This is a slight improvement from the assessment of the hybrid option, as there is greater emphasis on green infrastructure and transport improvements within the final Plan.

Recommendations – In order to mitigate potential negative effects in terms of increased congestion and effects on air quality from vehicles, it would be beneficial to highlight a commitment to establishing the infrastructure to support electric vehicles. This would set a clear steer for Local Authorities to promote such infrastructure at strategic sites in particular. It would also be beneficial to ensure that strategic sites are well—served with public transport connections and cycling and walking routes into urban areas.

Housing

7.5.27 The Plan aims to deliver substantial amounts housing in the period 2031-2050 to meet 'projected housing needs'. It is difficult to plan for growth so far into the future, as trends become more uncertain the further estimates extend. Therefore, there is an element of uncertainty about the overall levels of growth that will need to be planned for. It will therefore be important to review housing needs over time to ensure that the housing targets remain appropriate.

7.5.28 The level of housing delivery being planned for does not factor in additional land in order to increase flexibility (i.e. a higher growth projection). However, due to the long term nature of the Plan, and the need to prepare infrastructure to support strategic developments, a reliance on large sites is less likely to cause issues with housing delivery rates in the longer term (than has traditionally been the case in the Plan area). In addition, it is expected that approximately 34,100 homes would be delivered upon 'non-strategic' sites, which gives further flexibility and choice in the delivery of housing sites for each authority. Therefore, positive effects are still likely to be generated.

7.5.29 With regards to distribution, the Plan focuses a large amount of growth to the A46 corridor. Whilst there is also some growth at the Leicester urban periphery and in the City, this is fairly modest. Growth at market towns is also relatively modest, and at rural settlements growth is more restricted.

7.5.30 The crux of the strategy is to bring homes forward that are well connected to jobs and supported by strategic infrastructure improvements. This is a positive effect, as it should help to meet housing in areas of demand/need. In particular, housing growth in close proximity to the City ought to help meet needs that are originating this area, but are unable to be met in the urban area due to capacity constraints.

7.5.31 The approach should also ensure that needs arising in other parts of Leicestershire are met, as there is still allowance for growth at the market towns, at the Leicestershire International Gateway, and along the A5 Improvement Corridor. However, meeting needs in rural areas would be less likely to be achieved through strategic growth. Having said this, Local Plans will still provide an opportunity to tackle such needs.

7.5.32 Overall, a **significant positive effect** is predicted. The strategy places homes in locations that are well matched to employment, would help to meet housing needs close to where they are arising, and where land is likely to be available. Although the delivery of larger sites could take longer due to phasing and build out rates, the need to secure infrastructure in advance of development is acknowledged in the Plan.

Recommendations – No measures have been identified.

Economy and employment

7.5.33 Overall, the Plan supports a considerable proportion of the growth in the City, the urban periphery and along the A46 Corridor. An increase in homes in these areas would provide accommodation for workers in the City, and at strategic employment hubs (for example, Leicester City, MIRA Technology Park, Loughborough and Leicester Enterprise Zone), matching job opportunities to homes very well. Accessibility to these opportunities ought to be good, though this might be through a reliance on the private car in most locations.

7.5.34 This pattern of growth should aid the continuation of business growth, allowing the maintenance of Leicester as the strongest economy in the east midlands. The Plan seeks to make the most of strategic infrastructure, which should enable the scale of growth required to help deliver the Midlands Engine Strategy.

7.5.35 Regeneration is not a priority along the A46 corridor, but there could be knock on benefits for nearby communities at the Leicester urban periphery and Leicester City itself (for example employment in construction jobs, and provision of a workforce to support economic growth in the City). It is difficult to predict whether areas with higher levels of deprivation would benefit, as this depends upon the location of sites

and other factors. However, growth within and nearby to the City ought to help contribute to improved choice, and could bring with it improvements in infrastructure (physical and social) that could benefit such communities.

7.5.36 The Plan supports growth at the market towns in line with existing local plans, which is likely to lead to less prominent effects in terms of local spending and tackling deprivation. However, other elements of the spatial strategy could lead to benefits for the market towns, such as the A46 corridor bringing improved connectivity and opportunities to Hinckley, Melton Mowbray and Market Harborough, and the Leicestershire International Gateway providing a location for a growing workforce that could support people working in Coalville and Loughborough in particular.

7.5.37 Growth at Melton Mowbray ought to have benefits in terms of town centre improvements, regeneration, transport infrastructure upgrades and access to employment. This also links well to the A5 Improvement corridor, which would also be well located with regards to employment opportunities such as MIRA, DIRFT and Magna Park.

7.5.38 Though the level of growth at rural settlements would be limited, this is unlikely to have a negative effect on the vitality of these centres.

7.5.39 Overall, a **significant positive effect** is predicted, reflecting the focus of housing in areas of economic growth and opportunity.

Recommendations – The Plan acknowledges rural areas as being nationally significant for agriculture and food production. However, there is no explicit strategy for the rural areas. By focusing growth away from the rural areas though, the Plan does offer a degree of protection for these industries. However, additional positive effects could be generated by setting a policy framework that supports the protection, diversification and modernisation of rural businesses.

Transport and travel

7.5.40 The Plan seeks to direct growth towards locations that provide the greatest opportunity to access jobs, such as in Leicester City and at key employment hubs along the A5 Improvement Corridor and Leicestershire International Gateway.

7.5.41 This ought to help reduce the length of trips made to access employment, services, leisure and recreation. The level of growth at the market towns is broadly in-line with Local Plans, and should therefore be capable of being accommodated without substantial effects in terms of congestion. Where a higher growth opportunity is identified at Melton Mowbray, this is supported by planned infrastructure enhancements.

7.5.42 Given that the strategy seeks to promote large-scale new or expanded settlements, new homes should also be served by their own local facilities, and be within close proximity to higher order goods and services in the City or nearby market towns. Larger developments should also be better able to fund infrastructure improvements and incorporate green infrastructure to promote active travel.

7.5.43 The planned A46 expressway should help to accommodate the housing growth pattern proposed by the Plan, but it is possible that this level of growth close to the City could lead to increased car travel within Leicester itself, causing increased congestion. This presents the possibility of negative effects, but the Plan makes it clear that infrastructure improvements and public transport enhancements are critical to the success of this strategy. Consequently, it should be possible to accommodate growth without significant negative effects occurring.

7.5.44 Though the level of growth in the City itself would be fairly modest, development here ought to be the most accessible to services and employment by sustainable modes of travel. Though increased housing in the city centre could lead to increased car trips, it is less likely than would be the case for locations outside the city boundary.

7.5.45 The level of growth proposed for rural settlements is limited, which will reduce the amount of new development that is located in areas with limited accessibility. This will help to reduce the need to travel to access jobs and services.

7.5.46 Though the low level of growth would do little to address accessibility issues in the smaller settlements, it would ensure that new development is located in areas that are more likely to promote sustainable modes of travel.

7.5.47 Overall, the Plan is predicted to have mixed effects (**moderate positive** and **moderate negative effects**) on transport and travel. A large focus on new settlements along the A46 expressway, the Leicestershire International Gateway and along the A5 Improvement corridor ought to have significant benefits in terms of reducing trip lengths by placing new homes in areas of economic growth and access to new local facilities. However, this could also put pressure on routes into the City and market towns because the dominant mode of transport would likely be private car. Given that the Plan sets out the importance of securing road infrastructure improvements and public transport enhancements, the effects are considered less likely to be significant. At this stage however, these effects are uncertain.

Recommendations – Clearly investment in infrastructure will play a crucial role in the successful delivery of the strategy and minimization of negative effects. This is acknowledged in the Plan. There are no specific measures identified at this stage.

Climate change

7.5.48 Development within Leicester City would likely be higher density (compared to growth in peripheral areas and 'new settlements. This could assist in mitigating climate change impacts. For example, high density development increases the viability of sustainable travel modes, and

also would reduce the need to travel long distances to access employment, services, and other facilities; all of which would assist in reducing pollution and greenhouse gases.

7.5.49 A more densely developed area could also increase the viability and take up of district heat networks. These factors are likely to help reduce carbon emissions.

7.5.50 Whilst growth at the Leicester urban periphery could also have benefits in terms of reducing the need to travel, the density of development in these locations would need to be higher to ensure the character of the urban fringes was not adversely affected. The scale of growth in the City and the urban periphery combined is approximately 15,000, which should help to ensure that a proportion of future growth minimises carbon emissions.

7.5.51 Though increased development in the Leicester urban periphery could contribute towards an increased urban heat island effect, the scale of growth is considered unlikely to lead to significant effects, as there would be less need to consider release of open space.

7.5.52 The Plan directs a modest amount of growth to the market towns. As relatively accessible locations, this ought to ensure that new development is well located and reduces the need to travel (with associated emissions). However, in the longer term, development opportunities in the market towns are more likely to be distant from town centres at or beyond the urban fringes. Given that the level of growth is expected to be consistent with Local Plan targets (with the exception of additional focused growth at Melton Mowbray, the effects are likely to be similar to the baseline position (i.e. neutral effects).

7.5.53 In the rural settlements, access to services and facilities is broadly reliant upon longer and more frequent car travel. Therefore, lower levels of growth in rural settlements are likely to be beneficial with regards to the reduction of greenhouse gas emissions from travel. The Plan directs a modest amount of growth to the rural settlements (instead directing it towards more accessible locations), and therefore, the overall effect on emissions in the longer term ought to be positive.

7.5.54 By managing growth in these rural areas, it also ought to be less likely that renewable energy opportunities would be sterilised by development. For example, wind turbines and solar farms often require a more 'open' location.

7.5.55 Opportunities to support district energy schemes are lower in rural areas, and so a focus on higher order settlements and large new settlements ought to be more beneficial in this respect also.

7.5.56 A large amount of growth is directed to new/expanded settlements along the A46 corridor, and at major employment areas near the East Midlands Gateway and along the A5 Improvement Area. Broadly speaking, this places homes in close proximity to employment opportunities and a wide range of other services in Leicester City (helping to reduce the length of trips).

7.5.57 It is likely that car travel will continue to dominate given that the approach seeks to take advantage of the A46 expressway linkages and the A5 Improvement Corridor. However, there should be opportunities to expand sustainable modes of travel outwards into new residential areas and this is highlighted as a critical element of growth in and around the City. Whilst the positive effects of locating growth close to jobs and services may be offset slightly due to increased car usage, strategic scale new/expanded settlements provide opportunities to create communities with their own local services, to support infrastructure improvements (including sustainable travel) and to promote a higher standard of design (through the Garden City and Forest Towns concepts). This should help to ensure that carbon emissions associated with new development are reduced (bot not eliminated).

7.5.58 In terms of low carbon energy schemes, the location of new settlements do not present strong existing opportunities for the development of heat networks to build upon. However, large scale mixed-use developments could create such opportunities themselves. These factors should be explored through Local Plans.

7.5.59 Overall, the Plan is predicted to have a **minor positive effect**, reflecting a potential reduction in emissions by directing growth away from rural areas and market towns, and locating a large amount of new housing in close proximity to the City and other major economic growth opportunities. The use of the private car is likely to increase, given that growth is planned around a major expressway and other vehicle based locations such as the international gateway and the A5 corridor. However, the Plan seeks to improve public transport links in these areas, and a focus on large-scale developments ought to provide good opportunities to create communities that have accessibility to new local facilities, as well as the existing services in the City and nearby market towns.

Recommendations – The Plan is mostly silent on the issue of climate change, with no strategic approach being proposed to help move towards a zero carbon economy. Given the proposed concentration of growth at a series of large scale developments (which ought to be more viable for decentralised energy schemes), the Plan could set out a commitment to achieving low carbon development and explore how separate developments can be linked together to create better opportunities for sustainable developments. Whilst Local Plans would be the more appropriate vehicle for exploring opportunities, it would be beneficial to outline the intent in the Strategic Growth Plan.

Landscape and land

Agricultural land

7.5.60 The Plan area is covered by a large amount of agricultural land that could potentially be affected by development. The only area that is unlikely to be affected is within Leicester City and part of the urban periphery (where small amounts of growth are proposed).

7.5.61 A loss of agricultural land at the market towns and other rural settlements is probable, despite the relatively modest level of growth in these locations. However, it ought to be possible to avoid grade 1 and 2 land in most places. It is unknown whether the land likely to be lost is Grade 3a or 3b, but some minor negative effects upon soil resources are likely to occur.

7.5.62 A much larger amount of growth is proposed at new/expanded settlements, with the majority of land at the Leicestershire International Gateway, the A5 Improvement corridor and the A46 growth corridor classified as Grade 3. It is unknown what proportion of this is best and most versatile land (3a), but much of the land does appear to be in use for agricultural purposes. Whilst negative effects would be generated, these would not be significant in the context of the overall amount of agricultural land still remaining and the avoidance of the most sensitive areas.

7.5.63 Overall, the Plan is likely to have **minor negative effects** with regards to soil resources. Though there could be a fairly large amount of agricultural land affected by growth, it would be directed away from the most sensitive areas (Grade 1 and 2 land), and would not be a significant loss in the context of the resources remaining across the Plan area.

7.5.64 It is important to note that in the absence of the growth plan, long-term growth would still need to be secured to support population and employment growth, and it is probable that this would involve agricultural land too.

Landscape

7.5.65 There are landscapes along the A46 corridor that are sensitive to development, including Areas of Separation at Thurnby, Bushby and Stoughton. These areas may not be directly affected through land loss, but nearby development could alter the setting of the urban fringes of Leicester, as in some locations the 'gap' between the urban periphery and new settlements could be narrow.

7.5.66 Therefore, growth could potentially lead to coalescence (partially or fully) between settlements such as Thurmaston, Syston and Barkby, Oadby and Great Glen and around the settlement areas of Narborough, Blaby, Whetstone and Countesthorpe. The effects would be dependent upon site locations, layout and design, but it is likely they would alter the character of the rural area along the A46 corridor.

7.5.67 With regards to the A5 Improvement corridor, it will be important to ensure that the location of new strategic developments does not lead to the coalescence between existing settlement such as Stoney Stanton and Sapcote, Hinckley and Barwell.

7.5.68 Effects on landscape at the Leicestershire International Gateway are also likely to be negative, as new settlements would likely be in rural / open areas. With HS2 already passing through this area, substantial housing growth has potential to further erode the rural nature of this area. The final Plan proposes increased growth in this location compared to the draft Plan, which could lead to a greater magnitude of effects. However, the significance of effects is likely to remain broadly the same.

7.5.69 At all the new settlements, there should be good opportunities for green infrastructure to form a key element of the developments (as identified as a critical feature of the Plan approach). This would help to mitigate negative effects on landscape to an extent. A new feature of the Plan is to explore the potential to secure 'Forest Towns', which is likely to help shape development in North West Leicestershire and Charnwood in particular which are home to the National Forest and Charnwood Forest. This could help to secure strategic improvements to green infrastructure networks if developments are planned with the environment at their heart. At this stage, there is considerable uncertainty as to whether this would occur and these issues should be explored in future Local Plans.

7.5.70 At other locations within the Plan area, the effects on landscape ought to be less prominent given that the level of development would be lower. For example, pressure on the market towns would be reduced in the longer term, and could help to avoid the need to encroach upon sensitive areas such as Charnwood Forest, and areas of separation between the towns and surrounding settlements (such as Market Harborough and Great Bowden, Coalville and Whitwick, Loughborough and Quorn etc..). Nevertheless, negative effects are still anticipated because the sites available in the long-term are more likely to be greenfield locations at or beyond the urban fringe. Given the likely location of development on large greenfield sites, there ought to be good opportunities to incorporate green infrastructure as a key element. This would help to mitigate effects upon landscape and in some areas potentially lead to enhancements.

7.5.71 Growth in the City should have a positive effect by drawing development away from the more rural areas within the Plan area. Intensification in the City and maximisation of brownfield land use could also be positive.

7.5.72 Overall, the Plan is predicted to have a **moderate negative effect** on landscape and land. Whilst there is potential for significant effects at new settlements along the A46 corridor and other growth areas, a focus on the Garden City concept ought to help mitigate these. The Plan should also avoid significant negative effects on more sensitive locations such as around rural settlements and the market towns.

Cultural Heritage

7.5.73 Development has the potential to impact the cultural heritage of Leicester city due to the strong historic value the city holds. At the level of growth proposed however, it ought to be easier to avoid greenfield sites (which contribute to character in the urban area) and design appropriate schemes. Nevertheless, the potential for negative effects still remains and so minor negative effects are predicted.

7.5.74 Conversely, by focusing development within the built-up urban areas, this could help to maintain the character and landscape of the more rural locations around the City boundary.

7.5.75 Development within the City also has the potential to enhance the fabric, function and setting of historic assets by being sympathetic in design and particular in where the development involves derelict land or vacant buildings, therefore a minor positive effect is predicted also.

7.5.76 Growth at the urban periphery will be limited, and is therefore unlikely to have a significant effect on cultural heritage (though this is dependent upon precise development locations).

7.5.77 Development at the urban fringes of the market towns could be accommodated without generating significant effects upon cultural heritage. The majority of heritage assets are concentrated in the urban centres of the market towns, and whilst there are some assets at the urban fringe such as agricultural buildings, it ought to be possible to avoid the most sensitive sites. However, the focus on large scale developments would mean that growth that did occur in close proximity to heritage assets would be likely to affect their rural/open setting. At this stage an uncertain negative effect is predicted, though these would be anticipated to be minor. The effects at Melton Mowbray could potentially be greater given that this is identified as a key centre for regeneration and growth. Development opportunities are likely to the north and east of the town, and potentially to the south. Development here is likely to be on farmland and in some locations this could coincide with listed heritage assets. The potential for negative effects cannot be ruled out at this stage and would need to be addressed through future local plans/reviews.

7.5.78 The rural settlements are broadly more sensitive to development as it would be likely to alter their scale and character more profoundly. A controlled approach to growth in these areas is therefore more likely to avoid significant negative effects upon the historic environment. Though there may be some negative effects at particular settlements due to housing development, this could occur in the absence of the growth strategy (which actually directs growth away from rural areas). Therefore, the effects are predicted to be broadly neutral / potentially positive.

7.5.79 The Plan focuses substantial growth along the A46 corridor area which encompasses a number of rural settlements. These settlements all contain a number of listed heritage assets, and there are some isolated heritage assets in the rural areas between these settlements and the Leicester urban fringes. The effects of new settlements on the character of existing villages and hamlets are uncertain, as specific sites or settlement areas are not identified. However, there is certainly potential for growth to affect the setting of heritage assets, especially where these are reliant upon an open, rural setting. This is more likely to be the case where the gap between the urban fringes and nearby settings is narrowed.

7.5.80 There ought to be enough flexibility in site choices and in the layout of developments to avoid sensitive areas, and to mitigate potential effects on heritage assets and to ensure that the cumulative effects of growth are not major. The focus on a Garden City concept could also help to ensure that large scale development is well-integrated with existing settlements.

7.5.81 Along the A5 Improvement Corridor there are various small settlements that are characterised by historic (listed) farmhouses, inns, cottages and churches. Large new developments in these areas could potentially affect the setting of such heritage assets, reduce tranquility and alter the rural character of the settlements. Growth close to larger centres such as Hinckley would be less likely to alter the overall form and character of the town, but could have localised impacts on heritage features depending upon site location.

7.5.82 On balance, the Plan is predicted to have both **positive** and **negative** effects on heritage. On one hand, development at new / expanded settlements could potentially affect the setting of heritage assets in the countryside and / or affect the character of small settlements along the A46 corridor, the A5 improvement corridor and the Leicestershire International Gateway. There could also be minor negative effects in the City associated with a loss of open space. However, growth in the City also presents opportunities to enhance heritage assets that are currently in poor condition. The avoidance of negative effects across much of the Plan area is also a positive factor, as would be regeneration based development in areas such as Coalville and Melton. Significant negative effects cannot be entirely ruled out at this stage due to the high level nature of the plan, but the broad location of growth areas should allow for sensitive assets to be avoided and / or mitigation measures employed. It is critical that these issues area addressed in Local Plans though, and this should include consideration of cross boundary issues.

Recommendations – No measures have been identified at this stage. Potential negative effects upon cultural heritage ought to be possible to mitigate through Local Plan policies relating to the historic environment and design. The selection of sites for development will also need to take account of heritage considerations, and it is expected that this would be explored as part of the Local Plan making process for each Local Authority. Significant negative effects should therefore be possible to avoid, but there is a degree of uncertainty at this stage.

Water

7.5.83 Growth within Leicester City and the urban periphery is relatively modest, and is therefore unlikely to put undue pressure upon water treatment and drainage infrastructure. Given the long term nature of the strategy it also ought to be possible to plan for increases in population well in advance.

7.5.84 Though there may be some sites within flood zones 2 and 3, application of a sequential approach ought to ensure that such areas are avoided if possible. Given the fairly low scale of growth in the City and the urban periphery overall, there ought to be flexibility in site choice to allow for this.

7.5.85 There is also the potential for higher rates of surface water run-off overall in the City if more land is hard-surfaced. However, brownfield sites could actually provide opportunities to improve rates of run off by introducing SUDs. The use of sustainable drainage systems should also help to manage some of the effects of flooding; though in the City, there would be less space for natural drainage systems. Overall, the effects on wastewater and flood risk in the City would be largely neutral.

7.5.86 Growth at the market towns will be broadly in-line with Local Plan targets, so it is likely that water infrastructure will be capable of supporting new developments in the longer term. Whilst there are areas of flood risk at each settlement, it ought to be possible to avoid these in the main as there is flexibility in site choice given the relatively modest levels of growth. The majority of development in these areas would also be likely to be on large greenfield sites that should be able to accommodate SUDs.

7.5.87 With regards to water quality much of the land available for development consists of farmland, so it is possible that pollution (e.g. nitrates) resulting from existing farming activities would be reduced through a change in land use. On balance a neutral effect is predicted overall with regards to water quality and flood risk at the market towns.

7.5.88 At the rural settlements, flood risk varies, but the majority of villages and hamlets are not at significant risk of surface water flooding. Therefore, overall, it ought to be possible to avoid significant effects associated with flooding in most locations, especially at the low levels of growth proposed. Development for housing on agricultural land could also help to reduce pollution from agricultural practices. Increased pressure on water supply/waste water treatment could be likely, and it may be more difficult to achieve efficient upgrades to infrastructure with a more dispersed pattern of growth. However, the small amount of development planned is unlikely to generate significant effects.

7.5.89 With regards to new / expanded settlements, the Plan directs growth to areas that are mostly within flood zone 1 along the A46 corridor and the A5 Improvement Corridor. However, the Leicestershire International Gateway contains areas that are at a higher risk of fluvial flooding. Whilst there may be pockets of surface water flooding to contend with, the strategic nature of sites that are likely to be developed ought to allow for green infrastructure/SUDs enhancements. Therefore, effects on flood risk are not anticipated to be major. However, the increase in development would lead to greater pressure on supply and treatment networks as well as generating pathways for pollution to reach watercourses. These effects ought to be possible to mitigate though, but infrastructure planning will be critical.

7.5.90 A change in use from agricultural land at most sites could also contribute to a reduction in the run-off of nitrates, which could be a benefit for water quality. On balance, the overall effects are predicted to be minor negative at this stage. With good design and planning however, it is likely these effects could be neutralised.

7.5.91 Overall, the Plan is predicted to have a **minor negative effect**. This reflects the potential for some development to be in areas at risk of flooding and an increase in the demands on water treatment and drainage infrastructure.

Recommendations – No measures have been identified at this stage. The application of SUDs and forward infrastructure planning ought to mitigate potential minor negative effects.

Minerals

7.5.92 Growth in any location across the Plan area has the potential to fall within Minerals Safeguarding Areas (MSAs) because they are fairly extensive across Leicestershire. A range of minerals could be affected, though the prominent resources that could be affected would be sand and gravel.

7.5.93 The distribution of growth ought to allow for overlap with potential mineral resources to be minimised. The amount of growth along river valleys is modest, and therefore overlaps with reserves of sand andd gravel in these locations are likely to be manageable. Furthermore, some site locations for growth may not be suitable for minerals workings despite being highlighted as safeguarded areas.

7.5.94 At the market towns and rural settlements, effects are predicted to be neutral. There is flexibility in site choice, and it is also not considered likely that mineral working would be deemed suitable immediately adjacent to the urban fringe where most development opportunities are located.

7.5.95 The majority of growth is focused along the A46 Corridor, which overlaps in some areas with potential sand and gravel resources. The A5 improvement area also overlaps with areas of sand and gravel and clay resources. The Leicestershire International Gateway broad area also overlaps with areas of sand and gravel in parts (to the north of Castle Donington for example).

7.5.96 In the main, the areas of overlap correspond with flood plains in locations that are unlikely to be promoted for housing development. It is also considered likely that existing minerals working sites would be expanded if possible, rather than seeking to deliver entirely new sites. The Leicester and Leicestershire Minerals and Waste Plan mostly focuses on expansion to existing sites (for the majority of mineral types including sand and gravel), though it is acknowledged that this does not cover the period 2031-2050 (meaning that new locations may need to be explored). Consequently, the potential sterilisation of minerals ought to be minimised through the proposed Plan approach.

7.5.97 Overall, an **uncertain negative effect** is predicted. Though the distribution of growth ought to allow for viable mineral resources to be avoided, there is potential for overlap with reserves, particularly where there is a focus of growth to the A46 corridor and the A5 Improvement Corridor.

7.5.98 Given that there may be a need for additional resources to be worked in the period 2031-2050, it is possible that potential development opportunities could overlap with mineral resources (mostly sand and gravel). It should however, be noted that minerals resources could be extracted prior to development anyway, which would mitigate the effects somewhat. Therefore, effects would not be anticipated to be significant.

Recommendations – No recommendations are made. It is considered appropriate for Local Plan's to deal with the potential effects on mineral resources through consideration of specific development opportunities and the development of protective policies.

7.6 Mitigation and enhancement

7.6.1 Where appropriate, recommendations were made as part of the appraisal of the draft Plan. These are summarised below, along with a response from the Strategic Planning Group to demonstrate how the recommendations have been taken into consideration.

7.6.2 A key principle is that the scope of the Strategic Growth Plan was to focus on the spatial distribution of development and infrastructure requirements, rather than the form of development. Therefore, it is expected that more detailed work would be deferred to later stages (i.e. through Local Plans and other strategic plans). There is also an assumption that measures can be addressed through the garden cities agenda, which is a key principle expected to be reflected in future detailed Plans.

__Table 7.2:__ Summary of recommendations

SA Recommendations	Strategic Planning Group response
It would be beneficial for a green infrastructure strategy to be developed to identify how links between the City and the A46 corridor could be strengthened, ensuring that wildlife habitats are better connected. The Plan could commit to the preparation of a joint strategy to enable such opportunities to be explored and taken advantage of.	A Landscape and Green Infrastructure Study informed thinking on the draft and revised versions of the Plan. This work will be taken forward in more detail as decisions are made, in Local Plans, on potential development sites.

SA Recommendations	Strategic Planning Group response
In order to mitigate potential negative effects in terms of increased congestion and effects on air quality from vehicles, it would be beneficial to highlight a commitment to establishing the infrastructure to support electric vehicles. This would set a clear steer for Local Authorities to promote such infrastructure at strategic sites in particular. It would also be beneficial to ensure that strategic sites are well—served with public transport connections and cycling and walking routes into urban areas.	The two highway authorities (Leicester City Council and Leicestershire County Council) are preparing a Strategic Transport Plan to provide an overall context for Local Transport Plans, statutory Local Plans and other strategies. This will consider the merits of a wide range of green transport measures including public transport, electric vehicles and other green transport measures and the infrastructure that is needed to support them.
The Plan acknowledges rural areas as being nationally significant for agriculture and food production. However, there is no explicit strategy for the rural areas. By focusing growth away from the rural areas though, the Plan does offer a degree of protection for these industries. However, additional positive effects could be generated by setting a policy framework that supports the protection, diversification and modernisation of rural businesses.	The future of rural areas will be addressed in Local Plans. There is a need to balance the need for agriculture and food production with the diversification of local economies.
The Plan is mostly silent on the issue of climate change, with no strategic approach being proposed to help move towards a zero carbon economy. Given the proposed concentration of growth at a series of large scale developments (which ought to be more viable for decentralised energy schemes), the Plan could set out a commitment to achieving low carbon development and explore how separate developments can be linked together to create better opportunities for sustainable developments. Whilst Local Plans would be the more appropriate vehicle for exploring opportunities, it would be beneficial to outline the intent in the Strategic Growth Plan.	Climate change is recognised as an important consideration in the context of sustainability. The scope of work for the Strategic Growth Plan, however, has been clearly articulated since the outset i.e. to focus on housing, employment, infrastructure and environmental protection. Climate change is a matter that is being addressed in Local Plans/Local Plan reviews and in the context of site specific development proposals.

7.7 Monitoring of significant effects

7.7.1 At this stage there is a requirement to outline the measures envisaged to monitor the predicted effects of the Plan. In particular, there is a need to focus on the significant effects that are identified. It is important to track predicted effects to ensure that positive effects are actually being realised and to identify any unforeseen negative effects that may occur.

7.7.2 Table 7.3 below sets out monitoring measures under each SA topic which are intended to monitor any significant effects as well as tracking the baseline position more generally. At this stage the monitoring measures have not been finalised. This occurs once the Plan is approved, when an SA Statement needs to be prepared that explains how the SA has influenced the Plan's development.

__Table 7.3__: Proposed monitoring measures

SA Topic	Potential monitoring measures
Biodiversity **Uncertain negative effects** are predicted overall relating to the potential for localised effects on habitats and species as a result of large scale development. However, these effects are not predicted to be significant given the avoidance of the most sensitive areas and the focus on a Garden City concept.	• Net loss/gain in designated habitats (ha). • Ecological enhancement schemes delivered at strategic sites. • Ecological water quality. • Establishment of a green infrastructure strategy.
Health and wellbeing A **significant positive effect** is predicted for health and wellbeing due to the potential to improve access to health services, community facilities and affordable housing. **Minor negative effects** are identified with regards to a loss of open space and potential increase in air quality issues in the City.	• Net change in open space provision. • Number of new health care facilities delivered. • Access to local green space. • Change in levels of deprivation in the top 20% areas. • Achievement of air quality objectives
Housing A **significant positive effect** is predicted overall for housing. This reflects the support for affordable and market housing in areas of need that are well located to employment opportunities.	• Rates of housing delivery. • Percentage of affordable housing delivered. • Availability of land for strategic development opportunities in the key locations.

SA Topic	Potential monitoring measures
Economy and employment **Significant positive effects** are predicted for the economy and employment as the strategy seeks to help deliver and take advantage of infrastructure and economic growth opportunities. Housing growth is focused to areas that have good access to jobs, and ought to support increased local spending, provide jobs in construction, and provide accommodation for a growing workforce.	• Gross Added Value Leicester and Leicestershire. • Unemployment rate. • Retention of working age population. • Changes in the levels of deprivation. • Change in numbers of people employed by sector
Transport and travel The Plan is predicted to have mixed effects on transport and travel. The close proximity of new homes to employment opportunities ought to reduce the length of travel. The focus on new settlements should also ensure that new communities have good access to local facilities and services. A **significant positive effect** is predicted in this respect. However, substantial growth around the City and along the transport corridors could put additional pressure on orbital routes and in and out of the Leicester and market towns such as Hinckley. This could have **moderate negative effects** in terms of congestion.	• Number and proportion of homes within walking distance of key public services, recreational opportunities and public transport services. • New / expanded public transport services secured through strategic development. • Average annual traffic flows. • Average trip length to access employment.
Climate change The Plan is predicted to have a **minor positive effect** overall, reflecting a potential reduction in emissions from transport by directing the majority of growth to areas with good accessibility.	• Change in the amount of carbon emissions generated from transport (per capita).

SA Topic	Potential monitoring measures
Landscape and land The Plan is likely to have minor negative effects with due to the likely loss of best and most versatile agricultural land. With regards to landscape character, a **moderate negative effect** is predicted overall, though more significant effects could occur along the A46 corridor depending upon the location and layout/design of development.	• Amount of best and most versatile agricultural land lost to development by grade. • Number of allotments established at strategic development sites. • Landscape character assessments undertaken to identify sensitive parcels of land at key growth areas.
Cultural heritage The Plan is predicted to have both **minor positive effects** and **minor negative effects** on heritage. There is the potential for the character of settlements to be affected by large scale development and a loss of open space. Development in Leicester City in particular presents opportunities to enhance heritage assets that are currently in poor condition. The avoidance of negative effects across much of the Plan area is also a positive factor.	• Loss of or change in the significance of designated heritage assets. • Townscape and landscape character assessments completed. • Amount of derelict land restored (ha). • Heritage assets removed or added from the 'at risk' register. • Net loss/gain of open space in Leicester City.
Water The draft Plan is predicted to have a **minor negative effect** overall, reflecting the potential for some development to be in areas at risk of flooding and an increase in the demands on water treatment infrastructure.	• Percentage of new development within flood zones 2 and 3. • SUDs schemes incorporated into new developments.
Minerals An **uncertain negative effect** is predicted as it is possible that new development in the areas identified for growth could overlap with Minerals Safeguarded Areas (particularly for sand and gravel).	• Amount of development within Minerals Safeguarding Areas (ha). • Potential sterilisation of minerals at strategic development sites.

7.8 Cumulative effects

7.8.1 Cumulative effects have been considered in two different ways. In the first instance, the cumulative effects of the Plan have been considered 'internally'. This means that the effects of all elements of the Plan have been considered 'in-combination' to identify what the overall implications are for each sustainability topic. These cumulative effects are discussed in Section 5 for the alternatives and Section 7 for Plan considered 'as a whole'.

7.8.2 The effects of the Plan in-combination with other key plans, programmes and projects can be described as the 'external' cumulative effects. These issues are already identified to an extent by setting out the projected future baseline (within the Scoping Report) that the Plan is appraised against. Given that the projected baseline takes account of the key plans, programmes and projects that could affect future trends, these 'external' factors have already been broadly considered. However, for additional clarity, we have presented the most important policies, plans and programmes that could work alongside the Strategic Growth Plan to generate synergistic / cumulative effects.

7.8.3 Given that the Strategic Growth Plan is focused on the longer term (2031-2050), the number of relevant plans and projects is limited.

Table 7.4: *Cumulative effects of the Plan alongside long term plans, programmes and projects*

Plan, programme, project	Cumulative / synergistic effects
Midlands Connect Transport Strategy (2017) – This document sets out the region's vision to become an engine for growth through investment in transport infrastructure. It is a long term strategy, seeking to support businesses in the next 25 years and to lay the foundations for future growth beyond 2030. In this respect, the Strategy is particularly important in setting the context for employment and housing growth.	A range of infrastructure schemes are likely to be delivered as part of the Midlands Connect Strategy including the A46 expressway, HS2, and Melton Mowbray Eastern Link Road. These would all involve physical infrastructure cutting across areas of open countryside. These schemes could therefore alter the character of landscapes, lead to a loss of agricultural land and potentially cut across ecological networks. Consequently, this changes the baseline position within which the growth associated with the Strategic Growth Plan would occur. It is possible that further growth (i.e. housing development) along these transport corridors could further degrade the character of landscapes and the function of open space for biodiversity. The combination of effects from infrastructure schemes and strategic housing growth could therefore be more prominent when considered side-by-side. This has been taken into consideration in the appraisal of the Plan, and it is considered that significant effects on landscape and biodiversity should still be possible to avoid provided that; green infrastructure enhancement is a key principle of development, and; that Local Plans identify the most appropriate locations for strategic development based upon an assessment of sustainability implications. Conversely, the implementation of infrastructure schemes ought to have positive in-combination effects upon the economy, transport and travel, and climate change. The growth Plan is predicated on infrastructure improvements, and this is taken into account when identifying the positive effects of the Plan with regards to the

	economy, transportation and climate change.

8 Next Steps

8.1.1 The Leicester and Leicestershire Strategic Planning Group have prepared a final plan that sets out the broad scale and distribution of development in the long term for Leicester and Leicestershire. The Plan also contains a number of key principles to guide growth.

8.1.2 The SA Report has been prepared to document the SA process that has been undertaken to inform the Plan. This has involved an assessment of reasonable alternatives to a draft Plan which was consulted upon in February – March 2018.

8.1.3 Further consideration of options was undertaken in response to consultation feedback, which suggested there were alternative approaches that ought to be tested. Once the Plan was finalised, the appraisal was also updated to take account of minor changes to the strategy and supporting principles.

8.1.4 Now that the Plan has been finalised, the Strategic Planning Group hopes to adopt the Strategic Growth Plan by early 2019.

8.1.5 Once approved an SA Statement will be prepared to discuss; the SA process, how it has influenced the plans development, and the measures that will be employed to monitor significant effects.

APPENDIX A: THE SCOPING REPORT