Leicester and Leicestershire Growth Strategy

Sustainability Appraisal:

Spatial options appraisal (Internal report)

October, 2017

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1 Introduction

1.1.1 This document is an internal report to assist the Leicestershire Growth Plan Working Group in understanding the sustainability implications of a range of spatial options for the distribution of housing. This ought to help aid the decision making process and the formulation of a preferred approach to take forward.

1.1.2 The content of this report will form the major part of an interim SA Report that will be prepared and published for consultation alongside the Vision for Growth document.

1.1.3 The report is structured as follows:

Section 2 – Description of the options

1.1.4 This part of the report sets out the options that have been established by the working 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 3 – Methodology

1.1.5 This part of the report sets out a brief summary of the methodology to aid in the understanding of the appraisal process. The full methodology will be included in the interim SA Report.

Section 4 – Appraisal findings

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

Section 5 – Summary

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

2 Description of the options

2.1 Background

2.1.1 The growth and distribution of housing and employment is a central element to the Spatial Growth Strategy. 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.

2.1.2 The Spatial Strategy Working Group established a range of alternatives for the growth and distribution of housing and employment, making use of emerging evidence and existing work on Local Authority Local Plans as a starting point.

Amount of growth

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

2.1.4 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.

2.1.5 A lower level of growth than the projected OAN is considered to be an unreasonable alternative by the working 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 working 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.

Housing and employment distribution

2.1.6 The Working Group established a range of options for the distribution of housing and employment. 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.

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

2.1.8 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. Seven broad strategies have been identified as follows, with the expectation that the final strategy will 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

2.1.9 Taking these broad spatial strategies into account, six reasonable alternatives have been established setting out the amount of growth that would be distributed to key locations across the HMA. Each of the reasonable alternatives 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 set out for each of the options, with an emphasis on key strategic locations supported by the expansion of existing employment sites.

2.1.10 These alternatives 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.

2.1.11 Some combinations can immediately be regarded as producing an unreasonable alternative. That conclusion is likely to be reached in respect of any option ignoring national guidance and/or the known mechanisms of the development process, e.g. the need to secure the availability of a range of sites of various types and sizes in a variety of locations.

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

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. 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.

The housing growth 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. The option of providing a new settlement would not be pursued. However, 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.

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

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. 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.

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. 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.

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.

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.

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

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. 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

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. 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. 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.

2.2 Combining growth and distribution options

2.2.1 In order to give the appraisal 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.

2.2.2 This combination resulted in twelve discrete options that have been tested in the SA (see tables 2.1 and 2.2 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.

2.2.3 The methodology for undertaking the appraisal is set out in section 3, with the appraisal findings set out in full in Section 4.

Table 2.1 *Projected OAN from 2031-2050 (90,500)*

	1a.PUA 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
Leicester 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 2.2 *Projected housing needs 2031-2050 including 20% flexibility (108,600)*

	1b.PUA 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%

2.2.4

3 Methodology

3.1.1 For each of the SA Objectives in the SA framework (see Appendix A) an appraisal table has been completed which discusses the likely effects for each option (at both growth projections). An overall score for each option is derived from an appraisal and understanding of the effects across the HMA 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 urban periphery
- Effects on Market Towns
- Effects on other settlements
- Effects at new settlements/expanded settlements.

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

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

3.1.4 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.

3.1.5 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	×××		

3.1.6 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 Leicestershire Growth Strategy Working Group. 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.

4 Appraisal Findings

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, the 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 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.

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 to the sites selected for housing delivery through the Leicestershire growth plan. 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 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 lies … and 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 Reservoir lies …. And is made up of 5 units; 3 in an 'unfavourable – recovering' condition and 2 in an 'unfavourable – declining' condition.

Biodiversity

- 2 SSSI sites lie to the South West of the city, Enderby Warren Quarry in a 'unfavourable no change' condition. Narborough Bog the other SSSI 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 the SSSI impact risk zone 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 LNR's 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. 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.

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).
- 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, 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 6 units, all of which are in an 'unfavourable – no change' condition.

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.

Biodiversity

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 o dependant on the location of the selected housing sites. 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, a neutral effect is predicted for these two options.

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**.

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 have 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 HMA, 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 18,1000 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 have the least likelihood to impact on the small surround settlements due to the dispersal of between 9,050-13,575 homes across the whole plan delivery 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.

Biodiversity

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 higher 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)*

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.

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 Leicestershire growth plan. 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 achieve 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.

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 HMA 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 HMA 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 HMA 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 HMA. 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 HMA, 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 HMA. Overall a **minor negative effect** is predicted, rising to a **moderate negative effect** at the higher growth projection.

Biodiversity							
		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	×	××	-	?	-	×
PUA 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	××	×	×	×	-	××

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. 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 areas. This is identified as a **minor negative effect** on health and wellbeing for some communities. However, in theory 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 HMA. They would also provide the most housing in the City, which ought to help tackle affordability issues and potentially levels of 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.

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 on the urban periphery (36,200 homes). This level of housing development ought to 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 GI 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.

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, GI enhancement and infrastructure improvements.

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 GI 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.

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

Health and Wellbeing

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. 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.

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.

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.

Health and Wellbeing

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 and 4 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. 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.

Health and Wellbeing

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.

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 HMA. 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 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.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓✗✗	✓✓✓✗✗	✓	✓/✗	-	✓✓✓✗✗
PUA 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	✓	✓✓✗✗	✓✓✗	✓✓/✗✗✗	-	✓✓✓✗✗

Health and Wellbeing							
Option 6	6a	✓✗	✓✓✗	✓✓?✗	✓/✗	-	✓✓✓✗
Trends	6b	✓✓✗✗	✓✓✗✗	✓✓✗	✓/✗	-	✓✓✓✗✗

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**.

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 moderate 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

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 major market towns could help deliver large areas for 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 (20% - 18,100 homes) and option 4 (15% - 13,575 homes). Nevertheless, both options would have a **minor positive effect** on housing 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 targets.

Options 1 and 6 both delivering 20% (18,100 homes) are predicted to generate **minor to moderate positive effects**. Options 2 and 3 (15% - 13,575 homes) and 4 (10% - 9,050 homes) would deliver a smaller scale of housing and have **minor positive effects**.

Housing

Higher growth projection: The increased level of proposed growth does not change the **significant positive effects** in relation to option 5. However, both option 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 is the only option that suggests 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.

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. 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.

Housing

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.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓?	✓✓✓	✓	✓	-	✓✓
PUA 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	✓✓?	✓✓✓	✓✓✓	✓✓	-	✓✓✓

Employment and economy

Discussion of effects

City

OAN growth: 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 improve 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.

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 Principal Area 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 Leicestershire Growth area. Option 1 (40% - 36,000 homes) is most likely to generate benefits, and thus a **major positive effect** is

Employment and economy

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.

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 job. 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.

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**.

Other settlements

OAN Growth projection: Option 5 (40% -36,200) proposes the highest level of growth to other settlements across the Leicestershire growth 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 around (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 HMA 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.
- 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

Employment and economy

- 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 HMA.

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.

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 HMA, 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 HMAs 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 HMA for this option).

Employment and economy

Option 3 is predicted to have a **major positive effect** overall across the HMA. 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 HMA 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 for the HMA overall. 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.

Option 6 is predicted to have a **moderate positive effect** overall across the HMA. Benefits would be generated in all parts of the HMA, 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.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓	✓✓✓	-	✓/×	-	✓✓
PUA 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	✓✓	✓	✓	✓/×	-	✓✓

Employment and economy							
Trends	6b	✓✓✓ / ?	✓✓	✓✓	✓✓/✗		✓✓✓/✗

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 centre 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.

Higher Growth projection: The higher growth projection for the Leicestershire growth plan will 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.**

Urban periphery

Transport and travel

Several authorities (Harborough, Oadby and Wigston, Charwood) 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, which ought to reduce the length of trips made. 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 enhances 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 the least amount 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.

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

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 HMA 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%) is 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 (15-20%) would deliver the least growth and therefore has 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 HMA. 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 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.

Transport and travel

Options 2, 3 & 4 (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) is the only option that looks to expand growth in these new/expanded settlement areas. This would involve a large proportion of the total growth in the HMA. 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 HMA 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.

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

Overall effects

Transport and travel

Option 1 is predicted to have mixed effects on transport across the HMA. There is likely to be a major positive effect associated with good accessibility and reduced trip lengths associated with growth in the city, the 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 for the HMA. 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 HMA 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 HMA. 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 HMA. 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 HMA. 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 HMA, 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 HMA. 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 homes in areas with poor accessibility for the HMA 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.

Transport and travel

Option 6 is predicted to have mixed effects on transport and travel across the HMA. 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**.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓	✓✓/××	✓	✓?/××	-	✓✓/×
PUA 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	✓✓/×	✓/××	✓/××	✓/×××	-	✓/××

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.

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.

Climate change

Although there is a slight increase in proposed housing numbers in options 2, 3, 4 and 5 the effect remains as a **minor positive effect**. 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 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.

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. 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.

Climate change

Higher growth projection: An increase across the options in housing numbers and the associated land required cis likely to increase the level of carbon emissions overall across the HMA. 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, 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 at least likely to have the infrastructure already in place to support development. For option 4 (10% - 9,050 homes), there would be 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 5b 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 alternatives 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 alternative 4, there would still be 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

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 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 HMA, 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, 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 HMA 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. 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.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓✓/ ?	✓	-	-	-	✓ / ?
PUA Focus	1b	✓✓ / ×	✓	-	×	-	✓ / ×
Option 2	2a	✓	-	✓✓	✓	-	✓✓

Climate change							
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	✓✓ / ×	✓	✓	×	-	- / ×

Landscape and land

Discussion of effects

City:

The land within the City of Leicester boundary is almost all classified as urban land. There is a small amount of land to the North, Northwest and East and the southwest 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 PUA (principle urban area) 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 HMA. 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.

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 HMA, 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 southeast 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. 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.**

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.

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 southwest.

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.

Landscape and land

OAN Growth projection: Option 2 which aims to deliver 60% of homes throughout the 5 market towns would have the potential to most adversely impact on 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. 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. 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, a **neutral** effect is predicted for these two options.

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 **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**.

Other settlements: There are numerous smaller settlements across the HMA, 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 option 4, the level of growth is the lowest of all options, and could be spread fairly lightly across the HMA, 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.

Landscape and land

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**.

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

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.

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 more likely. The effects of all other options remain **neutral.**

Overall effects

Overall, the Leicestershire growth plan 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 is 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**

Landscape and land

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. or 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 HMA, 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.**
Option 6is predicted to have a moderate negative effect, due mainly due to negative effects occurring in all parts of the HMA (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.**

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	✓ / ?	××	-	××	-	×
PUA 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	✓ / ?	?	×	××	-	××

Landscape and land							
Trends	6b	✓ / ✗	✗	✗	✗✗	-	✗✗✗

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 city boundary, 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.

Cultural heritage

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, 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 Anstey and Glenfield.

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 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.

Cultural heritage

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 options 1 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 HMA, 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.

Option 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 and 4, the level of growth proposed could still have some minor effects in certain settlements, but the overall picture across the HMA would be broadly **neutral**. This level of growth (particularly for option 4) 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.

Stoney Stanton

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

Cultural heritage

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.

Higher Growth projection: At a higher growth projection the effects are likely to be exacerbated, and so a **moderate negative effect** is predicted.

Overall effects

Option 1 is predicted to have mixed effects across the HMA. 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 PUA somewhat. There is also potential for positive effects in the City associated with regeneration. On balance for the HMA 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 HMA.

Option 2 is predicted to have mixed effects across the HMA. Due to a heavy focus in 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 HMA 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 positive effects in the City are likely to remain.

Cultural heritage

Option 3 is predicted to have mixed effects across the HMA. 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 PUA. On balance a **moderate negative effect** is predicted for the HMA 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 HMA. 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 HMA 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 HMA as a whole. The **minor positive effects** at the City are still recorded.

Option 5 is predicted to have mainly negative effects across the HMA. 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 HMA 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 HMA, though not leading to a change in any of the scores.

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

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	××/✓✓	×××	-	×	-	××/✓✓
PUA 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	×/✓	×	×	×××	-	×××/✓

Cultural heritage							
Option 6	6a	××/ ✓✓	×	×	×	-	××/ ✓✓
Trends	6b	××× / ✓✓	××	×	××	-	××× / ✓✓

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.

Water

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 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.

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's 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 delivery 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

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 the most significant and recent events occurred 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.
- 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'.

Water

OAN Growth projection: Several of the market towns identified to accommodate further growth within the Leicestershire growth plan 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. At 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. Option 1 & 4 (15-20% growth) would have the least effects on water as it would provide greater flexibility in housing, as well as reducing pressure on infrastructure. Consequently a **neutral effect** is 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. Option 5 & 6 aim to deliver 32, 580 additional homes across the market towns within the growth area, which is predicted to have a **moderate negative effect**. Option 1 & 4 (15-20%) aims 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 HMA 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. Growth on agricultural land could also help to reduce pollution from agricultural practices. However, increased pressure on water supply/waste water treatment 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 (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 Zone 2 and 3 flood zones.

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 in 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.

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. On balance, a **major negative effect** is predicted taking account of these factors together. All other options are predicted to have **neutral effects** as no growth is proposed.

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 HMA. 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 HMA, but particularly at the Urban Periphery and the City. Consequently, a **major negative effect** is predicted.

Option 2 is predicted to have mostly neutral effects on water across the HMA, 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 effects across the HMA are 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 HMA. 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 HMA, with the exception of the City. Though 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 HMA, 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 HMA, with moderate effects identified for the market towns and other settlements. This is considered to be a **major negative effect** overall.

Water

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 HMA resulting in a **major negative effect**.

		City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**
Option 1	1a	×	××	-	?	-	×
PUA 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	××	×	××	×	-	×××

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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, options 1 (20% - 18100 homes) and option 6 (25% - 22625 homes) would place the most significant demand on mineral resources, whilst the impact arising from options2, 3, 4, and 5 (10% - 9,050 homes) would be lessened. 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 options 1 (20% - 18100 homes) and option 6 (25% - 22625 homes) are predicted to have a **minor**

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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.

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.

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.

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.

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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. 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 (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**.

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) and option 4 (10% - 9,050 homes) would distribute some growth to the more rural areas, the likelihood off 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 is the only option 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.

Minerals

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 a **minor negative effects r**ather than minor.

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 HMA. 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 areas across the HMA. 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 HMA 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 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.

	City	*Urban periphery*	*Market towns*	*Other settlements*	*New/expanded settlements*	**Overall effects**

Minerals								
Option 1	1a	✓	✓	-	×?	-	-
PUA 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	✓/×	-	×	×?	-	×

5 Summary of effects

5.1.1 Table 5.1 below presents the overall scores recorded for all 6 distribution options at both scales of growth. These effects have been drawn together from the detailed assessments undertaken in the previous section. The effects represent a summary of effects for the HMA, which takes account of how the options could have different effects in different parts of the HMA.

5.1.2 First, a discussion of the distribution options is presented at the OAN growth projection. This is followed by a discussion of the effects assuming a 20% increase in growth or each of the options.

Table 5.1 *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	×	✓✓✓××	✓✓	✓✓	✓✓/×	✓ / ?	×	×× / ✓✓	×	-
PUA Focus	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	✗✗	✓✓✓✗✗	✓✓✓	✓✓✓/✗	✓/✗✗	- / ✗	✗✗✗	✗✗✗ / ✓✓	✗✗✗	✗

Table 5.2 *Summary of appraisal scores for each option at the OAN growth projection*

		Biodiversity	Health & wellbeing	Housing	Economy	Transport	Climate change	Landscape and land	Heritage	Water	Minerals
Option 1 *PUA Focus*	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	✗	✓✓✓✗	✓✓	✓✓	✓/✗	✓ / ?	✗✗	✗✗ / ✓✓	✗	?

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.

Discussion of the distribution options

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

5.1.4 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.

5.1.5 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.

5.1.6 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.

5.1.7 Option 3: Option 3 generates significant positive effects in terms of housing (only option 5 performs as well) and is the only 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 PUA and the Market towns.

5.1.8 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.

5.1.9 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 HMA. The effects on the economy would be 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 HMA. 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, increase trip length and poorer accessibility.

5.1.10 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

Comparison of options

5.1.11 As illustrated in table 4.1, 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.

5.1.12 From a social and economic perspective, option 3 appears to perform the best overall, as it is the only option that generates a major positive effect on both housing and economy. All other options would still generate positive effects on social and economic factors though.

5.1.13 However, despite performing best 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.

5.1.14 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.

5.1.15 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.

5.1.16 It is also clear that option 3 best meets the economic aspirations of the growth strategy and supports infrastructure-led growth whilst performing similarly in terms of environmental effects to options 1, 2, 4 and 6. This option could therefore be a good starting point for further developing the draft spatial strategy.

5.1.17 By examining the effects associated with each option it is possible to identify where shifts in the amount of numbers focused at different parts of the HMA (i.e. the city / urban periphery / market towns / other settlements / expanded settlements) could avoid negative effects and/or lead to greater positives for the HMA as a whole. For example, for option 3, the moderate negative effects associated with landscape and land and cultural heritage could be reduced by shifting some of the growth away from the market towns (proposed at 40% for option 3). Depending upon where this

growth was then located, it ought to be possible to mitigate effects, whilst not affecting the overall positive effects for the economy, housing and wellbeing and housing associated with option 3. This would make the overall effects of option 3 more positive.

Discussion of growth options

Table 5.3 *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 *PUA Focus*	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.

5.1.18 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 HMA, whilst the positive effects do not increase as consistently or by the same magnitude.

5.1.19 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.

5.1.20 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. 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).

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

5.1.22 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.

5.1.23 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.

5.1.24 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.

5.1.25 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.

APPENDIX A: THE SA FRAMEWORK

SA topics and corresponding objectives	Sub objectives / guiding questions
Biodiversity 1. Protect, maintain and enhance habitats, species and ecological networks.	• How will water environments be affected? • How will the quality and connectivity of ecological networks be affected? • Will there be a net increase in biodiversity?
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.	• How will the health and wellbeing of an older population be affected? • How will health inequalities be affected? • Will good levels of health and wellbeing be maintained? • How will access to open spaces be affected? • Will development reduce the number/amount of receptors that are affected by poor air quality? • Will development lead to increased or decreased exposure to poor air quality for new and existing communities?
Housing 3. Secure the delivery of high quality, market and affordable homes, to meet Objectively Assessed Need.	• How will the delivery of housing be affected? • What is OAN for HMA and for each district / borough? • How does OAN relate to land availability and to likely delivery rates? • How will issues of affordability be tackled? • Will affordability issues in rural areas be tackled? • To what extent will housing be well related to employment opportunities and key services?

SA topics and corresponding objectives	Sub objectives / guiding questions
Economy and employment 4. Support the continued growth and diversification of the economy.	• How will the rural economy be affected? • Is there support for the growth of strategic distribution centres in accessible locations? • How will levels of unemployment be affected, particularly in the City and pockets of deprivation?
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.	• Will development contribute to strategic infrastructure improvements? • Will development help to tackle accessibility issues, particularly in rural areas? • Will development contribute to a reduction in congestion along key routes into,out and around Leicester? • Will developments reduce the need to travel, especially by car?
Climate change 7. Contribute to a reduction in greenhouse gas emissions and an increase in the use of low carbon energy	• Is there potential for the development of low carbon and renewable energy schemes to be implemented? • Will development lead to the 'sterilisation' of energy opportunities?
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.	• How will the rural and tranquil nature of the countryside be affected? • Will access to the countryside be improved in a sustainable manner? • Are there alternative locations for development on agricultural land of lower quality? • Will topsoil be preserved?

SA topics and corresponding objectives	Sub objectives / guiding questions
Cultural Heritage 10. Protect, maintain and enhance the historic environment.	• How will the character of settlements be affected, particularly urban fringes? • Will opportunities to enhance the fabric, function and setting of historic assets be realised?
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.	• Has development been sited in accordance with the NPPF sequential and exception tests? • Are there opportunities to secure strategic flood management and improvement schemes as part of development? • Will development help to fund improvement and management schemes for water quality? • Can development be accommodated by existing and planned water treatment facilities?
Minerals 13. Protect mineral resources from sterilisation, and support their sustainable extraction.	• Will mineral resources be sterilised as a result of housing or employment land allocations? • Will development be located on land that could be used for future minerals extraction or transport *(for* example freight terminals, disused rail lines etc.) • Will development be located close to sources of building materials?