South Leicestershire Joint Transport Evidence

Stage 1

Leicestershire County Council

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Delivering a better world

Quality information

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Revision History

Revision	Revision date	Details	Authorised	Name	Position
V1	15/07/2024	First Draft including LCC's Workshop 2 feedback			
V2	30/09/2024	Final report, incorporating feedback from Draft V1 feedback	Yes	Paul Bate	Regional Director
V3	18/12/2024	Final report with Additional figure showing scale of growth by option (Appendix C)	Yes	Paul Bate	Regional Director
V4	09/01/2025	Final report with an additional paragraph added (section 2.6) and some format changes for improved accessibility	Yes	Paul Bate	Regional Director

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1. Introduction

Context and Objectives

1.1 Blaby District Council (BDC), Harborough District Council (HDC), Hinckley and Bosworth Borough Council (HBBC) and Oadby and Wigston Borough Council (OWBC) have agreed a Statement of Common Ground committing to develop a Joint Transport Evidence (JTE) base for forthcoming Local Plan reviews.

1.2 The rationale for developing a holistic JTE base stems from appreciation of:

- The interdependent nature of the transport network and its use.
- That there are major capacity and connectivity constraints on parts of the Strategic Road Network (SRN), which create wider impacts on the highway network including knock-on effects on the local network.
- The potential for cumulative and cross-boundary impacts arising from strategic site development opportunities, which need to be addressed by an integrated approach rather than individual Local Plans.
- The potential need for unmet housing need from areas of the Leicester and Leicestershire Housing Market Area (HMA) to be accommodated by South Leicestershire Districts and Boroughs.
- The need to build on existing policy and strategic thinking. The Strategic Growth Plan (SGP) and the related Strategic Transport Assessment (STA) are Leicestershire and Leicester-wide planning documents that form the basis for considering growth in South Leicestershire and inform the mitigation measures proposed in this document.

1.3 AECOM has been commissioned to develop this transport evidence base. The work involves modelling three spatial growth options, analysis of model outputs and reporting on the scale and nature of impacts arising from growth, and an initial view of the potential need for strategic mitigation. The outputs from this work will inform Districts and Boroughs in the selection of their preferred spatial growth options.

1.4 The development of the evidence base is planned according to the three following stages:

- Stage 1: a combined assessment of a range of alternative development strategy options for the four emerging Local Plans to inform the identification of a preferred option in each case. The focus is to identify key cross-boundary interactions/issues that could influence the choice of development strategy.
- Stage 2: a combined assessment the preferred development strategies, determined by the District and Borough councils, to identify key areas of cumulative impact and strategic mitigation requirements.
- Stage 3: a more detailed evidence base covering the key sub-areas of impact identified through Stage 2, including the development/assessment of mitigation packages for each sub-area.

1.5 This report presents the outputs of Stage 1.

Approach

1.6 The approach to this work involved the following steps:

- Forecast modelling of a Core scenario (no South Leicestershire Local Plan growth) and the three cumulative proposed spatial options using Leicestershire County Council's (LCC) Pan Regional Transport Model (PRTM).
- Analysis and interpretation of model outputs, the comparing of forecast Local Plan spatial growth options to the Core scenario. The analysis identified where impacts are forecast to arise, and the scale of these impacts and reasons.
- Assessment of the need for mitigation and identification of potential strategic mitigation.
- Two workshops to share and discuss analysis and potential mitigation with key stakeholders.
- Comparison of the cumulative proposed spatial options.

1.7 The PRTM 2019 base v1.2 was used for modelling. The forecast years modelled were 2041 (the Local Plan end date) and 2051 (as a representative year for when large sites would be fully built out). Modelling input assumptions were discussed and agreed with Leicestershire County Council (LCC), and the four partner district councils (BDC, HDC, HBBC and OWBC). Further details are set out in Appendix A.

1.8 Throughout Stage 1, the focus of analysis and reporting has been high-level and at a South Leicestershire-wide level. Previous work was drawn upon to inform the analysis and mitigation proposals including the Strategic Growth Plan – Strategic Transport Assessment, Stage 1 undertaken by LCC on behalf of the Leicester and Leicestershire Strategic Planning Partnership.

1.9 The workshops included Leicestershire County Council, the Local Authorities which make up South Leicestershire, neighbouring county councils, and other key organisations including National Highways.

- Workshop 1: Testing Growth Options and Analysis of Impacts took place on 25th April 2024. In the first workshop the initial findings from the transport modelling were shared, the differences between the spatial options were discussed and an initial view on potential mitigation was raised.
- Workshop 2: High-Level Strategic Mitigation took place on 17th June 2024. In this workshop there was a more detailed discussion about the need for strategic mitigation to support growth.

1.10 Further information about the workshops is set out in Appendix B.

Report Structure

1.11 The report includes the following sections:

- Section 2: Spatial Growth Options;
- Section 3: Analysis of Modelling Outputs;

- Section 4: Identifying Areas for Strategic Mitigation;
- Section 5: Potential Strategic Mitigation;
- Section 6: Comparison of Spatial Growth Options;
- Appendix A: Modelling Background;
- Appendix B: Stakeholder Workshops; and
- Appendix C: Scale of growth by site, 2041 and 2051.

2. Spatial Growth Options

Introduction

2.1 Three spatial growth options for South Leicestershire were compiled by the four partner districts (with technical support and coordination from LCC) by combining growth options put forward by each of the Districts and Boroughs into logical 'composite' scenarios. These growth options reflect the likely distribution of new housing and jobs, identified by the Districts and Boroughs through their own technical evidence base work to date as part of their own Local Plan development process.

2.2 The Local Plan horizon is year 2041 and analysis and reporting has focused on this year. However, as some larger sites in spatial growth option 2 and 3 are unlikely to be fully built-out by 2041 an additional forecast year of 2051 has been included to represent full build out.

2.3 LCC provided details regarding the access requirements for sites in each of the spatial growth options. Spine roads were included in the modelling for larger strategic development sites or clusters where they might serve a strategic purpose and/or induce major traffic rerouteing.

2.4 The 'City of Leicester' and 'Leicester Urban Area' refer to the main settlement areas bordering the South Leicestershire Districts and Boroughs. The City of Leicester is the administrative district governed by Leicester City Council and the Leicester Urban Area is the City and its surrounding suburbs.

Spatial Distribution of Growth

2.5 The spatial distribution of the proposed growth can be seen in Figure 2-1, Figure 2-2 and Figure 2-3 which show the development options. While the scale of growth is largely similar between the options, there are some noticeable differences in the distribution of growth:

- **Option 1:** Smaller sites more evenly distributed across the four Boroughs and Districts. There is a greater concentration of growth along the M1 and M69 corridors. Due to the lack of large prospective allocations this option's growth was not modelled in year 2051.
- **Option 2:** Greater focus on larger sites compared to Option 1. These larger sites (which include build out to 2051), are dispersed to the west of South Leicestershire around the A5, A444, and A447 corridors. Sites are located on the borders with neighbouring authorities beyond South Leicestershire. In comparison to Option 1, growth in Harborough is located closer to the border with Oadby & Wigston. This option was modelled with a 2051 scenario to understand the impact of sites being fully built out.
- **Option 3:** Similarly to Option 2, there is a greater focus on larger sites compared to Option 1 (which again include significant 2051 build out). The location of growth in Option 3 is more concentrated around the south and south-east of the of Leicester Urban Area, and on the border of Blaby and Harborough. There is still proposed growth along the A5 corridor but fewer

sites to the north and west of Hinckley & Bosworth. This option was modelled with a 2051 scenario to understand the impact of sites being fully built out.

2.6 Note, the sites mapped in the following figures are indicative and used for transport modelling purposes only to enable different spatial options for the distribution of development to be considered at a strategic level. The inclusion of a site does not imply it is appropriate for development, and all sites are included without prejudice to the local plan site selection process of each Local Planning Authority.

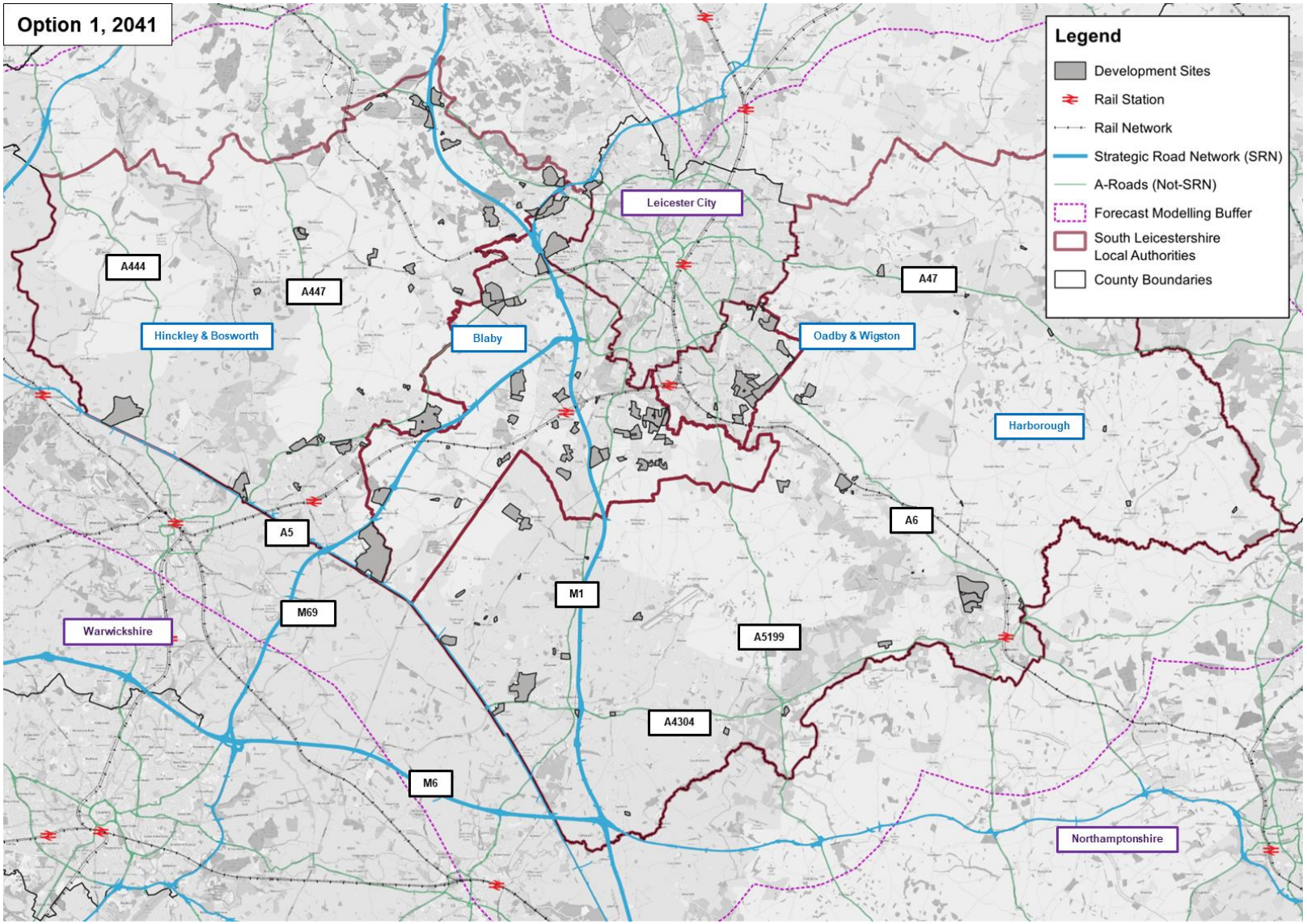

Figure 2-1: Spatial Distribution of Growth in Option 1

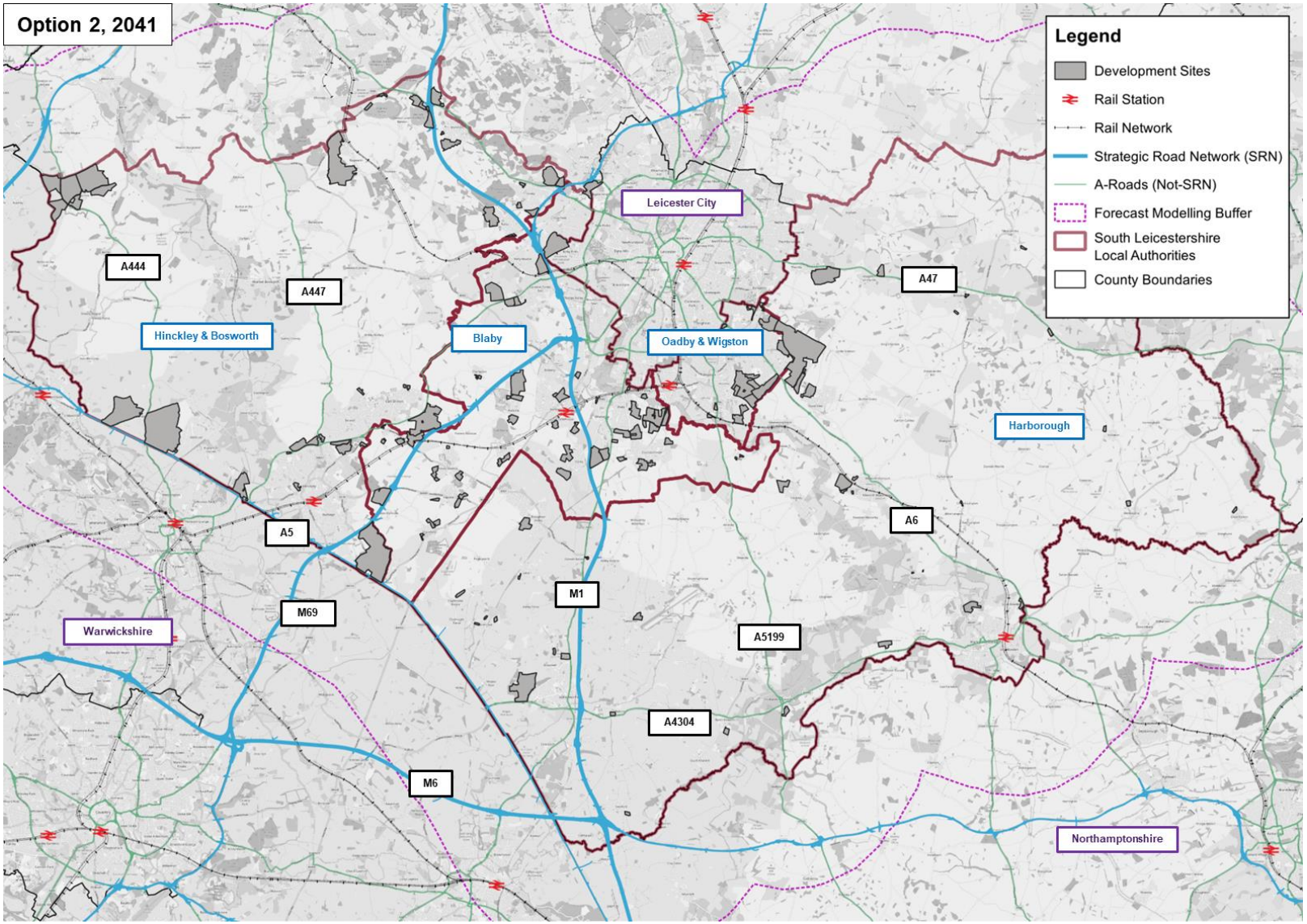

Figure 2-2: Spatial Distribution of Growth in Option 2

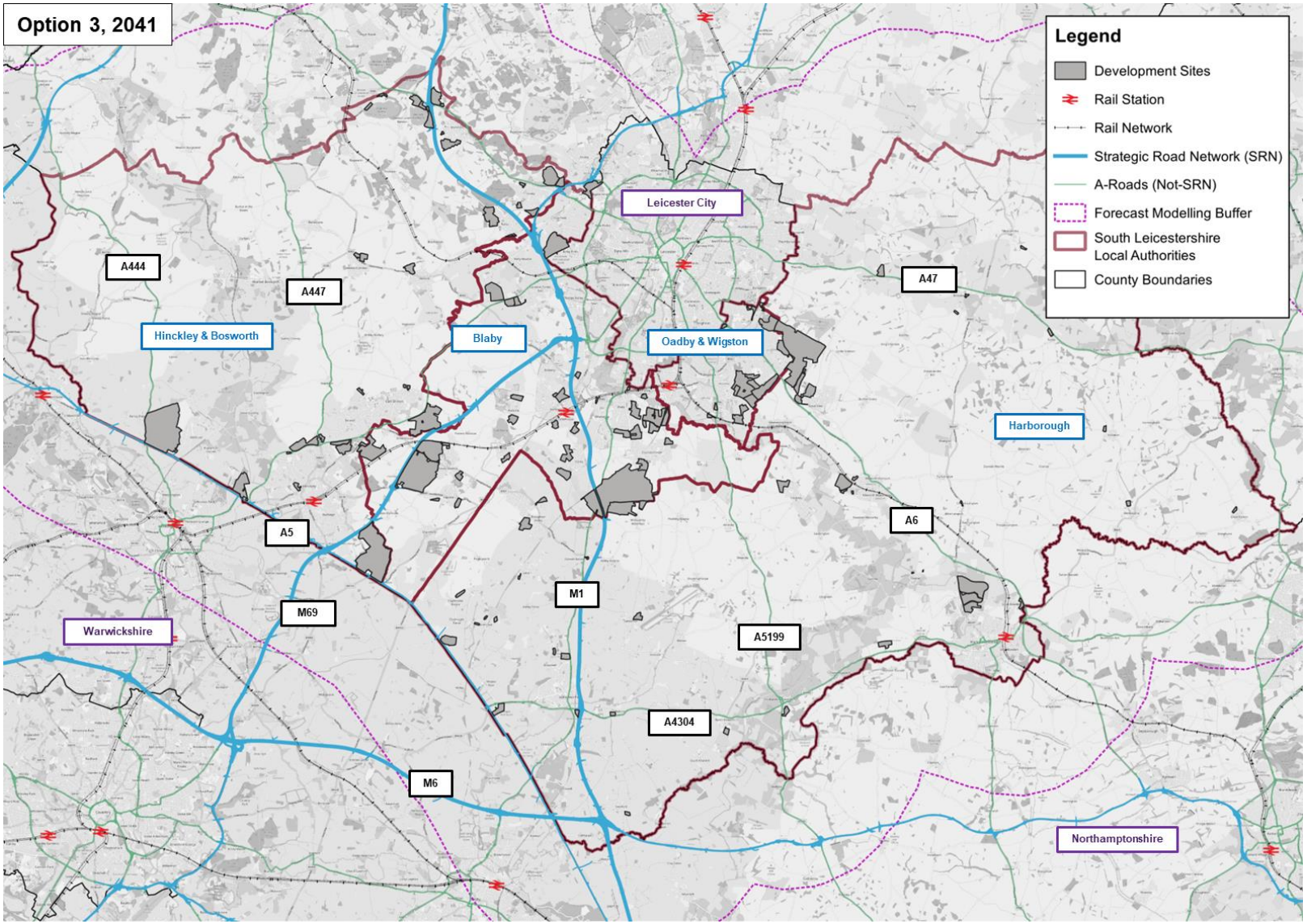

Figure 2-3: Spatial Distribution of Growth in Option 3

Quantum of Development

2.7 The three development options, Options 1, 2 and 3, were modelled. All options were assessed for the 2041 forecast year, with Options 2 and 3 additionally modelled for 2051. Table 2-1 and Table 2-2 show the planning data for the number of potential new homes and jobs by option.

2.8 The number of homes and jobs is broadly similar between the spatial growth options for the 2041 and 2051 forecast years. Note, there is no proposed development post 2041 in Option 1.

2.9 Plots showing the scale of housing and employment growth are held in Appendix C.

Table 2-1: Potential Homes and Jobs by Spatial Growth Option (2041)

	Option 1		Option 2		Option 3	
	Homes	Jobs	Homes	Jobs	Homes	Jobs
BDC	9,521	3,900	9,533	3,900	9,593	6,800
OWBC	5,074	2,500	5,074	2,500	5,074	2,500
HBBC[1]	10,309	25,200	11,013	21,200	10,041	21,200
HDC	5,805	2,900	5,805	2,300	5,805	3,600
Total	**30,709**	**35,400**	**31,425**	**29,800**	**30,513**	**34,100**

Table 2-2: Potential Homes and Jobs by Spatial Growth Option (2051)

	Option 1		Option 2		Option 3	
	Homes	Jobs	Homes	Jobs	Homes	Jobs
BDC	(N/A – Option 1 applies to 2041 only)		10,654	5,600	17,480	7,200
OWBC			5,074	2,500	5,074	2,500
HBBC*			25,474	21,200	18,982	23,200
HDC			18,672	2,300	19,670	3,600
Total			**59,874**	**31,500**	**61,206**	**36,400**

[1] ~3,500 homes, along with their associated mitigation measures, in HBBC were allocated to the core scenario – all growth shown here is additional.

3. Analysis of Forecast Modelling Outputs

Introduction

3.1 This section sets out the analysis of forecast modelling outputs in terms of three metrics: Volume over Capacity (VoC), traffic flow difference, and delay change. As the assessment is made for the impact of Local Plan growth, the focus is on the change in metrics between Core scenario to forecast growth options; however, existing issues on the transport network have also been considered as part of this analysis.

Forecasting Outputs

Volume over Capacity

Existing Issues

3.2 Existing capacity issues and those arising from background growth (i.e. the core scenario) have been identified. Locations with junctions exceeding capacity (VoC over 100%) in the core scenario are marked as black dots on VoC maps in Figure 3-1, Figure 3-2, and Figure 3-3, while new VoC issues are shown as red dots. The analysis reveals that many existing VoC issues occur on major roads such as M1 Junctions 21 and 22, A5, A46, and A4303.

Growth Scenario Issues

3.3 Junctions with significant performance deterioration from the core to the spatial growth options, due to increased trips generated by the proposed growth, have been identified. A significant deterioration has been defined by a change in VoC from the Core scenario of at least 10% and a VoC level of at least 85% in the Local Plan growth options. Junctions where there are capacity issues are mapped in Figure 3-1, Figure 3-2, and Figure 3-3.

3.4 A VoC of 85% or more means that the level of traffic using the junction is approaching the capacity for which it was designed, and it may not operate at optimal efficiency. Increases in the volume of traffic beyond a VoC of 85% are likely to lead to additional congestion and delay. A VoC of 100% or above indicates a junction at or exceeding theoretical capacity, meaning that the highway is saturated and will result in more significant levels of congestion and delay.

3.5 Each of these junctions have been reviewed to sense-check the VoC change and identify the junction approach arms which are of concern.

3.6 In Option 1, there are fewer VoC issues in the east of the City of Leicester, but additional congestion arises in the west of the study area, including on the A47 and the A444, and in Barwell. There are cross-border additional VoC impacts in the City of Leicester and Nuneaton. Option 2 exhibits additional congestion in the City of Leicester, especially on A6 and A5199, linked to growth southeast of the city, as well as on A5 west of Hinckley and in Lutterworth. Option 3 shows comparatively fewer VoC impacts, but the differences are not significant.

3.7 As part of the process for deriving the mitigations, junctions which met the agreed threshold for reporting were reviewed to understand the nature of the issues and whether they could be attributed directly to the proposed Local Plan development. This, along with other information such as the broad location and cost of potential interventions, helped inform the development of mitigations for that area. In some cases these were specific junction improvements, and in others broader measures aimed at encouraging more sustainable modes of transport.

3.8 In summary, issues are present at many junctions, and the results for the spatial growth options are more similar than different. The VoC issues are mainly driven by existing problems in the core scenario, which predominantly occur on main routes, including M1, M69, A5 posing challenges for accommodating new growth.

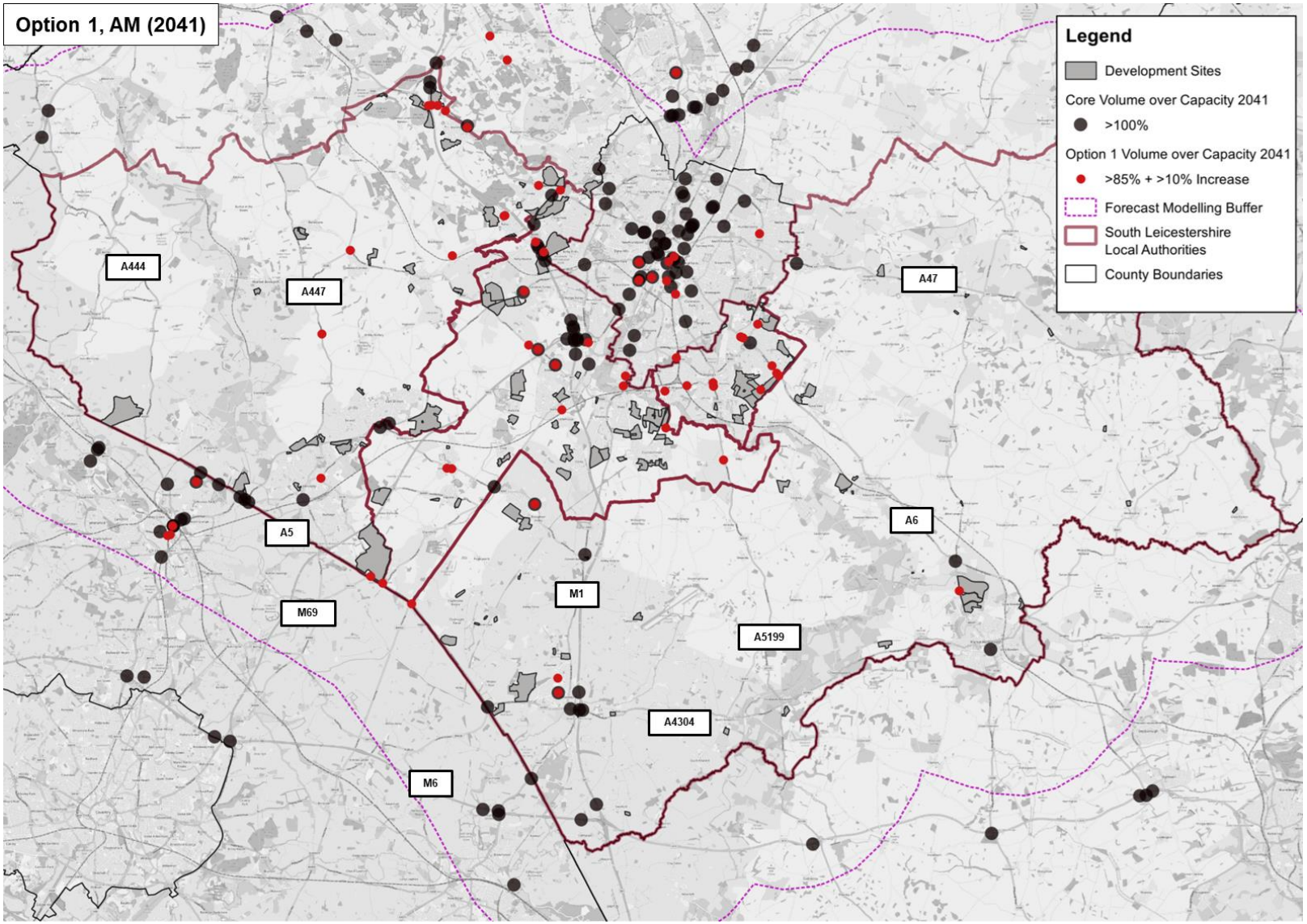

Figure 3-1: Option 1 Volume over Capacity (VoC) Plot

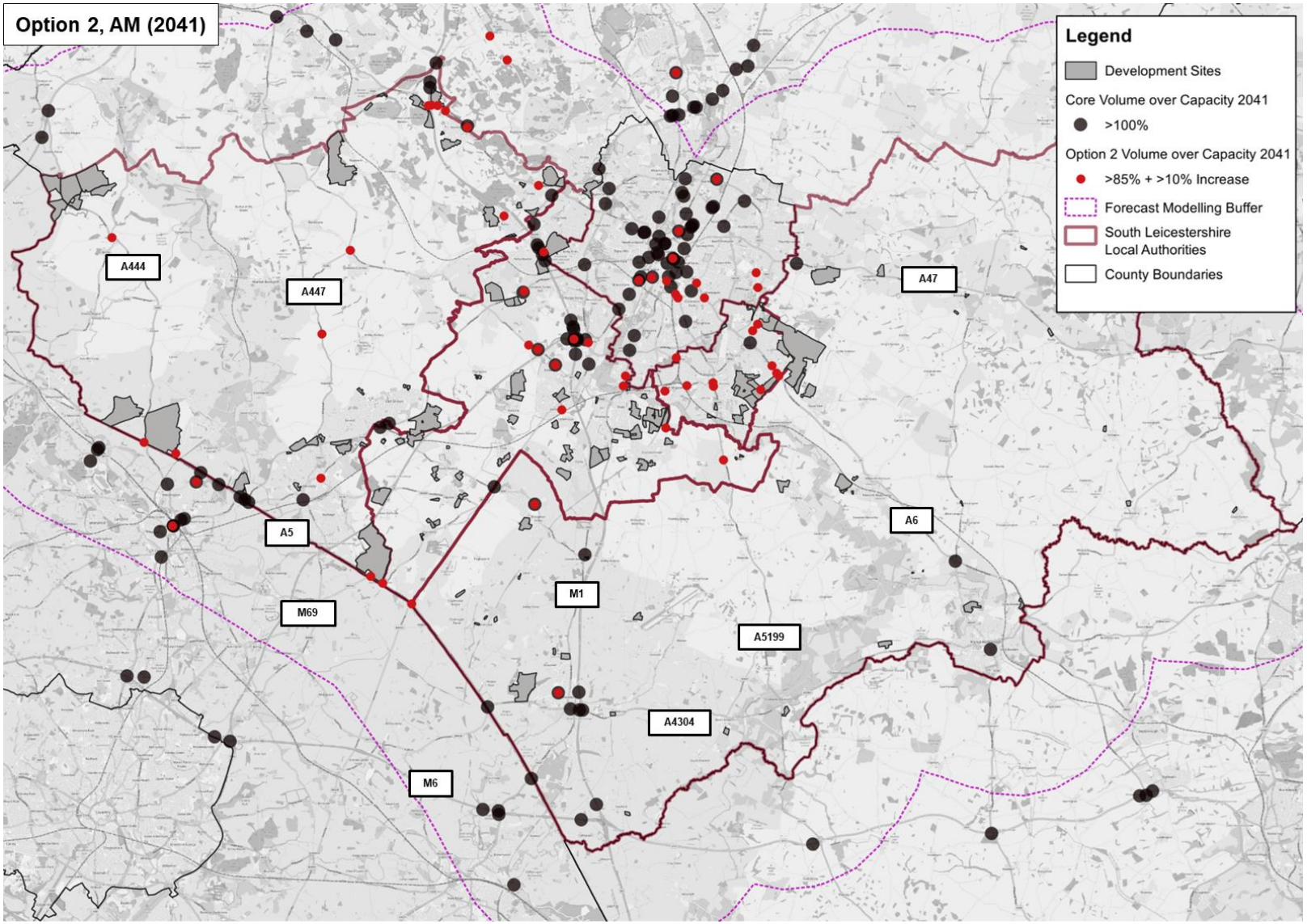

Figure 3-2: Option 2 Volume over Capacity (VoC) Plot

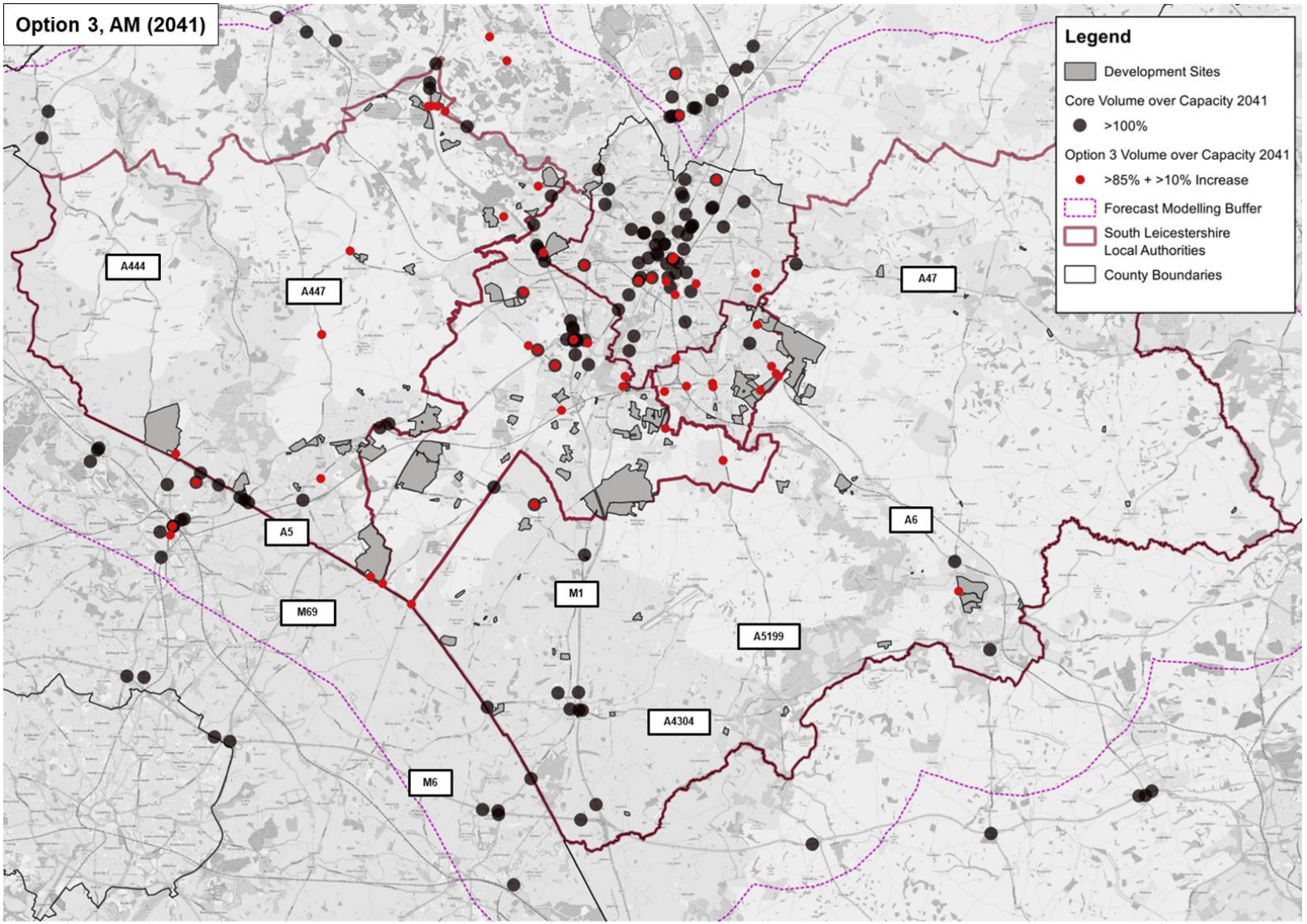

Figure 3-3: Option 3 Volume over Capacity (VoC) Plot

Delays

3.9 The locations of significant delay change were identified from the PRTM delay plots, and the specific junctions of concern were listed. Note that the change in delay is based on the difference between the spatial growth options and the core scenario.

3.10 Junctions which experience a delay increase of at least 30 seconds per passenger car unit (PCU) on at least one approach arm were mapped. These locations are shown in Figure 3-4, Figure 3-5, and Figure 3-6. Note that in the figures below, the length of the highlighted link shown in red does not indicate the scale of delay; it rather shows the actual length of the link.

3.11 The delay plots help reinforce the VoC analysis by highlighting stress points, such as at M1 Junction 21, along the M69 and the A5. Notably, a number of roads used to access the SRN are shown to have delay issues. Issues accessing the SRN affect the use of the SRN and reroutes traffic away from these access issues and along less desirable routes.

3.12 There are further delays modelled in urban areas including the south of Leicestershire, and some areas northwest of the City of Leicester, such as the A50. In Options 2 and 3, with additional growth on the A5, there are greater impacts along the A5 and cross-border in Nuneaton. Option 3 also shows additional delays near the Whetstone Pastures development on the border between Harborough and Blaby. Similar impacts are observed between options in Oadby and Wigston, and cross-border in the City of Leicester. Overall, while there are some differences between the options, the scale of delay is similar; differences are mainly focused on the immediate vicinity of large sites.

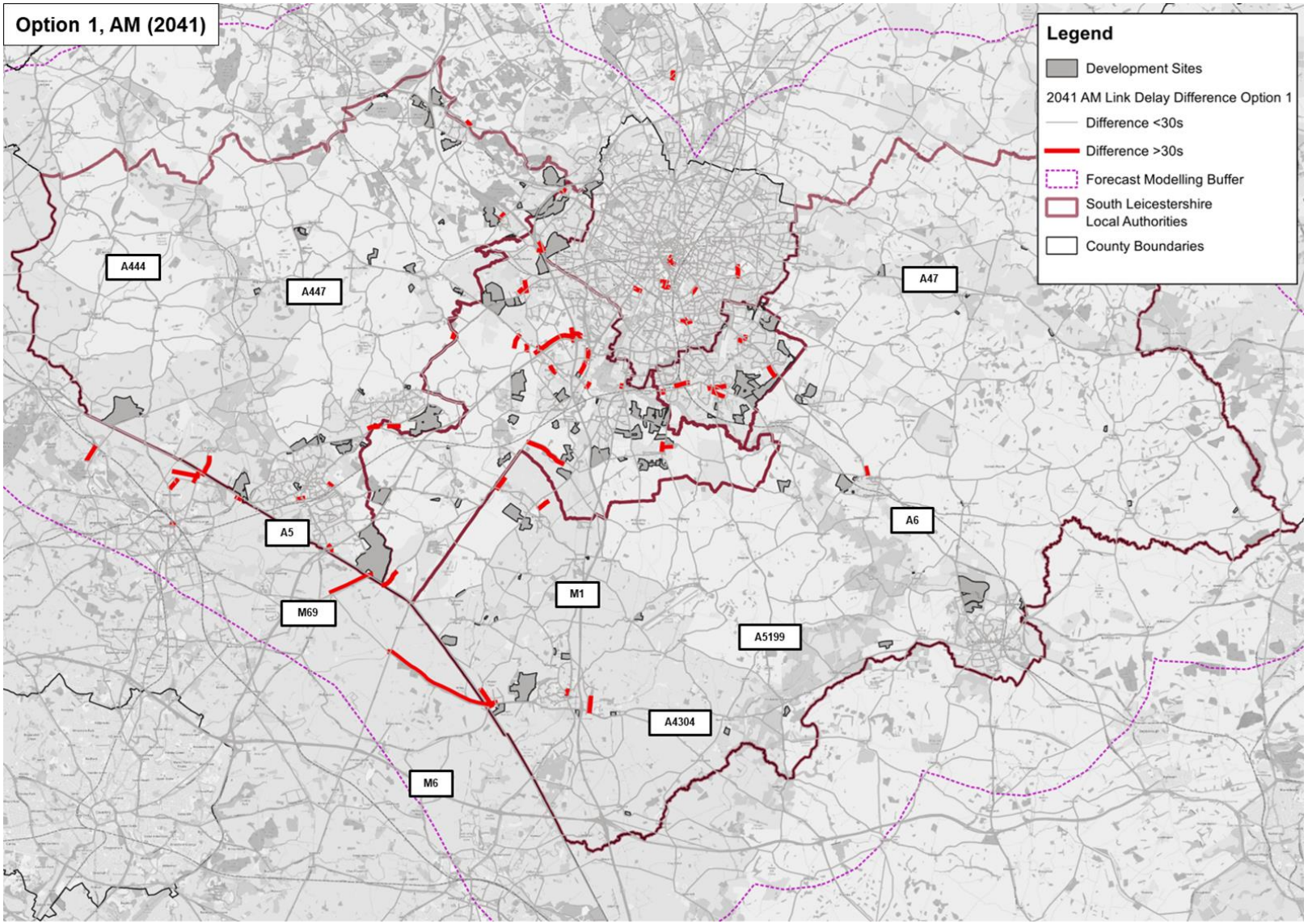

Figure 3-4: Link Delay Differences Between Core and Option 1

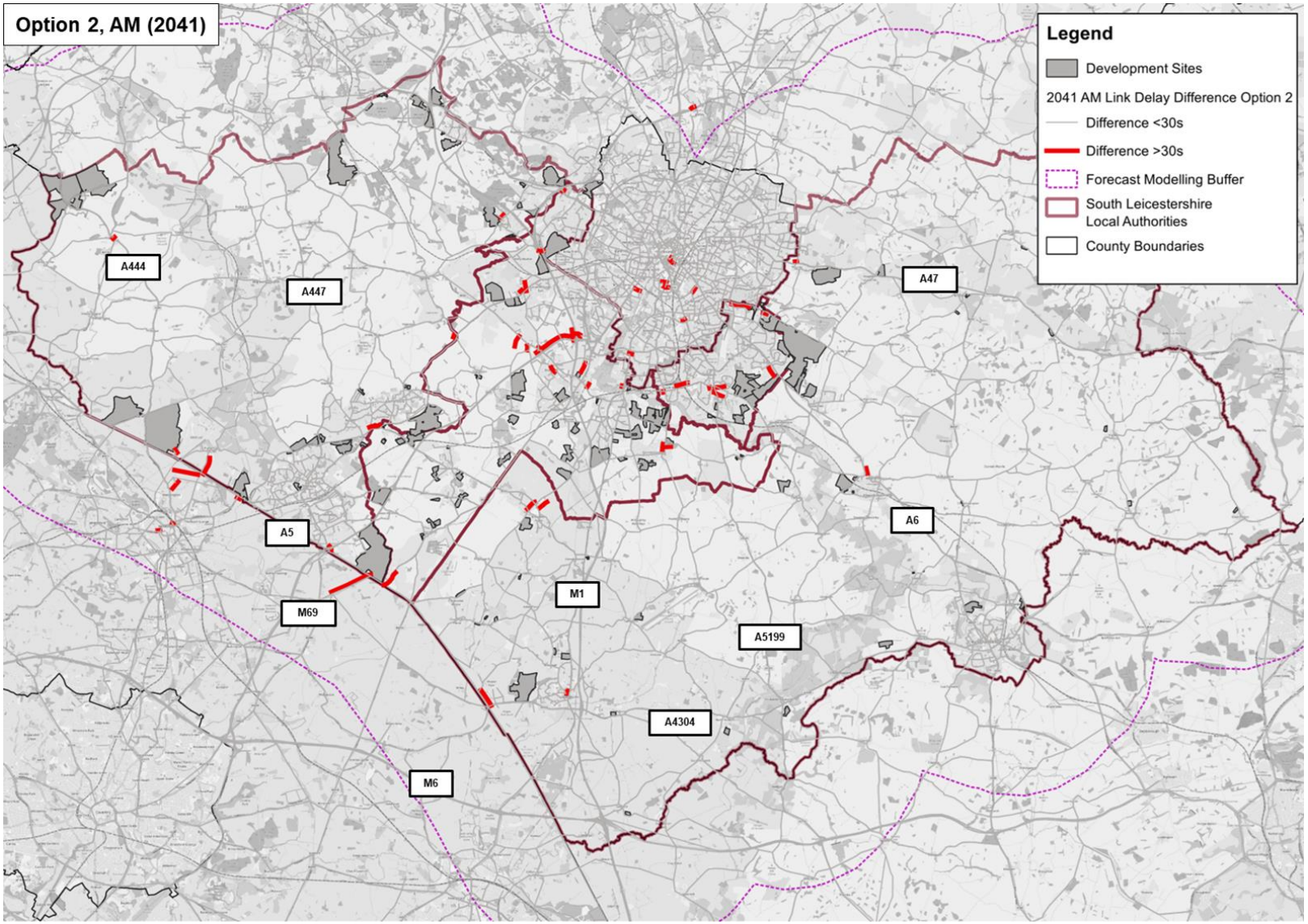

Figure 3-5: Link Delay Differences Between Core and Option 2

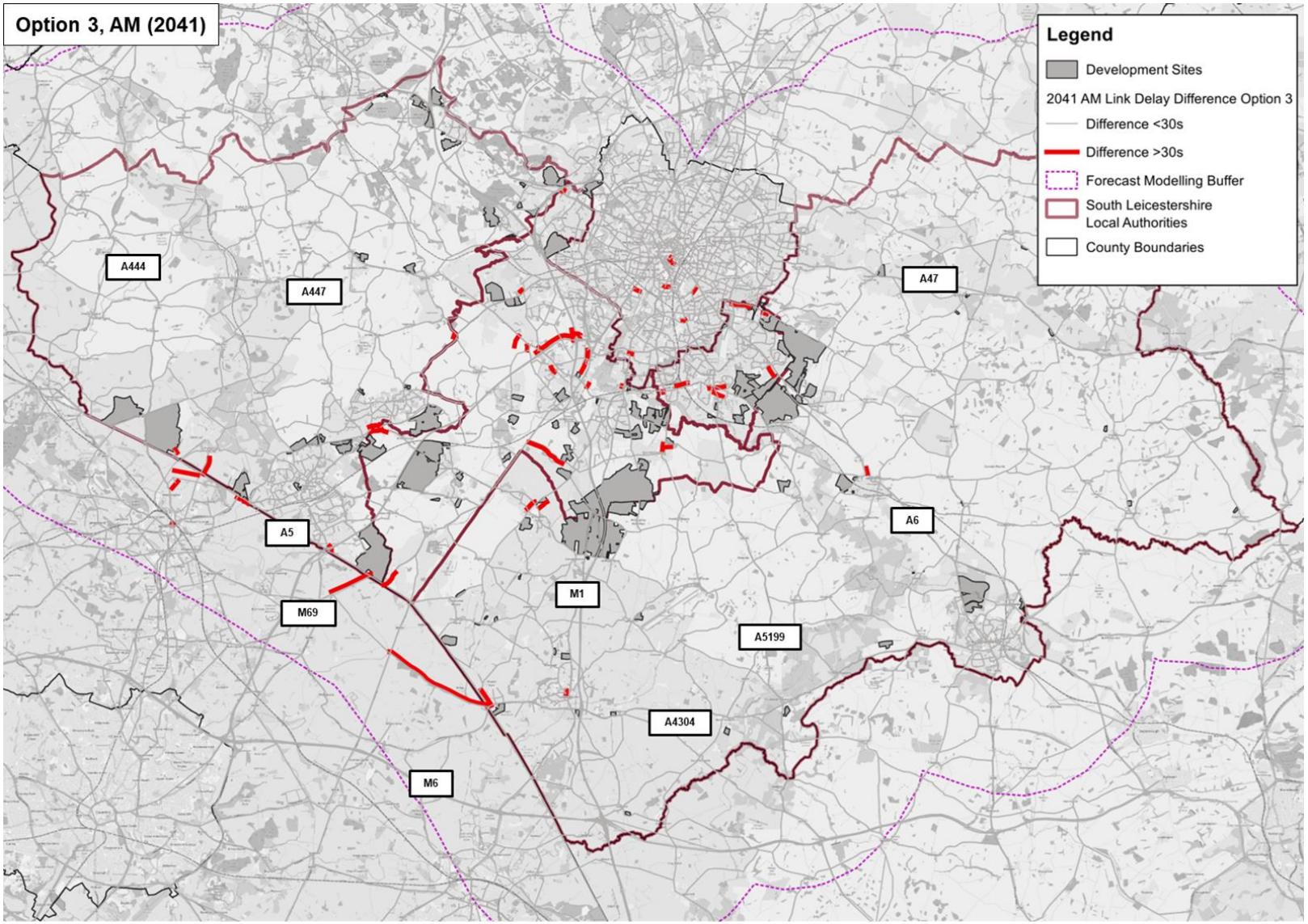

Figure 3-6: Link Delay Differences Between Core and Option 3

Flow Difference

3.13 The change in flow is represented by the change in the number of vehicles along a section of road. This measure does not include information on the capacity of the road network or the level of utilisation and therefore a large change in flow does not necessarily indicate the need for mitigation.

3.14 Significant increases in flows were identified and mapped. This assessment was guided by the PRTM flow plots and data on the change in vehicle numbers. Figure 3-7, Figure 3-8, and Figure 3-9 show flow differences between the spatial growth options and the core scenario.

3.15 The flow differences between the Strategic Growth Plan (SGP) – Strategic Transport Assessment (STA) Stage 1 and the spatial growth options in the JTE Stage 1 were also plotted to understand the similarities in the impacts between the SGP – STA and the proposed Local Plan growth. As mentioned in Section 1, this report builds on the strategic thinking in the SGP – STA Stage 1. The flow difference between Option 2 in the forecast year 2051 and the SGP – STA Stage 1 growth in 2036, the SGP – STA Stage 1 modelling year, is shown in Figure 3-10. Option 2 represents the spatial growth option that is most similar in scale and distribution to the development proposed in the SGP – STA Stage 1.

3.16 Uncongested routeing analysis was also conducted to give an indication of the impact of congestion on routeing patterns, and demonstrate how potential improvements could deliver better network efficiency. Uncongested routeing analysis is the study of traffic movements on a network in conditions with minimal congestion or other disruptions. Figure 3-11 shows the outputs of the uncongested routeing analysis for Option 1.

3.17 In these plots, red indicates an increase in vehicles, while green indicates a reduction. The observations are for the AM peak in 2041 unless stated otherwise, with a similar pattern in the PM peak.

Flow Difference Analysis

Option 1

3.18 In Option 1, there are no changes or a decrease in traffic on several key routes due to existing capacity issues. Some of the key observations regarding flow difference have been labelled in Figure 3-7, from 1-7, referring to the points below:

1. M69 and M1 J21: Traffic flow decreases or is unchanged on the M69 northbound approach to M1 J21 and the southern underbridge at M1 J21 because these areas are already at capacity in the core scenario. Traffic diverts along alternative routes through Burbage, Stoney Stanton, and Huncote, as the B4114 is also heavily congested.
2. M1 Northbound and Southbound: There is no change in traffic northbound of M1 J21 due to the main carriageway and on-slips already being at capacity. Similarly, the southbound section north of M1 J21 shows no change due to the M1 J21a on-slips from A46 being at capacity. As a result, traffic uses alternative routes such as the outer ring road and routes through Enderby, Desford, and Ratby.
3. A5 West of Lutterworth: Traffic flow decreases or is unchanged on the A5 west of Lutterworth due to the approaches to the Cross in Hand

Roundabout (Magna Park) and Gibbet roundabouts being at capacity. Traffic diverts through Lutterworth and along rural roads to the north.

4. A5 West of Hinckley: Traffic flow decreases or is unchanged on the A5 west of Hinckley because the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout) and Higham/MIRA roundabout stretches are already at capacity. Traffic uses alternative routes through the north of Nuneaton and villages north of A5.
5. A6 Northbound: Traffic flow decreases or is unchanged on the A6 northbound between Harborough and Leicester Urban Area due to congestion through Oadby as a result of new development traffic in the area. Traffic diverts through alternative routes such as the B6047 to the east of Leicester Urban Area.
6. A47 West of Leicester Urban Area: Traffic flow decreases or is unchanged on the A47 west of Leicester Urban Area because sections around Earl Shilton and junctions with Beggars Lane/Kirby Road are already at capacity. Traffic uses alternative routes through Desford and Huncote.
7. A50 Between M1 and A46: Traffic flow decreases or is unchanged on the A50 between M1 and A46 due to the Fieldhead roundabout already being at capacity. Traffic uses alternative routes to the east.

Option 2

3.19 Option 2 (shown in Figure 3-8) displays strong similarities to Option 1 but with some notable differences. Generally, across South Leicestershire there is a more marked increase in traffic flow differences across the network compared to Option 1.

1. Significant congestion is observed in the west on the A444, from Fenny Drayton to Kirby Mallory along Fenn Lane, with issues extending to Drayton Grange and north of Norton Juxta, which are not present in Option 1.
2. The Burbage area shows increased traffic due to traffic bypassing issues on the M69 and B4114.
3. More significant flow differences are observed southeast of Leicester Urban Area due to large site proposals in this option, such as Stretton Hall (land south-east of Oadby).
4. The pronounced traffic flow pattern in the south of the study area remains evident, routeing on the A4304 and B6047 to avoid strategic roads (primarily the A5 and A6) which are at capacity. This leads to a ‘halo effect’ on local roads to the south / south-east of Leicester Urban Area.

Option 3

3.20 Option 3 (Figure 3-9) is comparable to Options 1 and 2 in many respects, with some additional detailed observations. Across South Leicestershire there is a further significant flow difference in Option 3.

1. Increased traffic flow is observed along routes through Burbage, Stoney Stanton, and local roads from these areas towards Barwell/Earl Shilton (northeast of Hinckley on A47) or Croft and onto Huncote and Narborough.
2. There is a noticeable impact on routes through Barwell and Earl Shilton, indicating increased traffic flow in these areas due to the growth proposals.

3.21 Despite differences in the distribution of growth, the general flow difference pattern remains similar across all options. This indicates consistent behaviour

and routeing choices of traffic, emphasising the existing capacity or lack of capacity on the SRN and at access points to the SRN.

SGP Flow Comparison

3.22 Figure 3-10 compares the impact of proposed Local Plan and SGP growth. It demonstrates that although there are differences between the growth modelled in the SGP and for the purpose of this study, the results shown in this analysis align broadly with the SGP findings and therefore support the SGP strategic vision.

Uncongested Routeing

3.23 Figure 3-11 shows the outputs of the uncongested routeing analysis for Option 1 to highlight issues in the core. Option 1 was chosen as the forecast flow patterns are similar across all three options. The plot demonstrates that, in a theoretical scenario with no network congestion the SRN would have greater capacity, allowing more traffic to use strategic roads when they are the most appropriate route. This is to be expected, as the strategic network has higher speed limits and fewer impediments. However, what the analysis highlights is the scale of rerouteing of traffic on the network due to the congestion of strategic roads and issues accessing the SRN. It also shows large increase in flows along the A6 southbound. This traffic is likely rerouting down the B6047 and other associated routes.

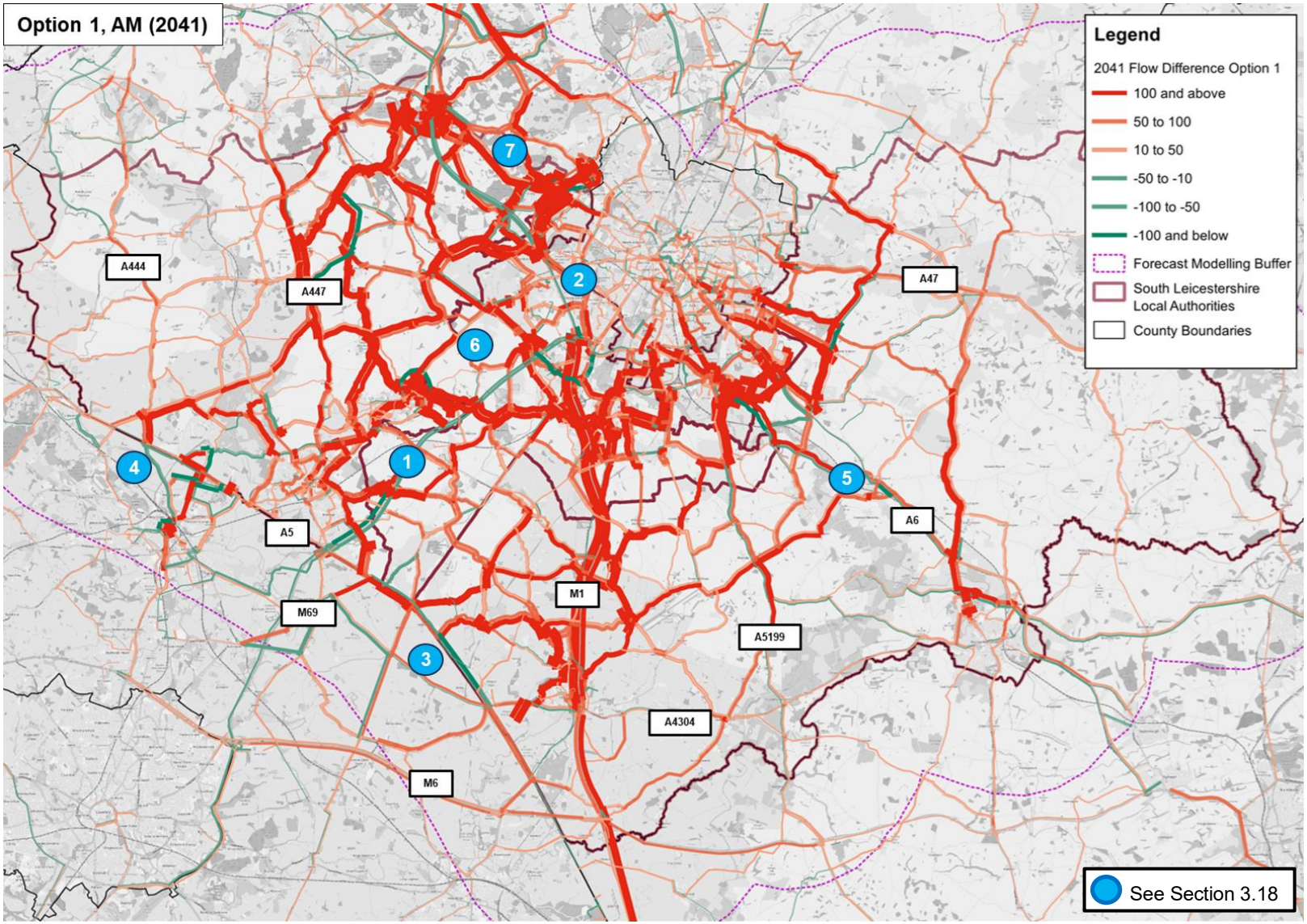

Figure 3-7: Flow Difference: Option 1 Minus Core (AM Peak, 2041)

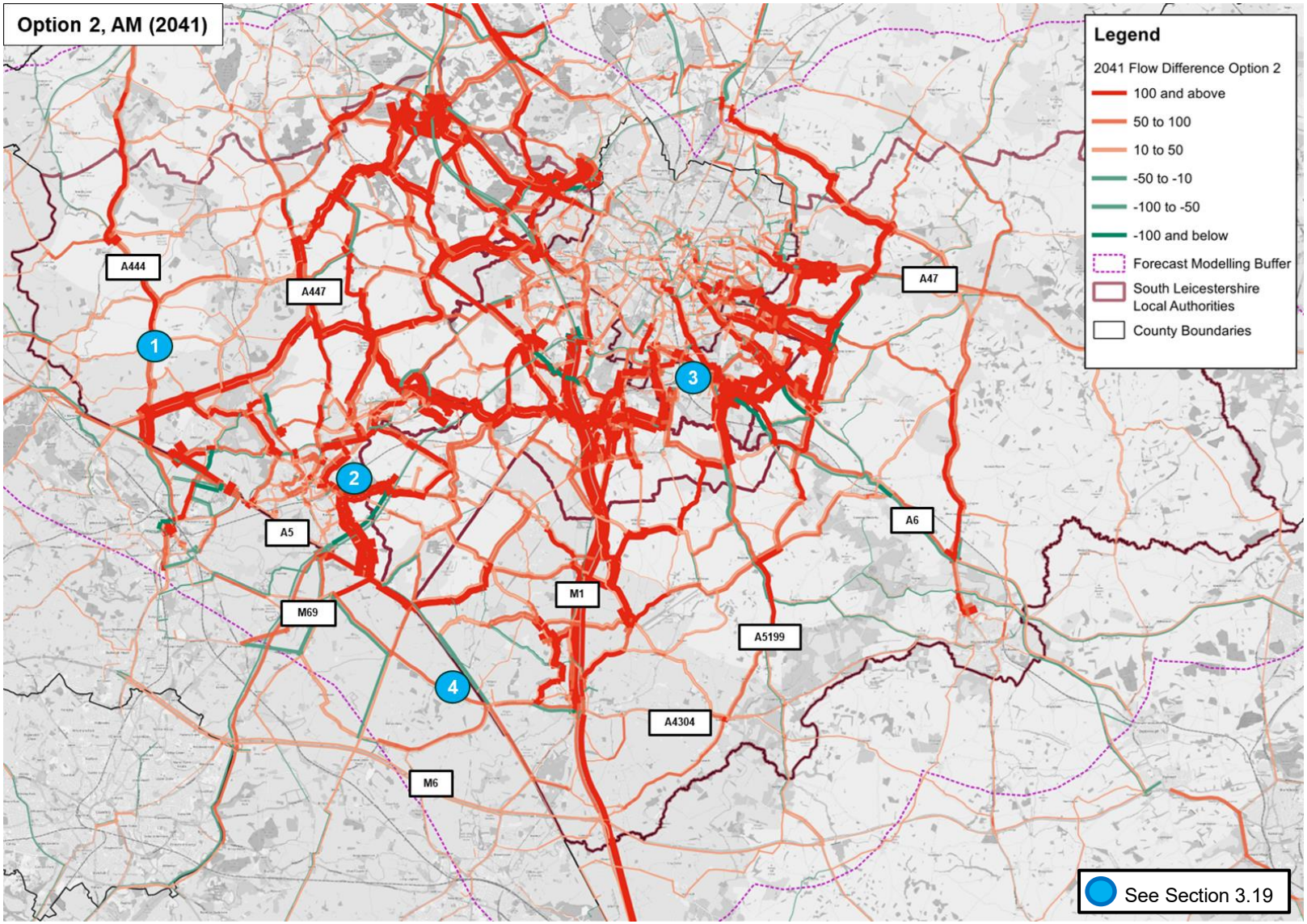

Figure 3-8: Flow Difference: Option 2 Minus Core (AM Peak, 2041)

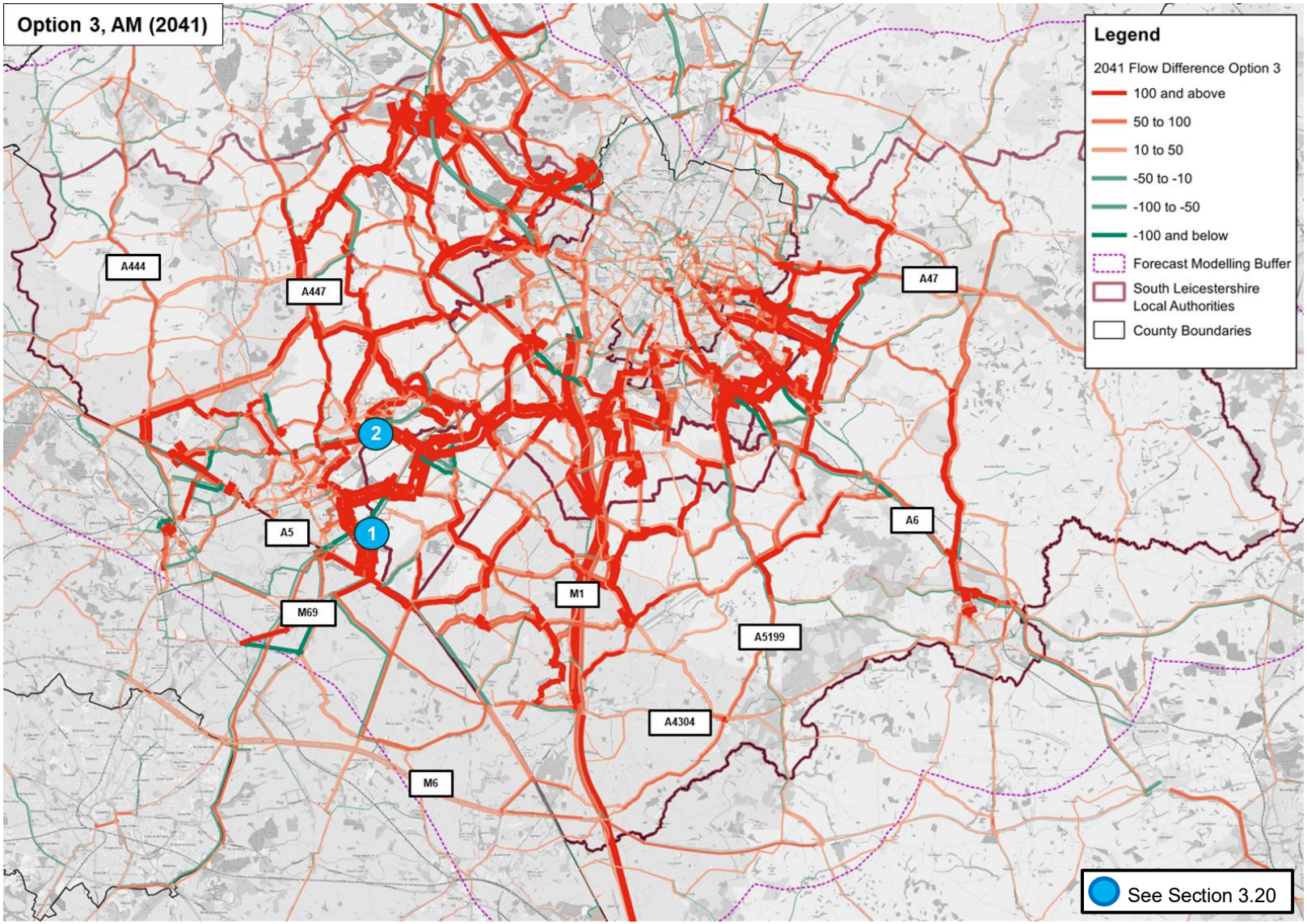

Figure 3-9: Flow Difference: Option 3 Minus Core (AM Peak, 2041)

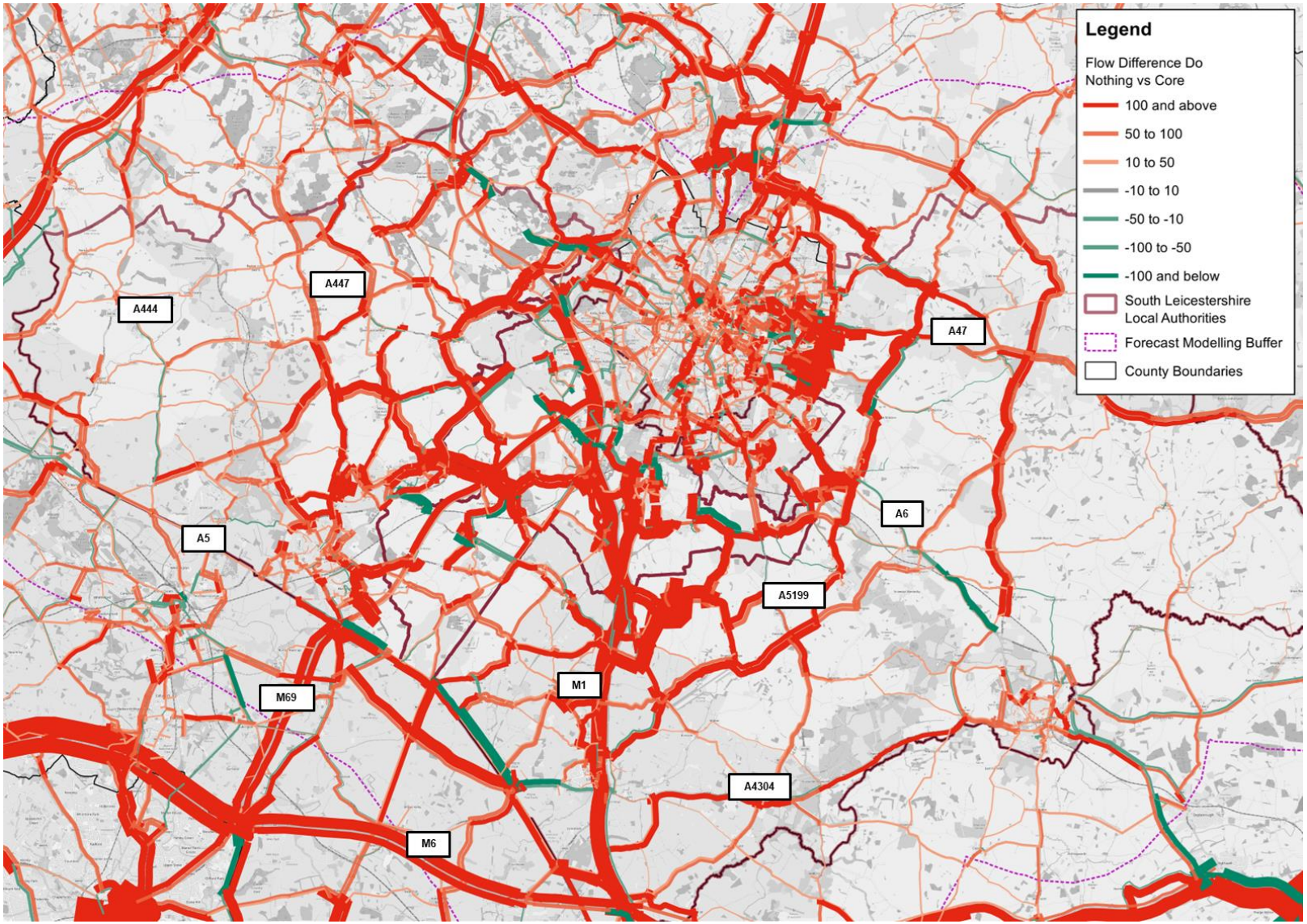

Figure 3-10: Flow Difference: SGP Option 2 2051 Minus 2036 Core (AM Peak)

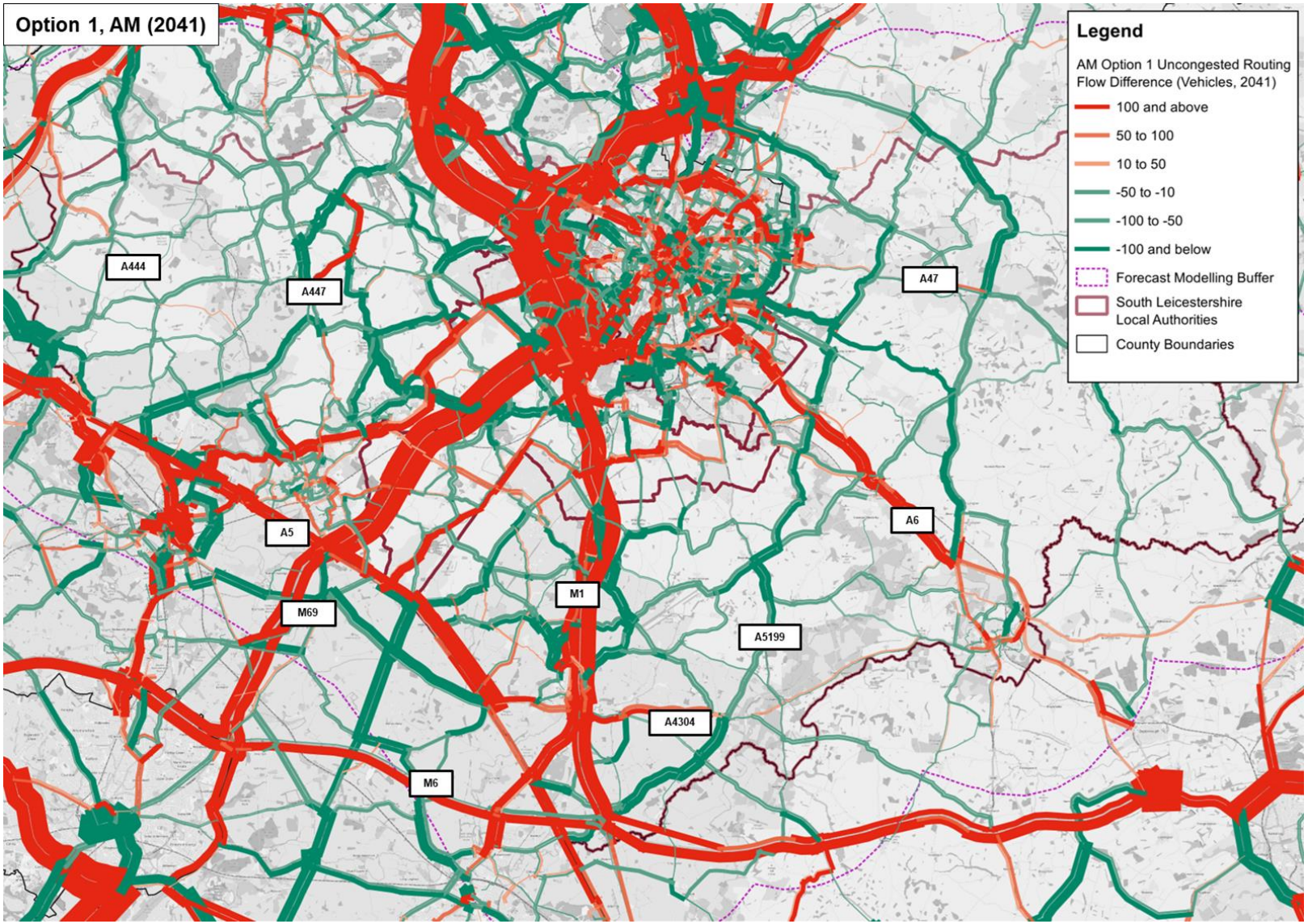

Figure 3-11: Option 1 Uncongested Routeing Analysis (AM Peak)

Cross-Border Impacts

3.24 As discussed in Section 1, the cross-boundary impacts of growth are a key consideration in the selection of a preferred spatial growth option. In addition to the forecasting outputs shown in the preceding section, additional analysis of routeing and journey times has been conducted to better understand the location and scale of this impact.

3.25 Figure 3-12 shows the percentage growth in commuting trips travelling from South Leicestershire to different destinations, providing an indication of how the impact of growth is distributed.

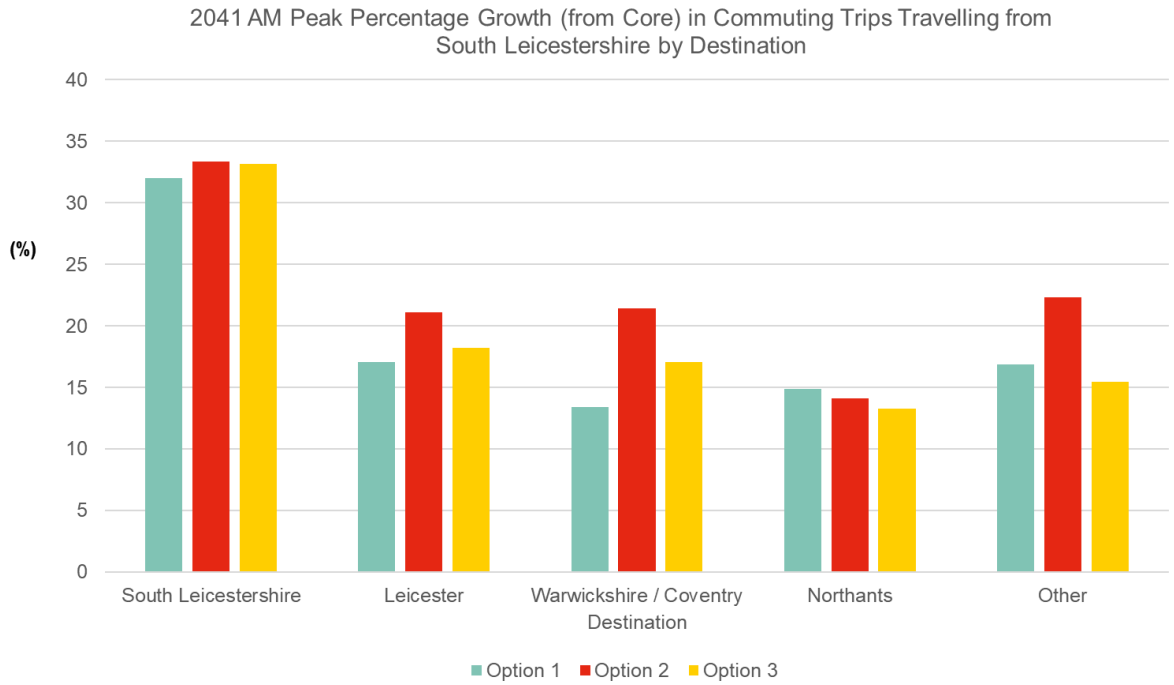

Figure 3-12: 2041 AM Peak Percentage Growth (from Core) in Commuting Trips Travelling from South Leicestershire to different Destinations

3.26 Commuting trips within South Leicestershire are expected to grow by 30-35%, while growth in commuting to neighbouring authorities varies between 13% and 22%. This suggests significant out-commuting from South Leicestershire. While the percentage growth in trips to the City of Leicester is not significantly greater than to other destinations, the concentration of these trips and the scale of existing issues result in many VoC increases being observed there, as illustrated in Figure 3-1 to Figure 3-3. The impact across different options does not vary considerably, but Option 2 appears to have greater cross-boundary growth in commuting traffic, though not as much into Northamptonshire.

3.27 There are numerous key radial routes between the City of Leicester and South Leicestershire. Given the concentration of trips into the City of Leicester, and the scale of existing issues, further analysis has focussed on these movements. As illustrated in Figure 3-13, these routes experience significant existing VoC issues. The change in journey times along each of these routes in the 2041 options, compared to the core scenario, has been analysed, and the results are presented in Figure 3-14.

Figure 3-13: Existing VoC Issues between South Leicestershire and Leicester

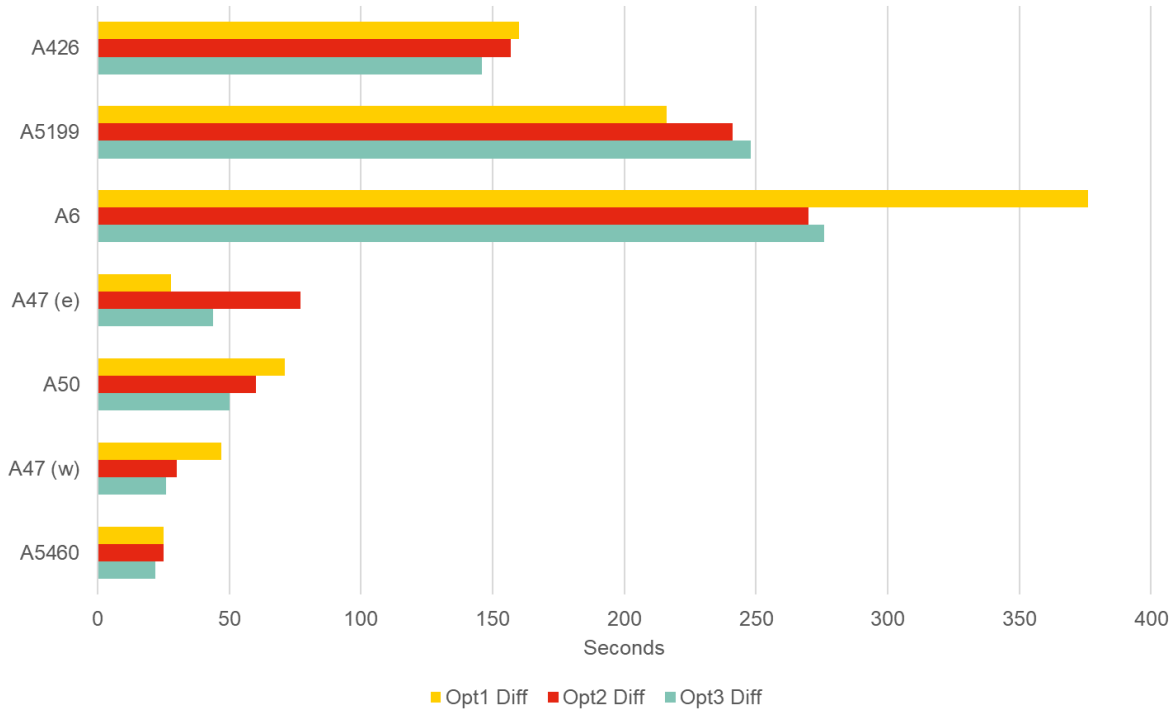

Figure 3-14: AM Peak Journey Times on City of Leicester Radials - 2041 Options Compared to Core

3.28 As can be seen in Figure 3-14, journey time increases along key radial routes into the City of Leicester are similar across all options. However, the A6 is an outlier: Option 1 shows more delay on the A6 due to one junction in central Oadby, which experiences significant delays. Journey time increases are more substantial (ranging from 2.5 to 6 minutes) on the A426, A5199, and A6, coinciding with areas of high growth in the options. In contrast, increases on western routes (A5460, A47 west, and A50) are less pronounced because these routes are generally already more congested in the core scenario (as indicated by the black dots on the map), leaving little capacity for additional flow, which would otherwise result in further delays. This leads to greater levels of rerouting to minor routes.

Considerations for the Full Delivery of Large Sites

3.29 A number of large sites will be fully built out post 2041. The impact of these sites once fully built out requires consideration to check whether there could be any potential significant issues on the transport network in the longer term. Large sites which will be fully delivered post 2041 are included in spatial growth Option 2 and Option 3, with 2051 modelled as the full build out year.

3.30 Our initial view from a high-level assessment of forecast modelling suggests that the issues created by the following sites are of a scale that could be mitigated. It is important to note this view is based on a rudimentary assessment of strategic modelling outputs only, so more detail assessment of large sites should be undertaken to confirm this initial conclusion.

3.31 The large sites do, however, exacerbate congestion issues post 2041. The key issues are as follows:

- Inclusion of Whetstone Pastures (5,000) and Land east of Broughton Astley and North of Dunton Bassett and Ashby Magna (5,000) in Option 3

results in moderate delay increases at several rural junctions surrounding the developments.

- Inclusion of Land at Stretton Hall Farm, (to the south east of Oadby, 4,000) in Options 2 and 3 results in some large delay increases on the A6 and B582 westbound in the AM Peak, and eastbound on routes out of Leicester Urban Area in the PM Peak. There are also delays on the assumed spine road through this site approaching the A6 in the PM Peak.
- Inclusion of Newton Croft (3,174) in Options 2 and 3 results in large delays around the centre of Wigston. There are also delays on the assumed spine road through this site approaching the A6.
- Inclusion of Land south of A47 Uppingham Road (5,000) in Option 2 results in some delays on routes through Thurnby and Stoughton. There are also delays on the assumed spine road through this site approaching Stoughton Road in the AM Peak.

Key Findings from Analysis of Forecast Modelling

3.32 Based on the analysis of the model outputs presented in the preceding sections of the report, three key findings were identified from this stage of the work.

- **Key Finding 1: At a South Leicestershire level there are no significant differences between growth options in terms of flow differences and congestion.** As demonstrated in Figure 3-7 to Figure 3-9, although flow increased significantly in all spatial growth options compared to the core scenario, there are only minimal differences between the spatial growth options in terms of flow difference. This is consistent with the picture at the HMA level as identified through the SGP – STA Stage 1.
- **Key Finding 2: All three options result in widespread routeing of traffic on lower-order roads as a result of existing congestion and access issues on the higher-order roads.** This key finding builds on the flow difference and delay observations, indicating that existing network constraints prompt traffic to divert away from points on the SRN under strain. This is reinforced by the uncongested routeing analysis (see Figure 3-11) which points to the fact that on an uncongested network the SRN would be the generally more favourable routeing choice.
- **Key Finding 3: All options generate some cross-border impacts. Primarily, cross-border impacts arise in the City of Leicester.** Growth in South Leicestershire is forecast to generate around an additional 650-800 trips into the City of Leicester in the 2041 AM peak across all spatial growth options. This key finding is anticipated given that the City of Leicester is the major urban centre next to South Leicestershire. When comparing VoC and flow differences, it is evident that Warwickshire and Charnwood have lower levels of cross-border movement compared to the City of Leicester. VoC data illustrates some impacts along the A5 into Warwickshire and the A6 north of the City of Leicester.

3.33 The findings suggest that the differences between the three spatial growth options in terms of traffic impacts are relatively insignificant, and that there are similarities across the options.

4. Identifying Areas for Strategic Mitigation

Introduction

4.1 The key outputs of the PRTM model were analysed to identify the locations of existing issues, the locations of issues arising as a result of the proposed spatial growth options, and the existing issues which have worsened as a result of the proposed growth options. The purpose of this section of the report is to establish whether the proposed development in the spatial growth options can be accommodated with suitable mitigation measures.

4.2 This section provides an overview of how the model outputs informed the identification of broad locations of cumulative impact, referred to as 'Key Impact Areas', and provides an explanation of these impacts. By understanding the cumulative areas of impact, the locations to concentrate mitigation measures can be established.

4.3 Areas with cumulative issues have been identified because they are likely to have the most significant impact on the network. Addressing certain pinch points in these areas can help relieve constraints on the rest of the network. Areas of cumulative impact are also likely to be most effectively mitigated. A high concentration of significant issues makes it easier to justify public investment, as targeted investment can address multiple problems efficiently. Further still, it is easier to secure developer funding when many developments in close proximity are collectively putting pressure on a particular location.

4.4 As mentioned, the findings from the previous stage implied that the differences between spatial growth options were minimal. Therefore, the mitigation discussed in the following sections will not be divided by option, but rather the focus will be on key areas where impacts from the proposed growth are identified. When developing the measures proposed, the impacts for all spatial growth options were taken into consideration.

Areas Identified for Strategic Mitigation

Key Impact Areas and Corridors for Strategic Mitigation

4.5 Figure 4-1, Figure 4-2, and Figure 4-3 present the Key Impact Areas (A-H) for spatial growth Option 1, Option 2 and Option 3, respectively. The Key Impact Areas are those which have significant existing VoC issues, and/or are forecast to see a significant change in VoC, level of delay, and/or vehicular flow.

4.6 The differences, although minor, between spatial growth options have been taken into consideration whilst establishing the Key Impact Areas. The same Key Impact Areas have been established across all three options, however the scale and locations that each area covers may differ slightly across each option.

4.7 The boundary of the Key Impact Areas, shown as a blue/green dashed line, provides an indication for an area within which mitigation may be required. The boundary is illustrative of the area and is not definitive. Issues driving the impacts in the Key Impact Areas could be located beyond the Key Impact Areas

themselves. The Key Impact Areas are the same across each of the three options, except Key Impact Area E: Hinckley & Nuneaton which is larger in Option 2 given the inclusion of a large residential site at Fenny Drayton.

4.8 Key Corridors have also been identified. These are the strategic routes which will be most affected by the issues in the Key Impact Areas, often linking the Key Impact Areas. The Key Corridors are the same across all of the options. Mitigation will focus on the Key Impact Areas, but the benefits of this mitigation will generally relieve pressure on the Key Corridors. The Key Corridors are the A50 (City of Leicester to M1 J22), M1 (M1 J20 to M1 J22), A5 (between MIRA technology park and the B4114 junction), A47 (Hinckley to City of Leicester), M69 (M69 J1 to M1 J21), and South of Leicester Urban Area (orbital and radial routes to the south of the City, including A563, A6, A5199).

4.9 Cross-border impacts (I-J) have also been identified in the City of Leicester and Nuneaton. These are areas which show similar impact patterns to Key Impact Areas (A-H) but are outside of the border of the South Leicestershire Districts and Boroughs.

4.10 Given the scale of existing issues in the City of Leicester, mitigations have not been proposed within the cross-border impact area. However, this area will still be considered as part of the wider-area mitigation proposals (see Section 5.10). Since the mitigations do not always fall within the Key Impact Areas, the City of Leicester will benefit from mitigations proposed for other Key Impact Areas, most notably the South of Leicester Urban Area Key Impact Area, which is on the border with the City of Leicester.

4.11 In Nuneaton, Key Impact Area J, the issues identified on the A47 are largely secondary impacts affected by congestion on the A5. As such, mitigations proposed along the A5 (Key Impact Area E and Key Impact Area F) will likely relieve pressure in Nuneaton. The issues on the A444, Nuneaton Ring Road, are largely existing pressures and therefore outside of the scope of this work.

Further Areas for Consideration

4.12 As can be seen in Figure 4-1, Figure 4-2 and Figure 4-3, the ten Key Impact Areas focus on the areas of the most significant cumulative impact. Some large growth sites have not been identified within the Key Impact Areas, including sites in Market Harborough and the east of Hinckley and Bosworth. Similarly, the A6, A444 and A447 have not been highlighted as Key Corridors.

4.13 The reasons for the above were discussed with stakeholders at Workshop 2. Although such areas have been excluded from the Key Impact Areas and Key Corridors, this is not to say that there is no impact resulting from the proposed growth, or that the proposed growth does not require mitigation measures. Rather planned growth in these locations is more geographically isolated and as such new traffic resulting from the new growth is more likely to disperse across the network, reducing the concentration of impact. This has sustainability implications as the clustering of growth, while it creates more obvious impacts, has more straightforward solutions. It is easier to fund larger-scale mitigation measures, and public transport measures are more viable. The benefits of clustered growth are further discussed in Section 6.

Explanation of Impacts

4.14 An initial explanation of the forecast impacts, by spatial growth option, are detailed in Table 4-1. By explaining the issues on the network, it is easier to understand their causes and develop effective mitigation proposals.

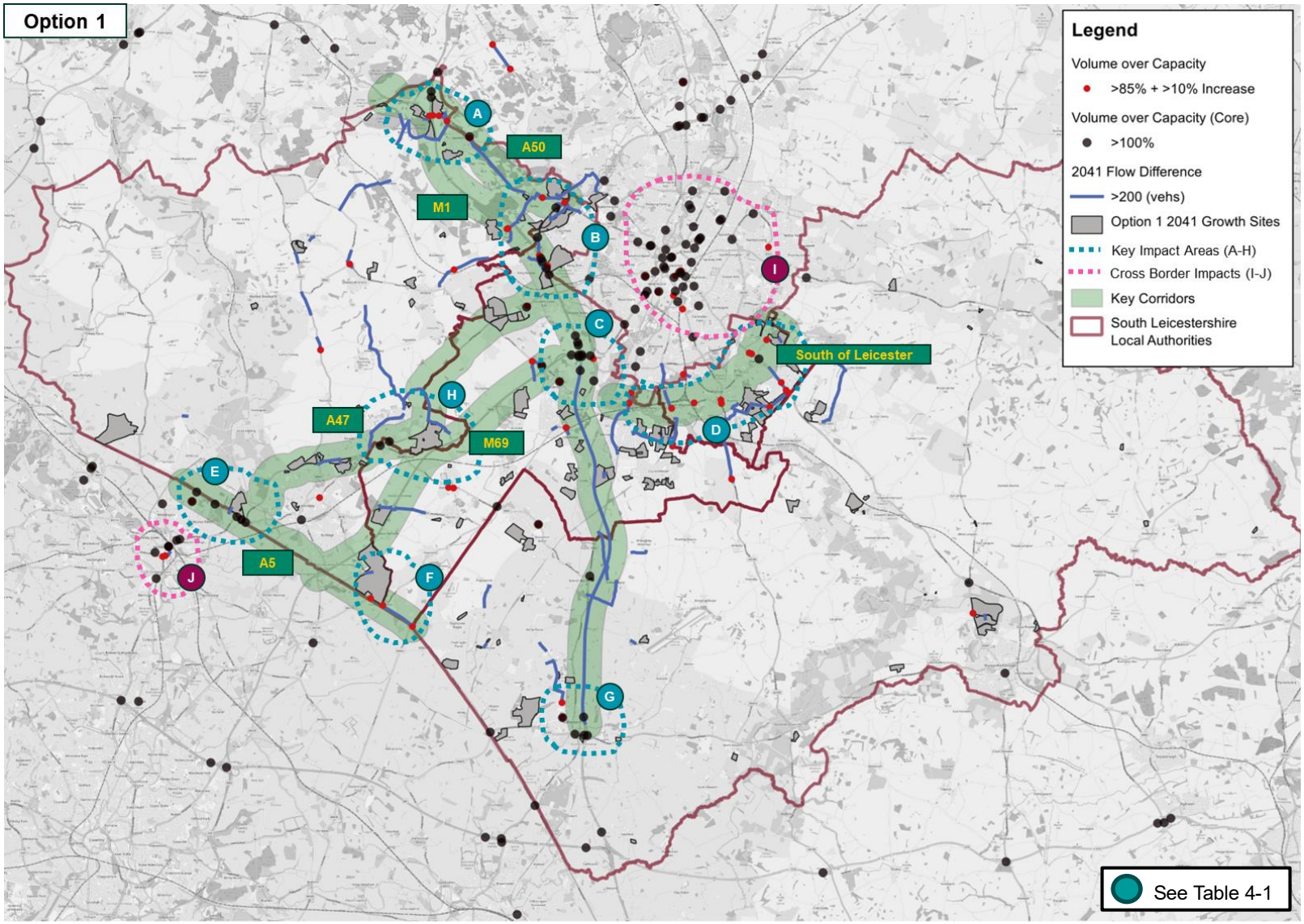

Figure 4-1: Option 1 PRTM Outputs and Key Impact Areas

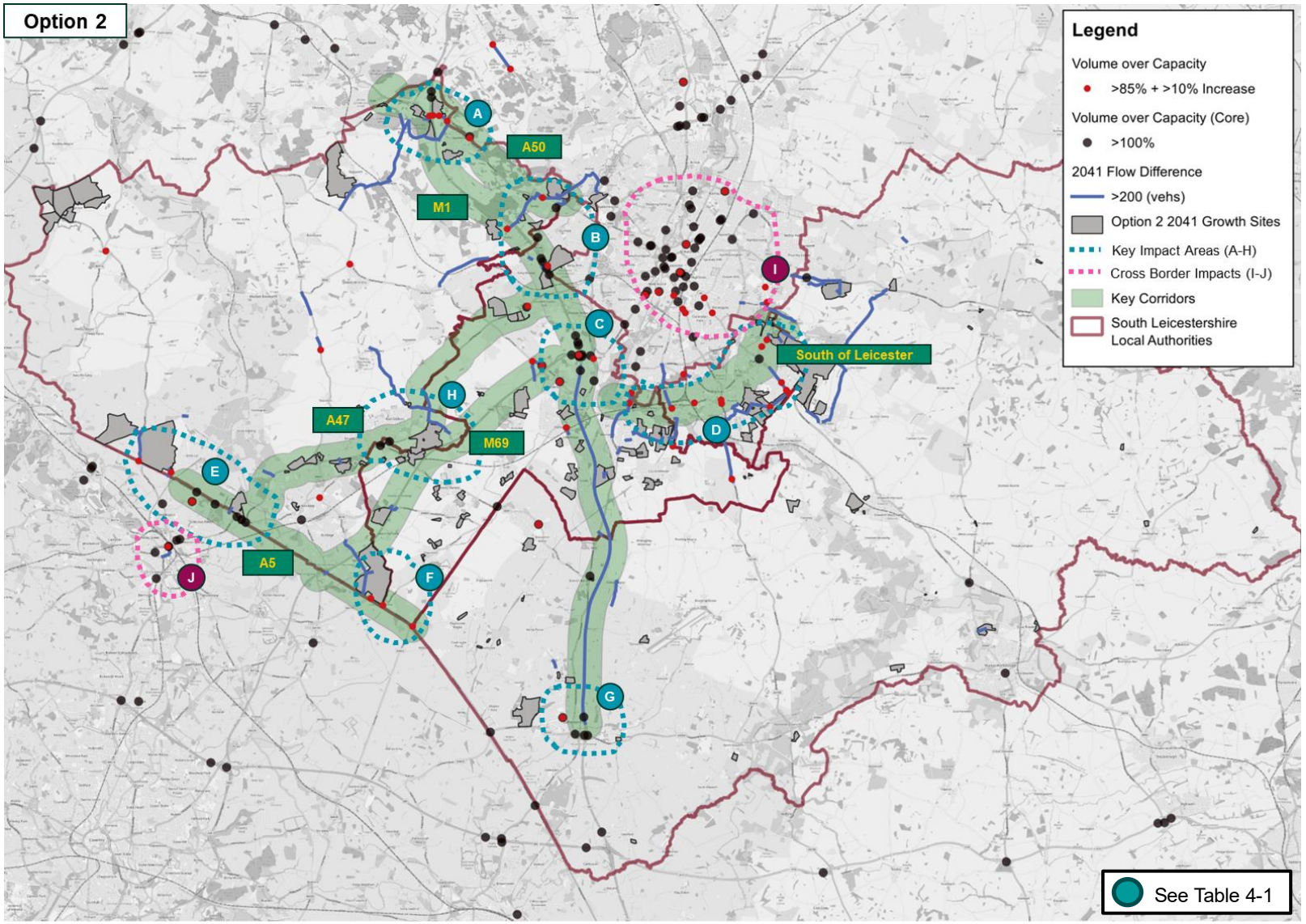

Figure 4-2: Option 2 PRTM Outputs and Key Impact Areas

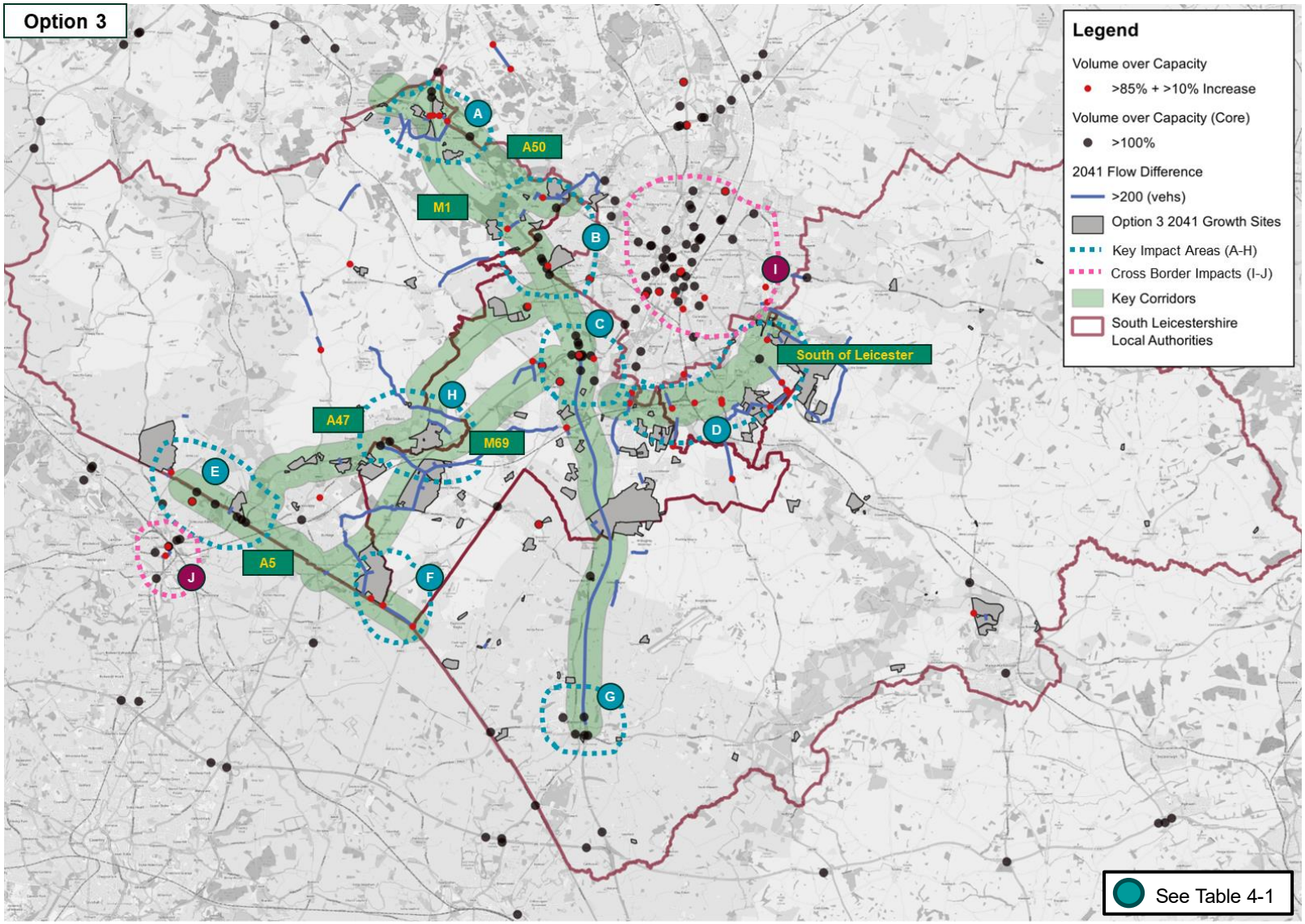

Figure 4-3: Option 3 PRTM Outputs and Key Impact Areas

Table 4-1: Initial Explanation of Issues Identified

Key Impact Area	Forecast Issue (2041)	Initial Explanation
A: Stanton under Barton / Markfield (M1 J22)	VoC increase and over 85%: • Where the northbound offslip meets the circulatory at J22; • Where the A5 westbound meets the circulatory at J22; • The A50 between M1 J22 and A50/ Whitwick Road junction; • The southern T-junctions of the A50/ Whitwick Road junction; and • Where the A50 northbound meets the circulatory at the A50/ Leicester Road/ Launde Road/ Markfield Lane junction. Flow difference of >200 vehicles: • From Stanton under Bardon along Cliffe Hill Road, Stoney Lane, Hill Lane, Whitwick Road, A50, across circulatory at M1 J22 to the Markfield developments • Along Leicester Road to the south of the A50/ Leicester Road/ Launde Road/ Markfield Lane junction	Trips diverting/rerouting through Hill Lane instead of Cliffe Lane (which is taking trips through J22). Congestion on J22 circulatory is making Hill Lane more attractive. Potential trips diverting/rerouting through the spine road in the development adding to congestion on Cliffe Lane. The spine road could be offering a favourable route through the development which is being used by trips. Additional development traffic from North of Stanton under Bardon travelling on Cliffe Hill Road and Hill Lane from A50. Traffic predominantly travels via Hill Lane due to congestion on Cliffe Hill Road and the M1 J22 circulatory. Trips are choosing Hill Lane instead of the more appropriate Cliffe Lane.
B: M1 J21a	VoC increase and over 85%: • Southbound merge with the M1 at M1 J21a; and • Ratby Lane / Kirby Lane junction. Flow difference of >200 vehicles: • Southbound through Kirby Muxloe Interchange; • Along Ratby Lane to the development site; • From Ratby Lane / Kirby Lane junction, along Ratby Lane to development site; and • Ratby Lane between Desford Road and Main Street.	Increase in commuter trips from new developments to the south west of J21a in Options 1 and 2. Ratby Lane roundabout capacity issues and high flow differences caused by new development trips off Ratby Lane and development to the north. Issues at southbound merge caused trips going on the circulatory. No need for mitigation.

Key Impact Area	Forecast Issue (2041)	Initial Explanation
		Kirby Lane and Kirby Road show an increase in traffic due to the three developments local to the A46 junction. The Kirby Lane / Ratby Lane roundabout shows an increase in congestion causing traffic to predominantly exit the (eastern development) via Scudamore Road and Golf Course Road.
C: M1 J21 & the Fosse Park area	VoC increase and over 85%: • A563/ A5460 junction southern T-junction on the A563 northbound; and • Where the M69 eastbound meets the J21 circulatory. Flow difference of >200 vehicles: • M1 mainline to the south of J21 northbound; and • Western section of the circulatory at J21.	Largely existing issues exacerbated, an accumulation of strategic trips. Additional traffic travelling northbound on M1 and leaving at junction 21 causes an increase in congestion on the circulatory and the A5460/A563 junction to the east.
D: South and East of Leicester Urban Area	VoC increase and over 85%: • Various locations along the A6 (at junctions with Avenue Road & Stonygate Road, The Parade & Regents Street, Lyndhurst Road, Florence Wragg Way, Woodside Road, and Mere Lane & Gorse Lane); • Various locations around Wigston (B582 Moat Street/ Bull Head Street/ Welford Road/ Newton Lane junction, Bull Head Street/ Kelmarsh Avenue junction, B582 Station Road/ Pullman Road junction, B582 Blaby Road/ B582 St Thomas Road/ Countesthorpe Road junction, and B5418 Stonesby Avenue/ Glenborne Road junction); and • Various along the B582 (A426/ B582 Little Glen Road, B582 Stoughton Road/ Woodfield Road junction, B582 Stoughton Road/ Manor Road/ Manor Road Extension junction, and those on the B582 mentioned in the bullet point above). Flow difference of >200 vehicles: • Along the B5366;	New development trips travelling along orbital and radial routes to and from new sites including Whetstone Pastures and Land North of Newton Lane. Potentially also due to a lack of public transport infrastructure in this area, such as inconsistent bus lanes Large developments east of Wigston and near Blaby cause an increase in traffic on the A426, Countesthorpe Road, B582 and the B5418.

Key Impact Area	Forecast Issue (2041)	Initial Explanation
	• Along the A5199; • Along the A6; • The B5418 over the railway bridge; • Through Great Glen and along Stretton Road; and • Along Gartree Road.	
E: A5 (Hinckley & Nuneaton)	VoC increase and over 85%: • Mira Drive/ Eastern Avenue junction; • Higham Lane/ Milby Drive; and • A5/ A444. Flow changes of >200 vehicles: • From development site to the A5; • Mira Drive; and • A444.	New developments along the A5, all junctions are at-grade (i.e. where the roads intersect at the same elevation) along this corridor, meaning that all trips have to travel through the circulatory of the junctions. Additional traffic from employment development MIRA technology park and other local developments causes an increase in congestion on the A5. It should be noted that junctions on the A5 between the A47 and the M69 are sensitive due to already high levels of congestion.
F: A5 (M69 J1 to High Cross)	VoC increase and over 85%: • A5/ B4114 junction (west); • A5/ B4114 junction (east); and • A5/ B4455 junction. Flow difference of >200 vehicles: • A5 between B4114 (east) junction and B4455 junction; • At A5/ B4455 junction; and • B578 from A5 to Burbage.	New developments along the A5, all junctions are at-grade No railway stations nearby, meaning greater dependence on the car. The development on Watling Street (A5) causes an increase in congestion on the Watling Street junctions with the B4114 and B4455.
G: Lutterworth (M1 J20)	VoC increase and over 85%: • Bitteswell Road/ Brookfield Way junction; and • Coventry Road / Sports Centre junction. Flow difference of >200 vehicles: • Along the M1 mainline to the north of J20; and	Accumulation of trips from developments on the A5 and along the M1. Development trips travelling through Lutterworth to the M1 / A5.

Key Impact Area	Forecast Issue (2041)	Initial Explanation
	• Along Bitteswell Road north of Brookfield Way junction.	Increase in congestion on the Brookfield Way / Bitteswell Road mini roundabout due to nearby developments.
H: Earl Shilton & Stoney Stanton	VoC increase and over 85%: • B581/ New Road/ Hinckley Road roundabout; and • B581 Broughton Road/ New Road/ Long Street roundabout. Flow difference of >200 vehicles: • Along the main road through Earl Shilton (Leicester Road, Hinckley Road, Wood Street, The Hollow, High Street, Leicester Road); • A47 north of Earl Shilton development; • Across the circulatory and along the B4669 at M69 J2; • Along Thurlaston Lane and Church Street; • Leicester Road north of Earl Shilton; • Along B581 between development at Land West of Stoney Stanton and Elmesthorpe/ Earl Shilton; and • Along Stanton Lane, Croft Hill Road, Main Street, Harborough (through Huncote).	New developments in Earl Shilton and Stoney Stanton – large quantity of development traffic adding to congestion pressures. Increase in congestion on the B581 / New Road mini roundabout and Leicester Road due to nearby development west of the M69.
I: City of Leicester	VoC Increase and over 85%: • south of the City, primarily along the key arterial routes such as A6 (London Road), A426 (Aylestone Road/Lutterworth Road), A5199 (Welford Road), A47, A50 and A5460 (Narborough Road). Flow difference of >200 vehicles: • Along B5336 on the City border; and • Stoughton Lane to the east of the A6.	New development trips travelling along orbital and radial routes to and from new sites including Whetstone Pastures and Land North of Newton Lane. Minimal impact on the outer ring road which suggests limited capacity for new trips and displacement of existing trips onto more minor roads.
J: Nuneaton	VoC Increase and over 85%: • A444 from the north and around the town centre;	Increase in trips and congestion along the A5 has a residual impact on roads with junctions along the A5.

Key Impact Area	Forecast Issue (2041)	Initial Explanation
	• A47 between the town centre and A5; and • Higham Lane. Flow difference of >200 vehicles: • A444 ring road.	A444 ring road around the town centre is at capacity in the Core. Worsened by increased development trips from the A5. Mitigation potential is limited by spatial constraints.

Key Findings from Key Impact Area Analysis

4.15 Key Impact Areas have been identified for each spatial growth option. Though there are some minor differences in the forecast modelling outputs between growth options, all ten Key Impact Areas identified are relevant and applicable to each spatial growth option.

4.16 The geographical range of impacts indicates that it is likely that there will need to be a geographically diverse set of interventions required to support growth. It also supports the view of the Stage 1 of the Leicester and Leicestershire STA that there is no simple fix to future highway issues, and that strategic investment is likely to be required over the lifetime over Local Plans, regardless of the chosen spatial strategies.

5. Potential Strategic Mitigation

Introduction

5.1 This section provides an overview of the process used to develop an initial view on the type and scale of strategic mitigation, which could address the transport issues identified in each of the Key Impact Areas. In some instances, interventions are also identified to address a wider geographical area.

5.2 The interventions that have been identified are 'high-level strategic mitigation measures'. This refers to large-scale mitigation measures that potentially impact multiple districts or boroughs. These measures are complex and extensive, possibly beyond the scope of current Local Plan periods, and may require funding and delivery by multiple organisations.

5.3 Due to the similar scale and nature of growth impacts, identifying mitigation at this stage is valuable not for determining differences between the options, but for providing an initial view of the type and location of mitigation. Therefore, the proposed mitigation has been prepared with the impacts across all three options in mind, rather than per option. This information can help inform LCC, Districts, and Boroughs in selecting a preferred spatial option. It also provides a foundation for stage 2, where a preferred mitigation package will be developed.

5.4 These measures may need to be altered, removed, or expanded on once the preferred spatial growth option has been selected. The measures identified here have been developed at a high level, to better understand the requirements for mitigation to support each spatial growth option, with the aim of assisting with the selection of the preferred spatial growth option. Not all of the mitigation measures put forward will be needed to address the issues identified. If the preferred spatial growth option is closely aligned with the options that have been proposed as part of Stage 1, then this initial view on mitigation measures will provide a basis for further mitigation consideration as part of Stage 2. This initial view on strategic mitigation measures will require significant further refinement and appraisal when there is greater clarity on the preferred spatial growth option.

Identifying Potential Strategic Mitigation

Approach

5.5 The strategic mitigation measures have been determined by undertaking the following steps:

- Review of previous and current policy documents and strategy.
- Review of previously identified mitigation measures to address highway issues. Of particular relevance was the Strategic Growth Plan – STA Stage 1.
- Identify specific locations with the need for mitigation, informed by:
  - existing issues based on the junctions, links or locations identified from the PRTM outputs summarised in Section 3;

  - forecast issues based on the junctions, links or locations identified from the PRTM outputs summarised in Section 3 and highlighted in Table 4-1; and
  - stakeholder comments at the workshops held on 25th April 2024 and 17th June 2024.
- Consider mitigation measures based on the corridor in which issues occur to understand the relationship between issues across the network, particularly on strategic roads. This includes considering routeing and whether issues within corridors are to do with rerouteing away from strategic roads onto local roads. Consider mitigation measures within corridors which could help with rerouteing strategic trips back onto strategic roads.

5.6 The mitigation measures identified consist of active travel, bus, rail, and highway. As mentioned in Section 1, the wider mitigation approach in the development of the Local Plans should prioritise resolving impacts through good planning design, active travel, and public transport investment. Only after these measures are developed, are the residual impacts addressed through other means such as highway mitigation measures. When considering the strategic mitigation for the Key Impact Areas, the following key considerations were therefore taken into account:

1. Is there the need and opportunity for large-scale, coordinated investment in active travel? This could involve implementing a Local Cycling and Walking Infrastructure Plan (LCWIP) approach to enhance connectivity and promote sustainable travel modes on a corridor- or area-wide basis.
2. Is there potential for a significant step change in the public transport strategy within the area? Rather than simply extending existing bus services, this approach would involve comprehensive improvements or the introduction of new public transport infrastructure to better serve the growing population and evolving travel patterns.
3. What is the residual demand following the consideration of the previous modes? Is there a need for provision of large-scale highway infrastructure? This could include major upgrades to the SRN, the creation of new SRN or motorway junctions, or the development of new local roads such as bypasses. Such measures would significantly enhance connectivity across a wide area, supporting the increased demand resulting from growth.

5.7 The list of mitigation measures does not include measures within the boundaries of development sites, which developers will be expected to deliver. This includes access arrangements, potential bus routes, and cycle network facilities. Furthermore, most developments will likely require a Travel Plan to accompany the planning application. Travel Plans typically incorporate measures to encourage more sustainable travel behaviours. The design and layout of developments may also influence travel behaviour, prioritising pedestrians and cyclists and limiting car parking. These measures, internal to developments, will need to integrate and align with the Local Plan-level cumulative mitigation strategy.

Strategic Mitigation Measures

5.8 This section presents the key strategic mitigation measures by key impact area. It builds on the issues identified in Figure 4-1 to Figure 4-3, providing an overview of the strategic challenges affecting the network. It considers both existing issues and forecast issues, associated with new housing and jobs growth. Mitigations are presented in Table 5-1 to Table 5-8, grouped by broad type. A description of each mitigation is provided alongside an explanation of its potential benefits. Based on professional judgement, indicative timescales of when schemes could potentially constructed and become operational are put forward:

- Short-term: those measures that have the potential to be delivered (in full or part) in the early to middle stages of the Plan (up to 2036).
- Medium-term: those measures that would potentially become deliverable in the latter stages of the Plan at the earliest (2036-2041).
- Long-term: those measures that are likely to be needed or deliverable only beyond the end of the Plan period (post-2041). Considering them at this stage will help to identify potential long-term requirements that may need to be supported through current Plans, such as policy safeguarding or passive provision.

5.9 It should be noted that the list of mitigation measures put forward for each Key Impact Area does not represent a package but an initial view on the potential options and should therefore be considered according to their individual merits.

Mitigation Not Specific to Key Impact Areas

5.10 Some concepts are broader in scope and cannot be categorised under any particular Key Impact Area. These interventions are designed to address strategic challenges across South Leicestershire as a whole, rather than targeting specific problem areas. This is especially relevant for public transport improvements, particularly rail. These interventions do not focus on specific issues, such as a particular SRN junction, but aim to alleviate overall pressure on the SRN by enhancing connectivity and promoting modal shift. Examples of such rail-based schemes include:

- Increase frequency of Birmingham-Leicester-Stansted rail services, potentially increasing Birmingham to Leicester frequency from 2 trains per hour (tph) to 4 tph.
- Introduce a new 2 tph service between Coventry, Nuneaton, Hinckley, Narborough, South Wigston, Leicester, Loughborough, and Nottingham in addition to any existing or new Birmingham to Leicester services.
- Investment in new infrastructure to deliver and enable frequency enhancements, for example additional freight loops between Birmingham and Leicester.

Key Impact Area A: Stanton under Bardon/Markfield (M1 J22)

Figure 5-1: Key Impact Area A (Stanton under Bardon/Markfield, M1 J22)

Strategic Challenges Relating to Key Impact Area A:

5.11 Key Impact Area A faces a range of interconnected strategic challenges, particularly around the M1 Junction 22 and the surrounding local road network. While many of these constraints are longstanding issues, proposed developments near the junction are expected to exacerbate the situation. Similar patterns have been observed in other strategic assessments. If these issues are not adequately addressed, the wider network's ability to support and accommodate growth will be hindered. The primary factors driving the challenges in this area include:

- High traffic volumes relative to capacity the M1 and A50: High traffic volumes relative to capacity on these major routes contribute to bottlenecks and rerouteing onto local roads in the surrounding area.
- High traffic volumes relative to capacity of M1 Junction 22: The suboptimal functioning of M1 Junction 22 leads to traffic spilling over onto lower-order routes, causing additional congestion. This overflow not only strains the capacity of local roads but also raises safety concerns.

5.12 To address these challenges effectively, both corridor-wide and more targeted measures are needed. This includes a package of localised measures on the local road network to manage traffic from proposed developments, alongside improvements aimed at resolving the long-standing capacity issues on the SRN It was determined that active transport or public transport interventions would not be sufficient to mitigate the issues in Key Impact Area A, given the largely rural nature of the area. There is a limited existing public transport network for new

developments to connect to, and no significant urban centres to generate demand or serve as focal points for new public transport links. A more comprehensive solution focusing on road network enhancements is required. A range of strategic interventions with the potential to address these challenges have provisionally been identified for this area as summarised in Table 5-1 below.

Table 5-1: Potential Strategic Transport Interventions for Key Impact Area A (Stanton under Bardon/Markfield, M1 J22)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide package of local highway improvements	Package of local highway mitigation measures around M1 J22	Deter trips travelling along Hill Lane, including improvements to the A50 'Flying Horse Roundabout' and Cliffe Lane (to increase capacity and reduce trips on Hill Lane)	Short-term: Throughout the Local Plan period (including pre-2036).
Strategic capacity enhancement to SRN route(s)	Strategic capacity improvements to the M1 between Junction 21a and Junction 23a of a broadly equivalent scale to those previously under consideration as part of National Highways' Road Investment Strategy (RIS) pipeline process).	Enhance capacity on the M1 mainline and M1 J22. Alleviate congestion, improve traffic flow, and boost network efficiency. In turn this would help to reduce pressure on local roads and improve safety. Strengthens overall connectivity across the region, ensuring the M1 can accommodate future demand and development effectively.	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape.

Key Impact Area B: A46 to Anstey Lane (M1 J21a)

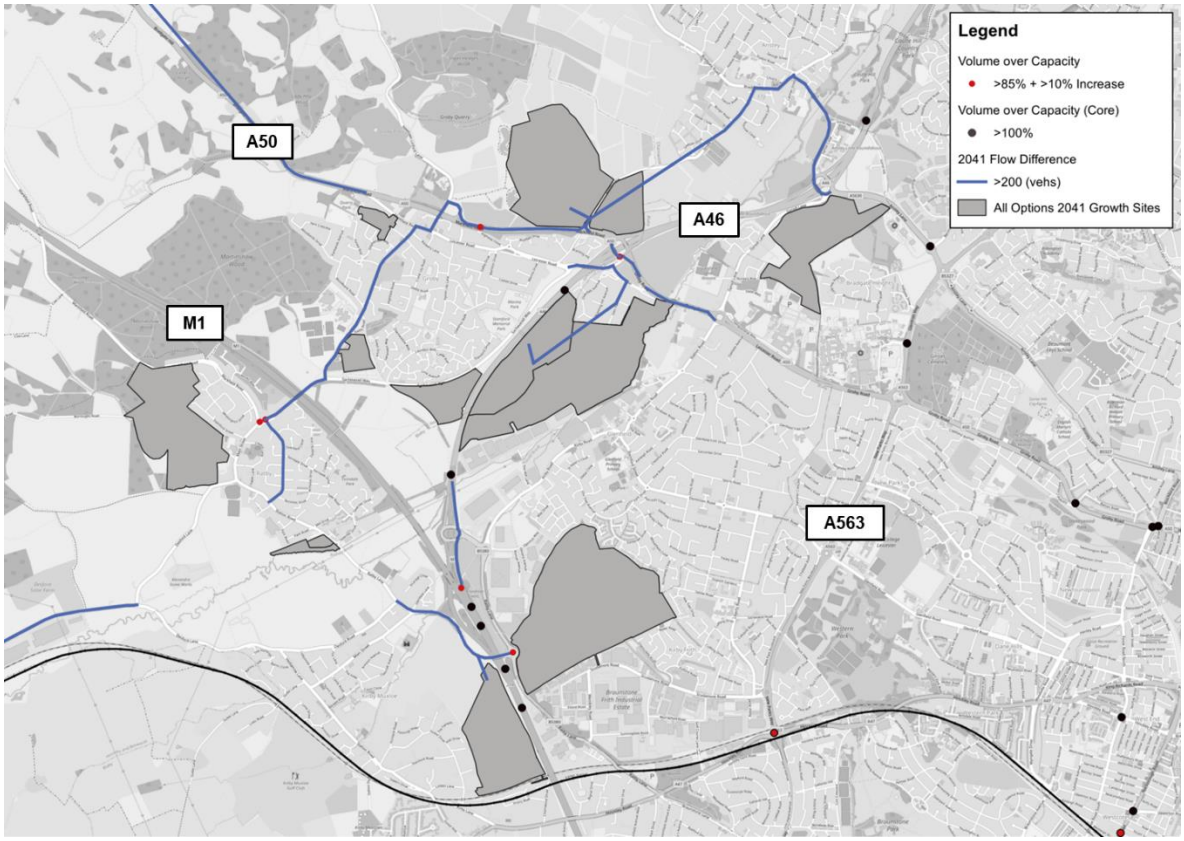

Figure 5-2: Key Impact Area B (A46 to Anstey Lane, M1 J21a)

Strategic Challenges Relating to Key Impact Area B

5.13 Located at M1 J21a, this Key Impact Area serves as a critical juncture for orbital trips on the A46, radial trips on the A50, and strategic trips on the M1 in South Leicestershire. The junction itself has capacity constraints and is affected by the additional capacity challenges along the M1 mainline. Additionally, there is a significant challenge in managing the volume of orbital traffic around the City of Leicester on the A46, which exerts considerable pressure on the road network.

5.14 This area is positioned on the boundary of Leicester Urban Area, where substantial development is planned. Development here is expected to further strain the network's capacity in this location. The primary factors contributing to the challenges observed in this area include:

- Performance of the A46 Leicester Western Bypass: The overall capacity of this major route is critical, as it serves as a key orbital corridor around Leicester, facilitating both local and longer-distance travel.
- Performance of M1 J21a and the M1 mainline: The stretch of the M1 including Junction 21a and Junction 21 is crucial for supporting strategic traffic flows across the region and beyond; however, M1 J21, M1 J21a, and the M1 mainline are at capacity in the AM peak.

5.15 A range of strategic interventions with the potential to address these challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-2 below.

Table 5-2: Potential Strategic Transport Interventions for Key Impact Area B (A46 to Anstey Lane, M1 J21a)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP-scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around the West of Leicester area, equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. The M1 J21a area falls within Leicestershire County Council's developing LCWIP for North of Leicester area, and that any package of measures identified for the M1 J21a area could be incorporated to future iterations of the North of Leicester LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the M1 J21a area. Remove and relieve the impact of local, short-distance trips to/from the M1 J21a area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention
Major alteration to the local bus network	Redesign of the bus network serving M1 J21a area, building on: Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) – e.g. proposed enhancements to Leicester's existing Outer Circle orbital bus service. Any new, high-quality passenger transport services to be provided to connect nearby strategic developments to key services and facilities in the M1 J21a area.	Encourage sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the M1 J21a area. Remove and relieve the impact of local, short and medium-distance trips to/from the M1 J21a area from the highway network in and around this area. Ease pressure on orbital routes, notably the A46, which are limited by a lack of existing public transport infrastructure.	Short-term: Throughout the Local Plan period (including pre-2036).
New or majorly enhanced	Should the Leicester to Burton railway line be reopened to passenger services at some point in	To support radial trips into the City of Leicester and remove and relieve the impact of local, short and medium-	Long-term: 2041 onwards.

Type	Description	Potential Benefits	Indicative Timescales
passenger rail service(s)	the future, it may present opportunities for new stations at Meynell's Gorse and/or Bagworth.	distance trips to/from the M1 J21a area from the highway network in and around this area.	Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape. Dependent on the feasibility of the delivery of the Ivanhoe Line reopening between Leicester and Burton.
Multi-modal transport hub.	Development of a new multi-modal transport hub at Meynell's Gorse, to develop the capacity for multi-modal interchange between active travel, bus and coach.	Encourage active travel behaviour choices for both existing and new journeys arising from planned growth to/from the M1 J21a area. Remove and relieve the impact of local, short and medium-distance trips to/from the M1 J21a area from the highway network in and around this area. Ease pressure on orbital routes, notably the A46, which are limited by a lack of existing public transport infrastructure.	Short-term: Throughout the Local Plan period (including pre-2036). Delivery depends on potential associated opening of station on the Ivanhoe Line as above.
Local highway improvements	Junction capacity improvements to the Ratby Lane/ Kirby Lane junction	Support nearby growth proposals and create additional capacity for local trips crossing the M1.	Short-term: Throughout the Local Plan period (including pre-2036).
Strategic capacity	Strategic capacity improvements to the M1 between Junction 21 and Junction 21a of a broadly equivalent scale to those under	Improved capacity/ performance on M1 mainline and at J21a, resulting in	Medium/Long Term: 2036 onwards

Type	Description	Potential Benefits	Indicative Timescales
enhancement to SRN route(s)	consideration as part of National Highways' Road Investment Strategy (RIS) pipeline process (M1 'Leicester Western Access' scheme) Strategic capacity improvements to the M1 between Junction 21a and Junction 23a of a broadly equivalent scale to those previously under consideration as part of National Highways' Road Investment Strategy (RIS) pipeline process.	reduced knock-on traffic issues on the surrounding local road network.	Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape (including the Government/National Highways RIS process).

Key Impact Area C: M1 J21 and the Fosse Park Area

Figure 5-3: Key Impact Area C (M1 J21 and the Fosse Park Area)

Strategic Challenges Relating to Key Impact Area C

5.16 The Key Impact Area located around M1 J21 & Fosse Park has a number of existing capacity constraints, including at M1 J21 itself and along the M1 and M69 mainlines. Whilst many of the constraints in this area are pre-existing issues the issues here are forecast to be exacerbated by future growth. These issues will hamper the ability of the wider network to appropriately serve and accommodate such growth if not addressed. Key factors driving these issues are:

- The lack of alternative access points to the M1 and M69 to the south and west of the Leicester Urban Area, which means that traffic seeking to access these roads from across a relatively wide area is forced to travel through Junction 21 and the adjoining local highway network.
- The Fosse Park area attracts a significant number of both local and relatively longer distance trips from across a wide area. However, the current transport network in and around this area is dominated by heavy road infrastructure designed to maximise traffic throughput, but which acts as a major barrier to access via active modes for shorter-distance trips. PT accessibility to this area is also much more limited than might be expected for such a major economic hub.

5.17 A range of types of strategic intervention with the potential to address these strategic challenges have provisionally been identified for this area as summarised in Table 5-3 below.

Table 5-3: Potential Strategic Transport Interventions for Key Impact Area C (M1 J21 and the Fosse Park area)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP -scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around the Fosse Park area, equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. The M1 J21/Fosse Park area falls within Leicestershire County Council's LCWIP for the wider South of Leicester area, and that any package of measures identified for the M1J21/Fosse Park area could be incorporated to future iterations of the South of Leicester LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Fosse Park area. Remove and relieve the impact of local, short-distance trips to/from the Fosse Park area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention.
Major alteration to local bus network	Redesign of the bus network serving the Fosse Park area, building on: • Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) – e.g. proposed enhancements to Leicester's existing Outer Circle orbital bus service • Any new, high-quality passenger transport services to be provided to connect nearby strategic developments to key services and facilities in the Fosse Park area.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Fosse Park area. Remove and relieve the impact of local, short and medium-distance trips to/from the Fosse Park area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036).
Multi-modal transport hub	Development of a new multi-modal transport hub at Fosse Park, to develop the capacity for multi-	As above.	Short-term: Throughout the Local Plan period (including pre-2036).

Type	Description	Potential Benefits	Indicative Timescales
	modal interchange between active travel, bus and coach.		
Area-wide package of local highway improvements	Package of improvements to existing local highway junctions across the Fosse Park area (e.g. the A563/A5460 interchange)	Reduce residual traffic flow and capacity issues in and around the M1 J21/Fosse Park area. However, such a package appears unlikely to resolve the fundamental issues in this area and there is a risk that it could divert funding away from more comprehensive longer-term solutions to these issues, as well as conflict with any package of sustainable travel interventions for the area.	Short-term: Throughout the Local Plan period (including pre-2036).
New access point(s) to the Strategic Road Network (SRN)	Provision of new junctions on the M1 and M69 to the south and west of the Leicester Urban Area (and/or the provision 'missing' slip roads at existing M69 J2 on these roads).	Would increase the choice of access points (and thereby routes) to the M1 and/or M69 for much of the longer-distance traffic that is currently forced to use M1 Junction 21. Resulting potential to provide major traffic relief to the J21/Fosse Park area and increase overall network resilience across a much wider area.	Medium/Long term: 2036 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape. However, possible that M69 J2 missing slip roads could come forward pre-2036 if Hinckley National Rail Freight Interchange scheme is approved.

Type	Description	Potential Benefits	Indicative Timescales
Strategic capacity enhancement to SRN route(s)	Strategic capacity improvements to J21 itself and/or the M1 between junctions 21 and 21a of a broadly equivalent scale to the those under consideration through the Road Investment Strategy (RIS) pipeline process.	Improved capacity/ performance on M1 mainline and at J21, resulting in reduced knock-on traffic issues on the surrounding local road network, including in the Fosse Park area.	Medium/Long term: 2036 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape (including the Government/National Highways RIS process).
Major new local highway link(s)	New orbital road link around the south and east, or to the west of the Leicester Urban Area, connecting to any new junctions on the M1 and/or M69 (see above).	Would provide high quality connections between any new junctions on the M1 and M69 (as described above) and strategic development zones avoiding the M1 J21/Fosse Park area altogether. In doing so, would complement and enhance the benefits of providing such new junctions.	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape. Additionally, the benefits of such an intervention to the M1 J21/Fosse Park area would be reliant on prior or concurrent provision of new junctions on the M1 and/or M69 as described previously.
New or majorly enhanced passenger rail service(s)	Major improvements to rail services on the Nuneaton to Leicester line in accordance with Midlands Connect's 'Midlands Rail Hub' proposals, comprising:	Encourage longer-distance car trips passing through the M1 J21/Fosse Park area to access the SRN to shift to rail for such journeys.	Unknown Dependent on ongoing reforms to the structure and funding of the rail industry, use of

Type	Description	Potential Benefits	Indicative Timescales
	Higher frequency services between Birmingham and Leicester. New direct service between Coventry, Nuneaton, Hinckley, Narborough, South Wigston, Leicester, Loughborough, and Nottingham.	Remove and relieve the impact of such trips from the highway network in and around the J21/Fosse Park area.	additional capacity created by HS2 and ongoing Midlands Connect studies.

Key Impact Area D: South and East of Leicester

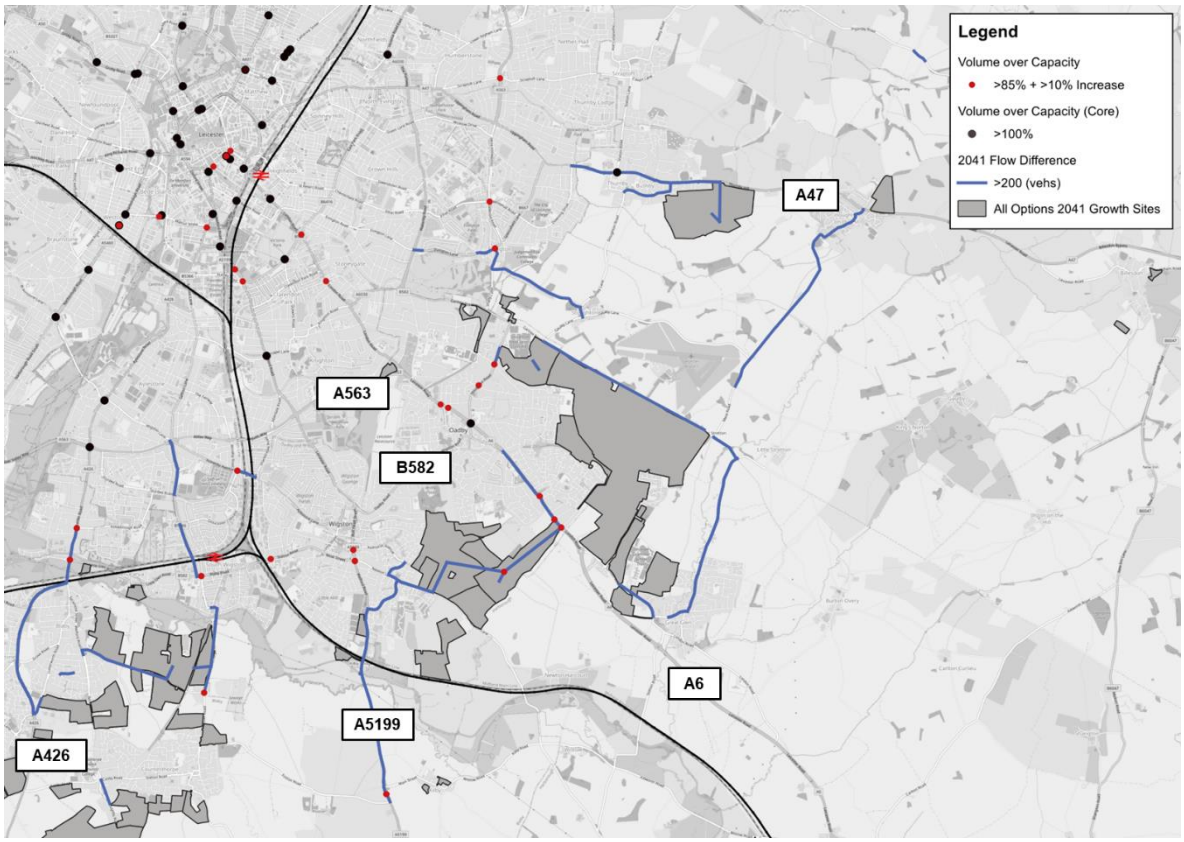

Figure 5-4: Key Impact Area D: South and East of Leicester Urban Area

Strategic Challenges Relating to Key Impact Area D

5.18 Around the south and east of Leicester, there are a significant number of critical orbital routes, e.g. A563 and radial e.g. A6 routes leading into the city, all of which face significant congestion issues. Additionally, these areas are experiencing a high volume of large-scale development proposals, both in terms of number and geographic extent. These proposed developments near the Leicester Urban Area are intensifying existing congestion problems. The primary factors contributing to these issues include:

- Orbital Traffic to Access the Strategic Road Network (SRN): Many trips involve orbital movement through the Leicester Urban Area to reach the limited and congested access points on the SRN. Such orbital movement adds pressure to the already congested routes in and around the Leicester Urban Area, leading to delays and bottlenecks, especially during peak times.
- Radial Traffic Aiming to Access the City: Numerous routes are used by vehicles to enter the city. The high volume of traffic on these radial routes exacerbates congestion, causing significant delays and reducing the efficiency of the road network.

5.19 Further large sites to the south of the area, including Whetstone Pastures, add to these issues. Given the City of Leicester's proximity to this Key Impact Area, active modes and public transport need to be central to the proposed mitigations. While there are already rail stations near the affected areas, ensuring suitable

access to these stations is crucial. The clustering of growth in this Key Impact Area presents an opportunity to deliver a strategic ‘step change’ in sustainable transport provision. Highway measures should address the residual impact by facilitating access to the SRN, which is currently limited. This is likely to take the form of an orbital mitigation measure.

5.20 A range of types of strategic intervention with the potential to address these strategic challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-4 below.

Table 5-4: Potential Strategic Transport Interventions for Key Impact Area D (South and East of Leicester Urban Area)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP -scale) active travel package	LTN 1/20 compliant cycling infrastructure, including traffic calming, from sites south and east of Wigston to South Wigston rail station. Dedicated walking and cycling infrastructure for radial routes into the City of Leicester. This Key Impact Area falls within Leicestershire County Council's LCWIP for the wider South of Leicester area, and that any package of measures identified for this Key Impact Area could be incorporated to future iterations of the South of Leicester LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from South and East of Leicester Urban Area. Remove and relieve the impact of local, short-distance trips to/from South and East of Leicester Urban Area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention
Major alteration to local bus network	Potential for bus service improvements as part of wider area mitigation measures, especially where it can be linked to large strategic development sites/clusters such as Whetstone Pastures. Improvements to build on: • Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) – e.g. proposed enhancements to Leicester's existing Outer Circle orbital bus service. Bus priority measures (signal priority for late running buses and smart traffic management) on	Encourage sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area. Remove and relieve the impact of local, short and medium-distance trips to/from the Key Impact Area from the highway network in and around this area. Reduce pressure on key over-burdened orbital and radial routes.	Throughout the Local Plan period (including pre-2036).

Type	Description	Potential Benefits	Indicative Timescales
	the A6, A5199 and A426 to be made less fragmented. Additional P&R hubs on the edge of the Leicester Urban Area. New Leicester Outer Circle Bus Route (along new South and East Leicester Orbital Route).		
Multi-modal transport hub	Mobility hubs to be established at key arterial rail stations (and potentially key bus stations) near major developments.	As above.	Short-term: Throughout the Local Plan period (including pre-2036).
Area-wide package of local highway improvements	Localised traffic calming measures to deter rat-running on local routes	Limit congestion caused by potentially large increase in local traffic from new development sites. Reduce safety concerns and improve conditions for increasing active travel on local roads.	Short-term: Throughout the Local Plan period (including pre-2036).
Major new local highway link(s)	A563 Leicester Outer Ring Road Extension New M1 Junction 20a Potential new South and East Leicester Orbital Route from J20a to A46. Potential new M69 to M1 link road from potential new M1 Junction to the south of Leicester to M69 Junction 2.	Improved capacity/ performance on the existing orbital routes, such as A563 Outer Ring Road, and resulting in reduced knock-on traffic issues on the surrounding local road network, including the B582. Provide better access to the SRN for trips from large number of new developments located on the edge of Leicester Urban Area.	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape.

Key Impact Area E: A5 (Hinckley & Nuneaton)

Figure 5-5: Key Impact Area E: A5 (Hinckley & Nuneaton)

Strategic Challenges Relating to Key Impact Area E

5.21 Key Impact Area E is centred around the A5 corridor, which is already under significant strain. This area is facing numerous challenges due to existing pressures on the mainline. The A5 corridor in this area is catering for a range of strategic and local movements, including both along and across the corridor. The A5 corridor is also the site of large-scale planned growth, including the expanding MIRA employment site and several residential developments north of Hinckley. These new developments are expected to add pressure to an already overburdened network. The main factors contributing to the issues in this area include:

- Lack of capacity at the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout): These junctions on the A5 are critical bottlenecks, struggling to handle both local and strategic traffic flows.
- Limited capacity and access to the M69: The insufficient capacity and limited access points to the M69 are causing significant strain on the surrounding local road network, particularly the A47.

5.22 Any combination of interventions needs to take account of both the strategic and local journeys using the A5. Any interventions need to be coordinated with investment by Warwickshire County Council. Bus services and active travel options along and near the A5 could encourage a degree of modal shift but highway measures will be necessary to support these sustainable initiatives. A range of types of strategic intervention with the potential to address these

strategic challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-5 below.

Table 5-5: Potential Strategic Transport Interventions for Key Impact Area E (A5 Hinckley & Nuneaton)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP-scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around Key Impact Area E, including upgrades to reduce fragmentation on the shared use path along A5 south of Hinckley and cross-boundary connections to Nuneaton. Overall package of measure equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. This Key Impact Area falls within Leicestershire County Council's developing LCWIP for Hinckley, and that any package of measures identified for the in this area could be incorporated in future iterations of the Hinckley LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Hinckley area. Remove and relieve the impact of local, short-distance trips to/from Hinckley and Nuneaton from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention
Major alteration to local passenger transport network	Redesign of the bus network serving the Hinckley and Nuneaton area, building on: • Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) • Any new, high-quality passenger transport services to be provided to connect nearby strategic developments to key services and facilities in the Hinckley	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area. Remove and relieve the impact of local, short and medium-distance trips to/from the Key Impact Area from the highway network in and around this area. Reduce pressure on key over-burdened orbital and radial routes.	Short-term: Throughout the Local Plan period (including pre-2036).
New or majorly enhanced	Possible opportunities for a new 'rail station on the existing Birmingham to Stansted Line (e.g. a	Encourage longer-distance car trips passing through the Key Impact Area to	Unknown

Type	Description	Potential Benefits	Indicative Timescales
passenger rail service(s)	'Hinckley and Nuneaton Parkway' station to the south of the A5).	access the SRN to shift to rail for such journeys. Remove and relieve the impact of such trips from the highway network in and around Hinckley and Nuneaton	Highly dependent on the feasibility of delivery and stakeholder buy-in. Dependent on ongoing reforms to the structure and funding of the rail industry, use of additional capacity created by HS2 and ongoing Midlands Connect studies
New access point(s) to the Strategic Road Network (SRN)	M69 Junction 2: Introduction of South-facing slip roads (as proposed as part of the Hinckley National Rail Freight Interchange scheme).	Allow traffic to join the M69 from the B4669.	Short/Medium term: timescales vary by the scale and specific arrangements of a potential scheme. Possible that M69 J2 missing slip roads could come forward pre-2036 if Hinckley National Rail Freight Interchange scheme is approved
Strategic capacity enhancement to SRN route(s)	Strategic capacity improvements to the A5 from M69 Junction 1 to M42 Junction 10 of a broadly equivalent scale to those under consideration as part of National Highways' Road Investment Strategy (RIS) pipeline process (A5 'Hinckley to Tamworth' scheme).	Relieve existing issues and potential additional traffic from the MIRA development along the A5	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape.
Major new local highway link(s)	Improvements to the flow of traffic at the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout) junctions on the A5. Potential	Reduce congestion on the A5 and local road network.	Long-term: 2041 onwards.

Type	Description	Potential Benefits	Indicative Timescales
	intervention includes an A5-to-A47 link road which could double as access for proposed site/s in area to directly relieve traffic at the A5/A47 (The Long Shoot) and A5/A47/B466 (Dodwells Roundabout) New M69 to M1 link road from new M1 Junction (to the south of Leicester) to M69 Junction 2.	Provide better access to the SRN for trips from large number of new developments located in and around the Key Impact Area	Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape.

Key Impact Area F: A5 (M69 J1 to High Cross)

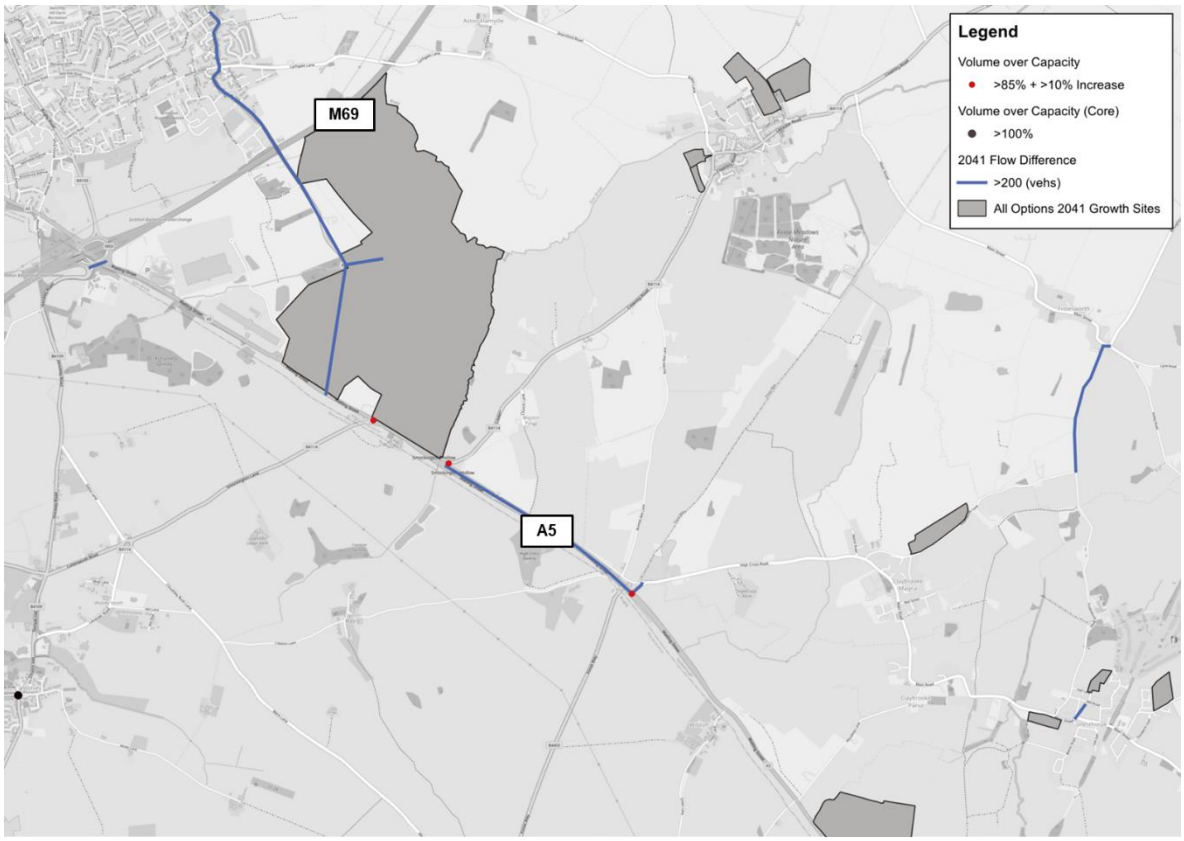

Figure 5-6: Key Impact Area F: A5 (M69 J1 to High Cross)

Strategic Challenges Relating to Key Impact Area F

5.23 East of Hinckley on the A5 there are further large development sites proposed. These are placing additional pressure on the under-strain A5 corridor, attracting large increases in flow from nearby Hinckley. As noted for Key Impact Area E, the A5 corridor in this area is catering for a range of strategic and local movements, including both along and across the corridor.

- Lack of capacity at the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout): These junctions on the A5 are critical bottlenecks, struggling to handle both local and strategic traffic flows.
- Limited capacity and access to the M69: The insufficient capacity and restricted access to the M69 are causing significant strain on the surrounding local road network, particularly the A47.

5.24 Mitigation needs to focus both on addressing strategic trips on the A5, but also more public transport and active travel centred mitigation to facilitate local employment trips. The A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout) junctions are specific areas on the A5 which will require mitigation. As is the case for Key Impact Area E, any interventions need to be coordinated with investment by Warwickshire County Council. A range of types of strategic intervention with the potential to address these strategic challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-6.

Table 5-6: Potential Strategic Transport Interventions for Key Impact Area E (A5 M69 J1 to High Cross)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP-scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around Key Impact Area F, including dedicated walking and cycling infrastructure along the B578 Lutterworth Road. Overall package of measure equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. This Key Impact Area falls within Leicestershire County Council's developing LCWIP for Hinckley, and that any package of measures identified for the in this area could be incorporated in future iterations of the Hinckley LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Hinckley area, including from Burbage Soarbrook.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention
Major alteration to local passenger transport network	Redesign of the bus network serving the area east of Hinckley, building on: • Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) • Any new, high-quality passenger transport services to be provided to connect nearby strategic developments to key services and facilities in the Hinckley	Encourage sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area. Remove and relieve the impact of local, short and medium-distance trips to/from the Key Impact Area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036).
New access point(s) to the	M69 Junction 2: Introduction of South-facing slip roads (not shown on map) as proposed as part	Allow traffic to join the M69, improving access to the SRN and reducing pressure on local roads.	Short/Medium term: timescales vary by the scale and specific

Type	Description	Potential Benefits	Indicative Timescales
Strategic Road Network (SRN)	of the Hinckley National Rail Freight Interchange Scheme		arrangements of a potential scheme. Possible that M69 J2 missing slip roads could come forward pre-2036 if Hinckley National Rail Freight Interchange scheme is approved
Major new local highway link(s)	Improvements to the flow of traffic at the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout) junctions on the A5 Junction capacity improvements at junctions on the A5 New M69 to M1 link road from new M1 Junction (to the south of Leicester) to M69 Junction 2.	Reduce congestion on the A5 and local road network. Provide better access to the SRN for trips from large number of new developments located in and around the Key Impact Area	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape.

Key Impact Area G: Lutterworth (M1 J20)

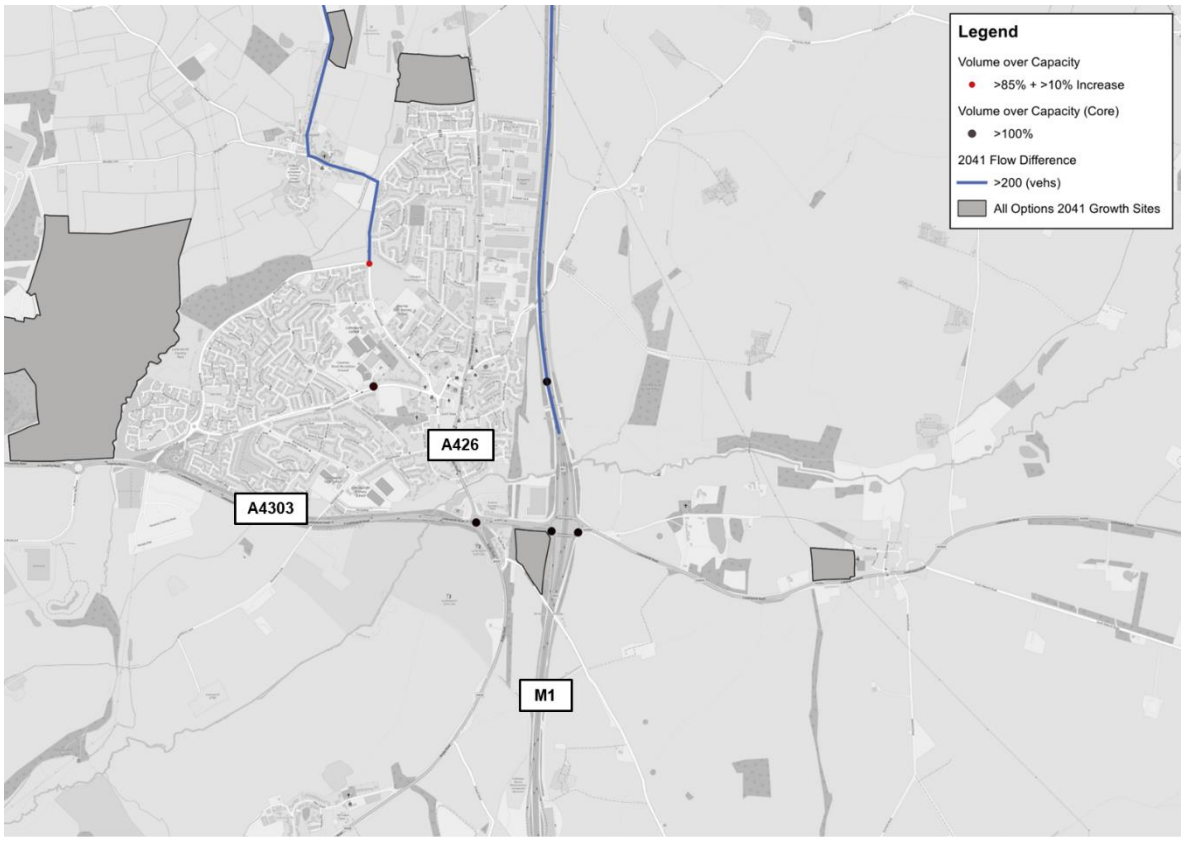

Figure 5-7: Key Impact Area G: Lutterworth (M1 J20)

Strategic Challenges Relating to Key Impact Area G

5.25 In Key Impact Area G, there is a significant increase in flow north of M1 J20. There is also an increase in flow and congestion on the local road network. Development is proposed at M1 J20 and to the west of Lutterworth. Key driving factors for the issues observed in this area are:

- The lack of connectivity to the SRN north of Lutterworth results in strategic trips passing through it to/from M1 J20

5.26 As such, a range of types of strategic intervention with the potential to address these strategic challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-7Table 5-7 below

Table 5-7: Potential Strategic Transport Interventions for Key Impact Area G (Lutterworth M1 J20)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP -scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around the Key Impact Area, equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. The M69 J1 to High Cross area falls within Leicestershire County Council's proposed LCWIP for the wider Lutterworth area, and that any package of measures identified in this Key Impact Area could be incorporated to future iterations of the Lutterworth LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area. Remove and relieve the impact of local, short-distance trips to/from Lutterworth from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention.
Major alteration to local bus network	Redesign of the bus network serving Lutterworth, building on: • Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs) • Any new, high-quality passenger transport services to be provided to connect nearby strategic developments to key services and facilities in the Lutterworth	Encourage sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area. Remove and relieve the impact of local, short and medium-distance trips to/from the Key Impact Area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036).
New access point(s) to the Strategic Road Network (SRN)	New M1 Junction to the north of Lutterworth	Improve access to the SRN, providing an alternative access point to J20/J21. In turn reduce pressure on J20 and the impacts on the local road network.	Long-term: 2041 onwards. Timescale reflective of scale of intervention, associated cost

Type	Description	Potential Benefits	Indicative Timescales
		Facilitate the capacity required to deliver the Whetstone Pastures site.	and delivery implications and current public funding landscape

Key Impact Area H: Earl Shilton & Stoney Stanton

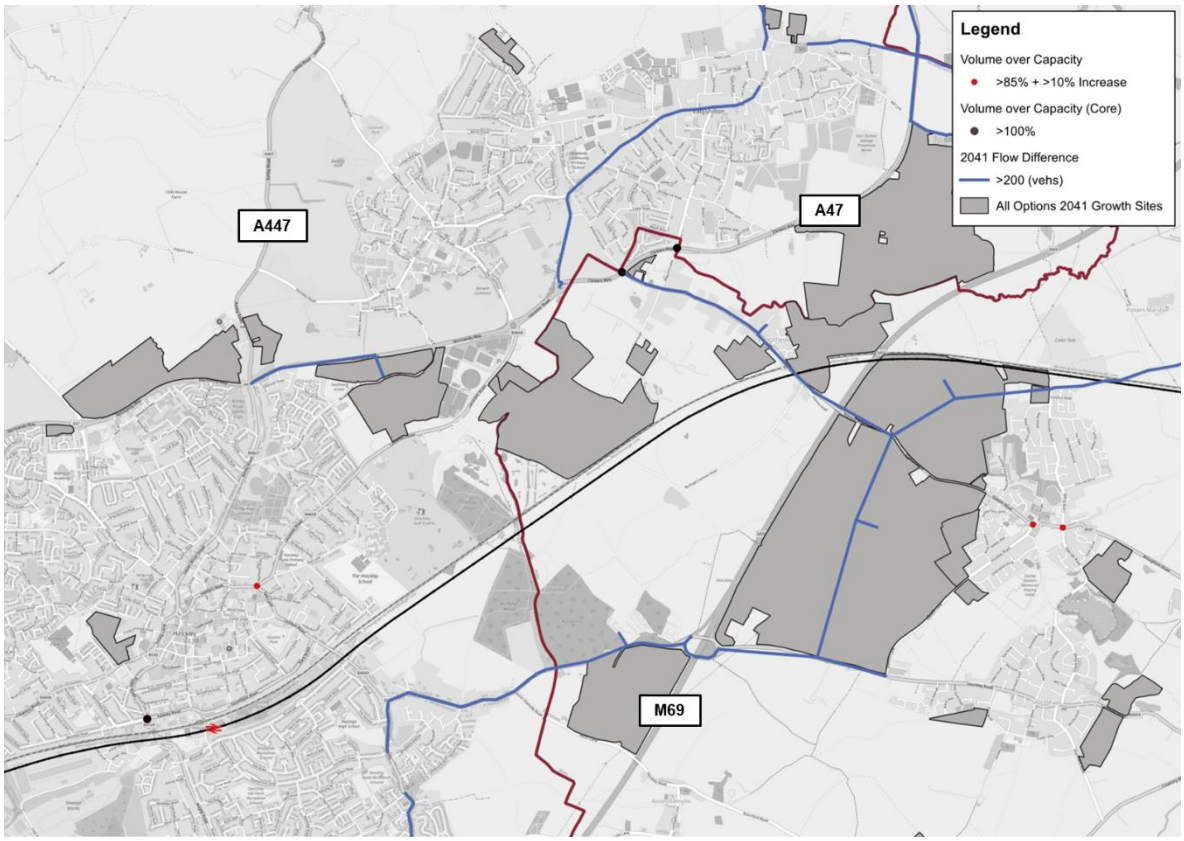

Figure 5-8: Key Impact Area H: Earl Shilton & Stoney Stanton

Strategic Challenges Relating to Key Impact Area H

5.27 The Key Impact Area around Earl Shilton and Stoney Stanton is located near the Strategic Road Network (SRN), rail network, and other sustainable transport modes in Hinckley. Despite this proximity, there are concerns regarding capacity and congestion in the area. The area to the north of Hinckley around Earl Shilton and Stoney Stanton is the location of a very large quantity and concentration of growth. This growth is concentrated around key strategic highway and public transport corridors between Hinckley and the City of Leicester. Given the scale of this growth, addressing challenges in the area is key. Key driving factors for the issues observed in this area are:

- Limited Connectivity to the SRN: Currently, strategic trips must pass through this area to access the SRN via junctions such as M1 J21, M69 J1, and the A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout). This limited connectivity leads to congestion and capacity issues. Improving direct access to the SRN is essential to mitigate the impact of the growing development sites and to reduce pressure on local roads.
- Insufficient Access to Public Transport Networks: The public transport networks near the proposed development sites are not sufficiently accessible. Better connections to these networks are necessary to support the large-scale developments in the area, reducing reliance on private vehicles and thereby mitigating significant impacts on the SRN.

5.28 The clustering of development sites in proximity to existing public transport networks presents an opportunity to incorporate bus and rail services into a comprehensive mitigation strategy. Enhancing active transport options will also be critical, both for linking residents to public transport interchanges and for facilitating direct access to key destinations within Hinckley. Alongside public transport improvements, enhancing access to the SRN remains a priority to manage the impacts of this concentrated growth effectively. A range of types of strategic intervention with the potential to address these strategic challenges have provisionally been identified for this area, including broad timeframes for their delivery, as summarised in Table 5-8 below.

Table 5-8: Potential Strategic Transport Interventions for Key Impact Area H (Earl Shilton & Stoney Stanton)

Type	Description	Potential Benefits	Indicative Timescales
Area-wide (LCWIP -scale) active travel package	A comprehensive package of improvements to the active travel (cycling and walking) networks in and around the Earl Shilton & Stoney Stanton area, equivalent to what might be delivered as part of a Local Cycling and Walking Infrastructure Plan (LCWIP) for this area. The Earl Shilton & Stoney Stanton area falls within Leicestershire County Council's developing LCWIP for Hinckley, and that any package of measures identified for the in this area could be incorporated in future iterations of the Hinckley LCWIP.	Encourage active and sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Earl Shilton & Stoney Stanton area. Remove and relieve the impact of local, short-distance trips to/from the Earl Shilton & Stoney Stanton area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036). Whilst large scale in overall terms, the improvements proposed through an LCWIP-type approach are generally more scalable/possible to phase in accordance with specific funding opportunities than other types of strategic intervention
Major alteration to local bus network	Redesign of the bus network in the area with high frequency express bus service between Hinckley and Leicester via new developments around Earl Shilton on the A47. Improvements will build on: Relevant service enhancements proposed as part of Leicester City Council's and Leicestershire County Council's respective Bus Service Enhancement Plans (BSIPs)	Encourage sustainable travel behaviour choices for both existing and new journeys arising from planned growth to/from the Key Impact Area, including on the route to Leicester Urban Area. Remove and relieve the impact of local, short and medium-distance trips to/from the area from the highway network in and around this area.	Short-term: Throughout the Local Plan period (including pre-2036).
New or majorly enhanced passenger rail service(s)	Possible opportunities for a new rail station on the Birmingham to Peterborough Line between Hinckley and Narborough stations (e.g. reopening of Elmesthorpe).	Encourage longer-distance car trips passing through the Key Impact Area to access the SRN to shift to rail for such journeys. Remove and relieve the impact of such trips from the highway network in and	Unknown Highly dependent on the feasibility of delivery and stakeholder buy-in. Dependent on ongoing reforms to the structure and funding of the rail

Type	Description	Potential Benefits	Indicative Timescales
		around the Earl Shilton, Stoney Stanton and Hinckley.	industry, use of additional capacity created by HS2 and ongoing Midlands Connect studies
Area-wide package of local highway improvements	Localised measures to reduce flow increases in Earl Shilton and junction capacity issues in Stoney Stanton;	Reduce residual traffic flow and capacity issues in and around the Stoney Stanton & Earl Shilton.	Short-term: throughout the Local Plan period (including pre-2036).
New access point(s) to the Strategic Road Network (SRN)	M69 Junction 2: Introduction of South-facing slip roads (as proposed as part of the Hinckley National Rail Freight Interchange Scheme). New M1 Junction 20a	Allow traffic to join the M69 from the B4669. Improved capacity/ performance on M1 mainline and at key junctions, resulting in reduced knock-on traffic issues on the surrounding local road network, including in the Stoney Stanton & Earl Shilton. New junction could further facilitate access.	Short/Medium/Long-term: timescales vary by the scale and specific arrangements of a potential scheme. Possible that M69 J2 missing slip roads could come forward pre-2036 if Hinckley National Rail Freight Interchange scheme is approved
Major new local highway link(s)	New A47 to M69 link road New A47-M69-B4114 link road New M69 to M1 link road from potential new M1 Junction (to the south of Leicester) to M69 Junction 2.	Facilitate access onto the M69, reliving pressure on local roads and the A47. Reduce congestion on the A5 and local roads.	2041 onwards. Timescale reflective of scale of intervention, associated cost and delivery implications and current public funding landscape

Key Impact Area I: City of Leicester

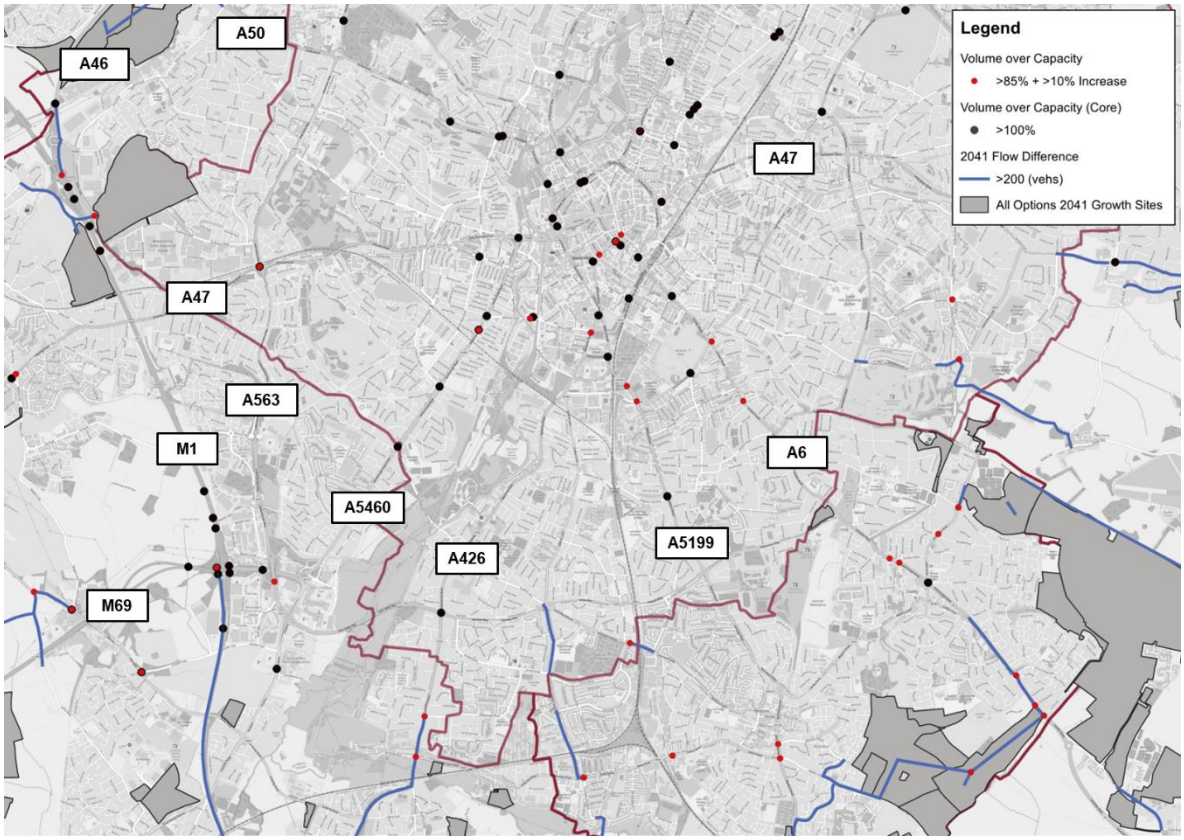

Figure 5-9: Key Impact Area I: City of Leicester

5.29 As stated in Section 4.10 and 4.11, mitigation proposals have not been put forward for the cross-border Key Impact Areas. However, as can be seen in Figure 5-9 and Figure 3-13, many of the new impacts seen in the City of Leicester are on the radial corridors such as A6, A426, A5199. Limited existing capacity on orbital routes also appears to be forcing traffic onto local roads. Many of these routes have proposed mitigations further to the south and east of Leicester in Key Impact Areas C and D. In Leicester, additional sustainable transport measures will be needed to address current issues and connect key growth areas with jobs and essential services, given the limited options for highway improvements. There is potential to build on the Leicestershire County and Leicester Urban Area LCWIPs and BSIPs to facilitate this.. This should be discussed further with Leicester City Council in ongoing discussions between the County and the City. There is potential here for the measures proposed for Key Impact Areas C and D to have an impact across a wider area, including into the city centre. As a dense urban area, there is limited scope for strategic scale highway investments in this area.

Key Impact Area J: Nuneaton

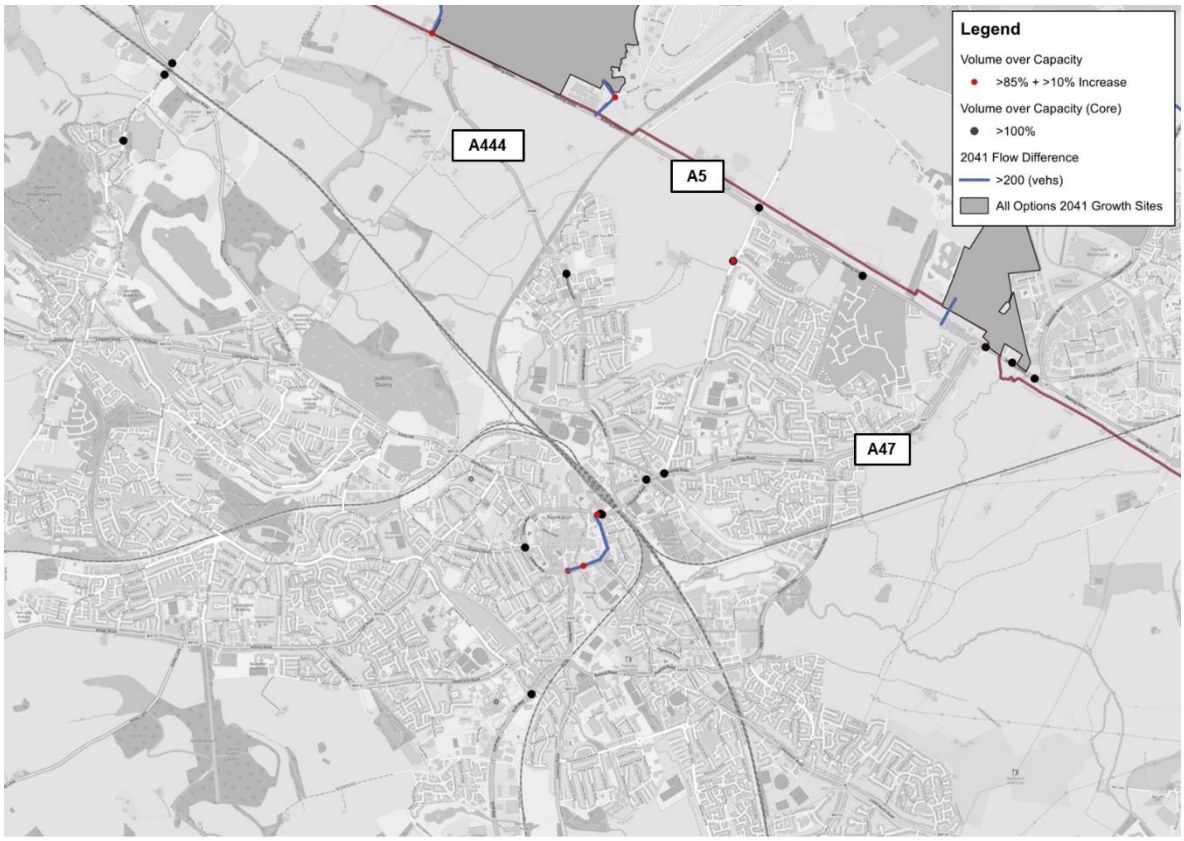

Figure 5-10: Key Impact Area J: Nuneaton

5.30 As stated in Section 4.10 and 4.11, mitigation proposals have not been put forward for the cross-border Key Impact Areas. As can be seen in Figure 5-10, many of the impacts in Nuneaton are on the roads connecting to the A5, most notably the A47 and A444. In this context, mitigation measures to resolve issues at Key Impact Area E and Key Impact Area F are likely to be beneficial for issues in Nuneaton, particularly along the A5 at A5/A47 (The Long Shoot) and A5/A47/B4466 (Dodwells Roundabout) junctions. There are further impacts from the proposed growth on the A444 ring road in the town centre. The section of the A444 in the town centre is significantly constrained, with limited scope for highway upgrades, and therefore sustainable measures are likely to be the most suitable and beneficial approach in reducing overall vehicle demand in Nuneaton. This should be discussed with Warwickshire County Council.

Key Findings Relating to Strategic Mitigation Proposals

5.31 The review of the evidence has identified ten Key Impact Areas and associated Key Corridors that will be the focus of mitigation to support the proposed level of growth. The Key Impact areas and corridors are similar across all spatial growth options, with some minor differences. As such, when looking at the study area in its entirety, any differences between the three spatial options in the strategic mitigation requirements are therefore considered relatively insignificant.

6. Comparison of Spatial Growth Options

Introduction

6.1 This Section will provide a high-level comparison of the spatial growth options, with consideration given to delivering mitigation.

6.2 As concluded in Section 3, the broad impact areas and key corridors are very similar across the three spatial growth options. Consequently, the type of mitigation needed for each option will also be very similar, as established in Section 4. In terms of transport, the key question to inform the selection of preferred spatial growth option can therefore be revised from 'what spatial approach has the fewest impacts/mitigation requirements in transport terms?' to instead focus on 'what spatial approach is best placed to fund and deliver the required mitigation package?'

6.3 The following criteria have been the key considerations as part of this comparison:

- Distribution: Should development be clustered to benefit from spatial-related efficiencies, dispersed, or involve a combination of both? Compared to more dispersed growth, clustering of sites provides:
  - more potential for critical mass; and
  - more potential for active travel and other sustainable solutions.
- Large Sites: Do large sites create additional pressures and challenges, or do they, through critical mass and good design and planning, offer a more sustainable approach? Compared to small sites, large sites have:
  - more potential for generating critical mass and masterplanning;
  - greater potential to raise funding through developer contributions; and
  - greater potential to attract public funding.
- Proximity to Urban Centres: Does development close to urban centres add strain on services, or does it efficiently benefit from extensions to existing provisions? Compared to rural development locations, sites within or close to urban areas have:
  - the potential for short distance trips due to services, leisure and commute destinations being co-located / closer;
  - the potential for more trips using active travel; and
  - more opportunities to access and expand existing public transport.
- Relationship between growth and expected impacts: Is there a clear link between where the forecast impacts arise and the sites which generate them? Or is the geographical relationship between growth and impact less obvious? If impacts can be clearly explained by growth, the case for developers contributions to pay for mitigation will be clearer. Clustering of growth is likely to mean:
  - clearer link between growth and impacts; and

- greater potential for attracting developer funding.

6.4 These criteria are thorough but not exhaustive, and additional considerations will need to be taken into account when selecting a preferred spatial growth option. Caveats and additional considerations for the outlined criteria include:

- **Distribution of Growth/Clustering**: Is it better to cluster development to benefit from spatial efficiencies, disperse it, or use a combination of both?
- **Provision of Large Sites**: Do large sites create additional pressures and challenges, or do they, through good design, planning, and critical mass, offer a more sustainable approach?
- **Proximity of Growth to Key Urban Centres**: Does development close to other centres add strain on services, or does it efficiently benefit from extensions to existing provisions?

Comparison of Spatial Growth Options

6.5 A high-level comparison of the spatial growth options, with respect to delivering mitigation, can be found in Table 6-1. The spatial growth options have been scored as low (L), medium (M) or high (H) against each of the criteria.

6.6 This indicates that spatial growth Option 3 may have spatial characteristics which are relatively more favourable for support the delivery of mitigation.

Table 6-1: Relative High-Level Comparison of Spatial Growth Options

Factor	Distribution of growth / clustering		Provision of large sites		Proximity of growth to key urban centres		Clarity between new sites and expected impacts identified	
Spatial Growth Option 1	M	Sites lie close to existing settlements and key corridors. Sites lie along on A5 and M1 corridors, and across a band running north of Hinckley to southeast Leicester Urban Area.	L	Fewer large sites compared to Option 2 and 3. Does not include proposals for growth beyond 2041.	M	A good proportion of growth lies close to key urban centres or smaller settlements. Some growth proposed along key corridors away from urban centres.	M	Clear link between growth and impacts.
Spatial Growth Option 2	M	Sites lie close to existing settlements and key corridors, though some large sites farther to the west of South Leicester and west of Hinckley along the A5 suggest a comparatively more dispersed pattern of growth in some areas.	H	Option includes provision of larger sites.	M	Geographical proximity between many sites and urban centres, or with key corridors linking to urban centres. Some sites west however do not lie close to key urban centres.	M	Clear link between growth and impacts, though large site proposal in some areas (west) do not necessarily fall within some impact areas.
Spatial Growth Option 3	H	Sites lie close to existing settlements and key corridors. Geography is more similar to Option 1 but with larger sites able to deliver growth beyond 2041, which suggests more consolidated.	H	Option includes provision of larger sites. Comparatively more clustering of large sites along key corridors, compared to Option 2.	M	Geographical proximity between sites and urban centres or settlements, including clustering of growth close to the City of Leicester, Oadby and Wigston, and Hinckley, Market Harborough, and Nuneaton. Some growth also along key corridors linking to urban centres.	H	Potentially stronger picture of where forecast impacts are expected and geographical spread of growth, in part due to geography of large sites.

7. Conclusion

Summary

7.1 This report summarises the work undertaken to provide a combined assessment of the alternative spatial growth options for the four emerging Local Plans in South Leicestershire, focusing on key cross-boundary interactions and issues that could influence the choice of a preferred option. Key model outputs for each of the three spatial growth options were reviewed.

7.2 The modelling results indicated that all options would have a widespread impact across South Leicestershire, as well as cross-border effects in the City of Leicester and Nuneaton. The differences in flow differences and congestion between the options modelled were minimal.

7.3 To assess whether the proposed growth could be managed with appropriate mitigation measures, areas of cumulative impact were identified and examined in more detail. 10 broad areas of cumulative impact, referred to as Key Impact Areas, were put forward. These Key Impact Areas were consistent across all spatial growth options, reiterating the need for similar mitigation proposals for the three options. Potential multi-modal strategic mitigation proposals were set out, alongside information regarding the likely type and scale of investments required.

7.4 Given the comparable patterns, locations, and levels of impact, there are no substantial cumulative differences which suggest one of the spatial growth options is significantly better or worse in terms of transport related impacts and mitigation needs., the final section of the report sought to distinguish the options by considering delivery and funding aspects of transport mitigation rather than focusing solely on impact. This approach suggested that spatial growth Option 3 might offer relatively more favourable conditions for supporting the delivery of the required mitigation.

Next Steps

7.5 The report will inform LCC and the four Districts and Boroughs on the selection of Local Plan preferred development scenarios.

7.6 Once the preferred development scenario has been identified Stage 2 can progress. A more refined modelling process can then be undertaken to model the impact of the preferred development strategy and the mitigation needs identified and appraised. This will inform the delivery of the longer-term strategic growth plan and will support local plans of the districts.

Appendix A Modelling Background

Introduction

A modelling exercise was undertaken in order to understand the high-level strategic impacts of the proposed growth options. The model used was the PRTM 2019 base v1.2. The modelling exercise comprised:

- a base year model review;
- 2041 and 2051 Core forecast scenario production;
- 2041 and 2051 Option forecast scenario (all three options for 2041, and Options 2 and 3 for 2051) production; and
- analysis of the impact of the proposed growth in each option and forecast year, compared to the appropriate core scenario.

Base Year Model

The findings of the base year model review are detailed in the base year mode review report[2]. This concluded that the PRTM highway model is considered a suitable tool for informing Stage 1 of the South Leicestershire Local Plan transport needs evidence base. However, some minor network changes were identified for inclusion as part of the base year mode review and subsequent discussions with LCC and the four Districts and Boroughs:

- correction of coding at Wakes Road Roundabout in Wigston;
- network changes identified as part of the A511 Major Roads Network Outline Business Case modelling work; and
- expansion of the coding of two roundabouts on the A6 to the north and east of Market Harborough.

Core Forecast Model Assumptions

Forecast model networks were based on the latest PRTM network (v1.4) with the inclusion of schemes agreed according to the uncertainty log[3]. This was circulated to key stakeholders for agreement and no changes were made.

Up to date forecast planning data (households and employment) for the four Districts and Boroughs was provided by LCC. This was processed into the format necessary for inclusion in the model. Planning data for areas outside the four Districts and Boroughs was taken from v1.5 of the standard PRTM planning data spreadsheets. It should be noted that the proposed Hinckley National Rail Freight Interchange was not included due to its current status subject to Secretary of State decision following the conclusion of the Development Consent Order examination in public.

[2] South Leics JTE - Base Year Model Review v1.1.pdf, January 2024
[3] South Leics JTE Uncertainty Log v1.0.xlsx, November 2023

The models were run with unconstrained growth, so that in the event that the growth derived from the local planning data results in levels below NTEM[4]/TEMPro[5] growth, the model reverts to NTEM/TEMPro as minimum.

Development Forecast Model Methodology

Assumptions relating to the households and employment to be assumed in each of the spatial growth options, for 2041 and 2051, along with locations and associated access points and spine roads, were provided by LCC.

In most cases, households and employment were added to the appropriate *geographical* zone according to location. However, for larger developments, 36 *development* zones[6] were used to represent access points in more detail as well as apply specific trip rates agreed with LCC and the Districts and Boroughs and based on similar local plan studies undertaken recently within Leicestershire. For household sites, the household trip rates presented in Table A-1 were applied. For sites which contained both household and employment growth, the employment trip rates presented in Table A-1 were also applied.

Table A-1: Development Zone Trip Rates

			B1 use class		B2 use class		B8 use class	
	Origins per household	Destinations per household	Origins per 100sqm	Destinations per 100sqm	Origins per 100sqm	Destinations per 100sqm	Origins per 100sqm	Destinations per 100sqm
AM Peak Hour	0.41	0.142	0.26	1.51	0.07	0.19	0.05	0.07
PM Peak Hour	0.142	0.41	1.05	0.32	0.19	0.06	0.07	0.03

In the case of growth included in geographical zones, the distribution of the associated trips was governed by the existing (base year) trip distributions. For growth in development zones, the PRTM gravity model was used to distribute trips to and from these sites.

Spine roads were included for some of the larger developments to facilitate access to and from the highway network and provide an indicative representation of additional highway capacity that might be required to support such developments. These will to some degree affect the routeing of traffic to and from sites but are, being within the sites themselves, likely to be part of on-site access proposals led by developers. Spine roads were coded with 32kph speeds in order to minimise their use by non-development traffic.

[4] National Trip End Model
[5] Trip End Model Presentation Programme
[6] Additional model zones used to provide flexibility and greater detail in representing large developments, separate from the geographical zone system

Appendix B Stakeholder Workshops

The forecast outputs and findings from the modelling outputs were presented to stakeholders. The discussion considered:

- modelling outputs of summary statistics and key local network issues;
- the number and scale of impacts arising;
- the distribution of impacts;
- whether growth adds to known impacts or creates new issues;
- the scope for sustainable travel, for example, corridors / routes with more potential for modal shift;
- the extent and nature of cross-boundary impacts; and
- views on which combined options could be more appropriate.

Stakeholders from the following organisations attended the workshop:

- National Highways (NH);
- Blaby District Council (BDC);
- Harborough District Council (HDC);
- Hinckley & Bosworth District Council (HBBC);
- Oadby & Wigston Borough Council (OWBC);
- Leicester City Council;
- Leicester & Leicestershire Partnership;
- Warwickshire County Council; and
- Leicestershire County Council (LCC).

Stakeholder Workshop 2

Workshop 2 discussion focused on:

- the Key Impact Areas and Key Corridors identified;
- ideas for strategic mitigation; and
- the differences between spatial growth options in terms of their potential to deliver mitigation.

Stakeholders who were invited and attended Workshop 1 were also invited to workshop 2.

Appendix C Spatial Growth Options – Comparative Scale of Growth by Site, 2041 and 2051

See Figures C-1 to C-6 below.

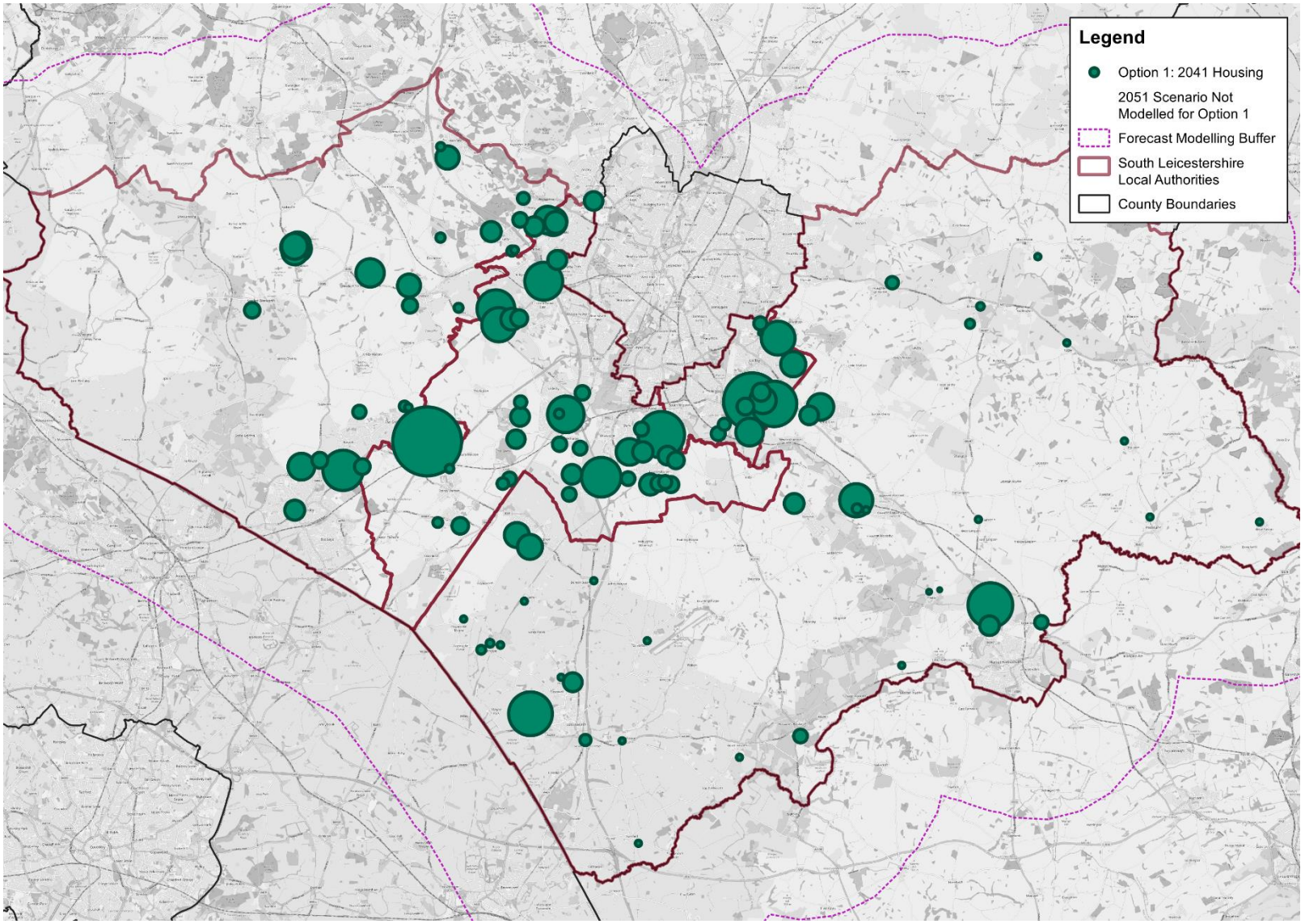

Figure C-1: Option 1 – Comparative Scale of Housing Growth

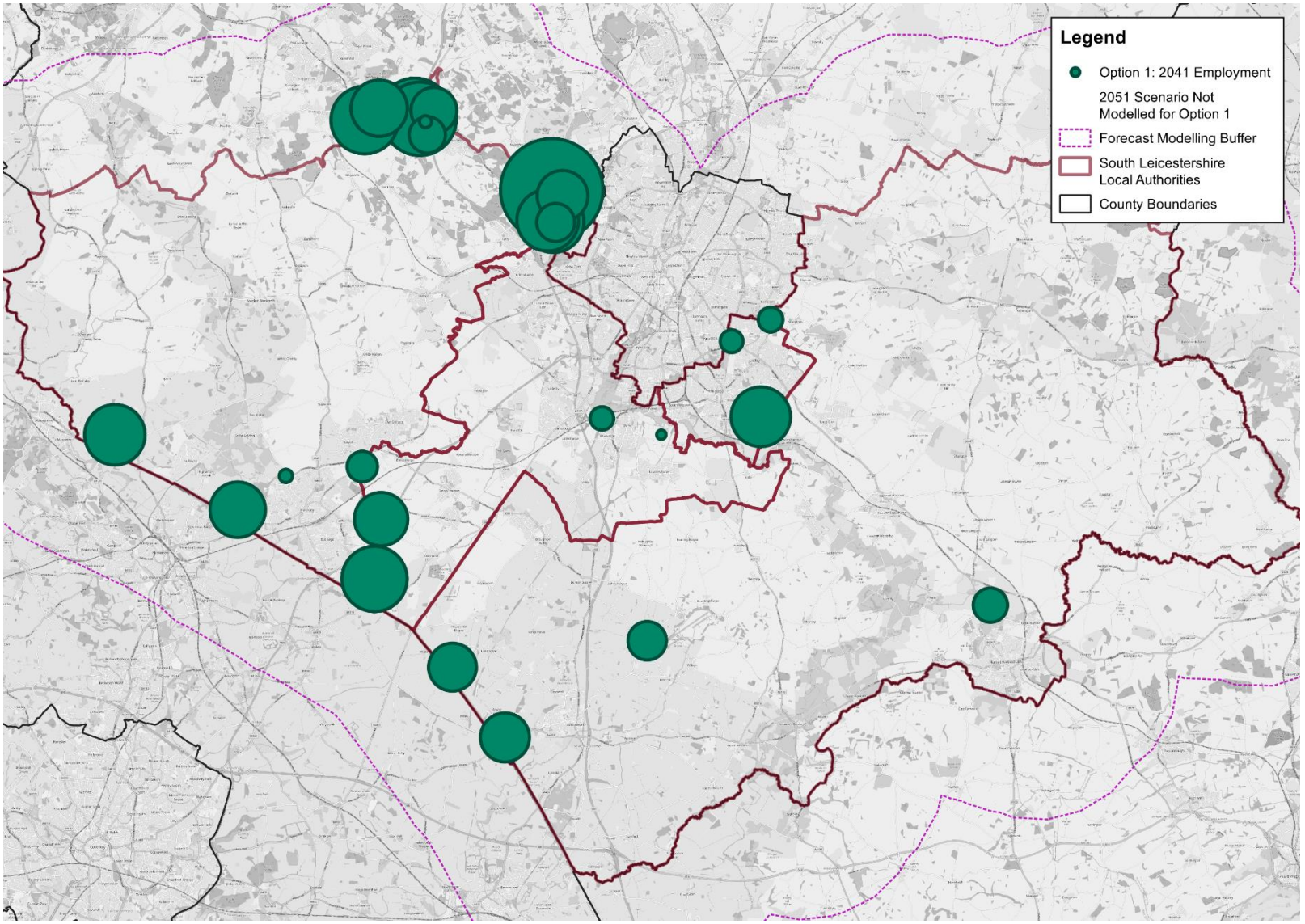

Figure C-2: Option 1 - Comparative Scale of Employment Growth

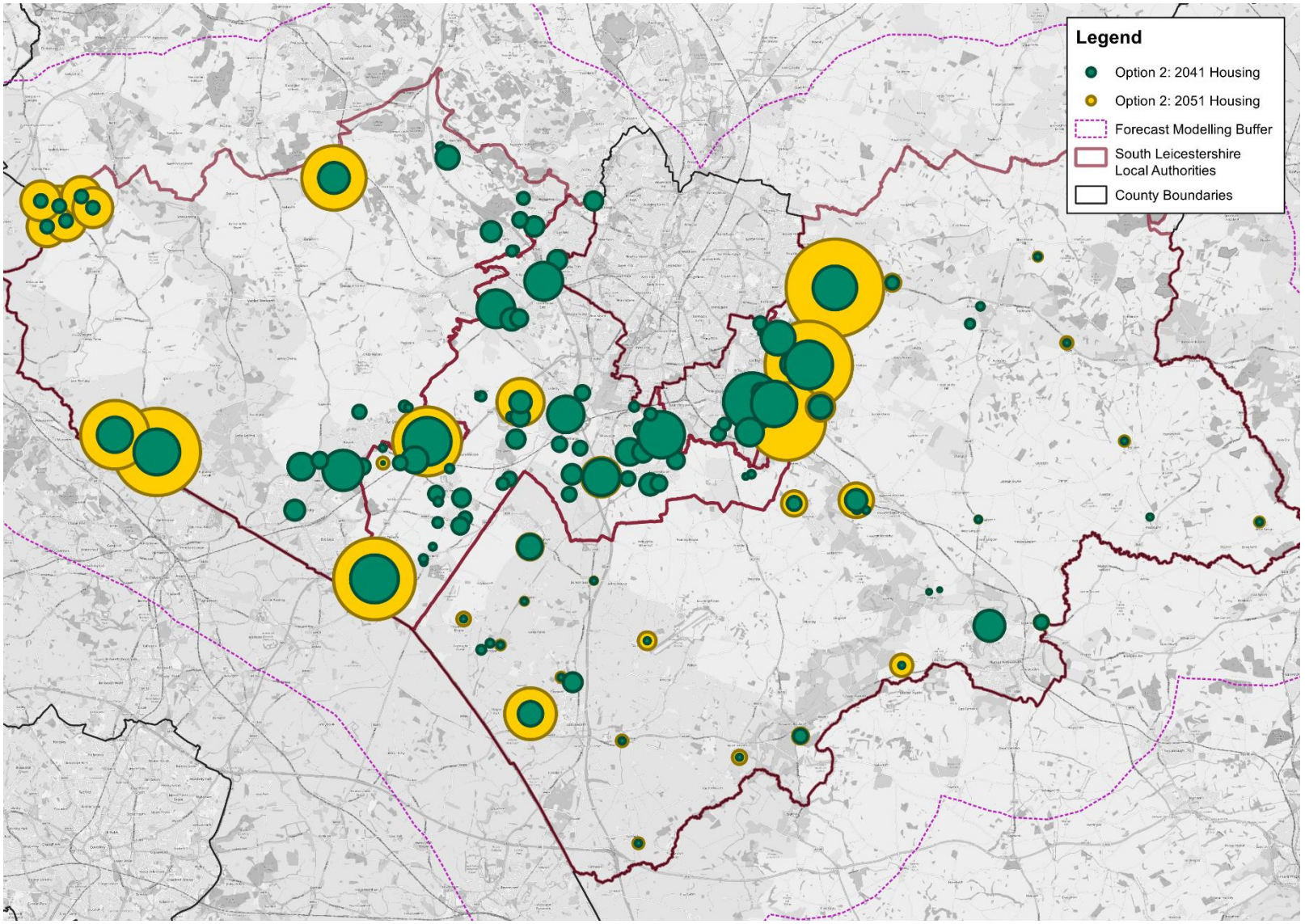

Figure C-3: Option 2 - Comparative Scale of Housing Growth

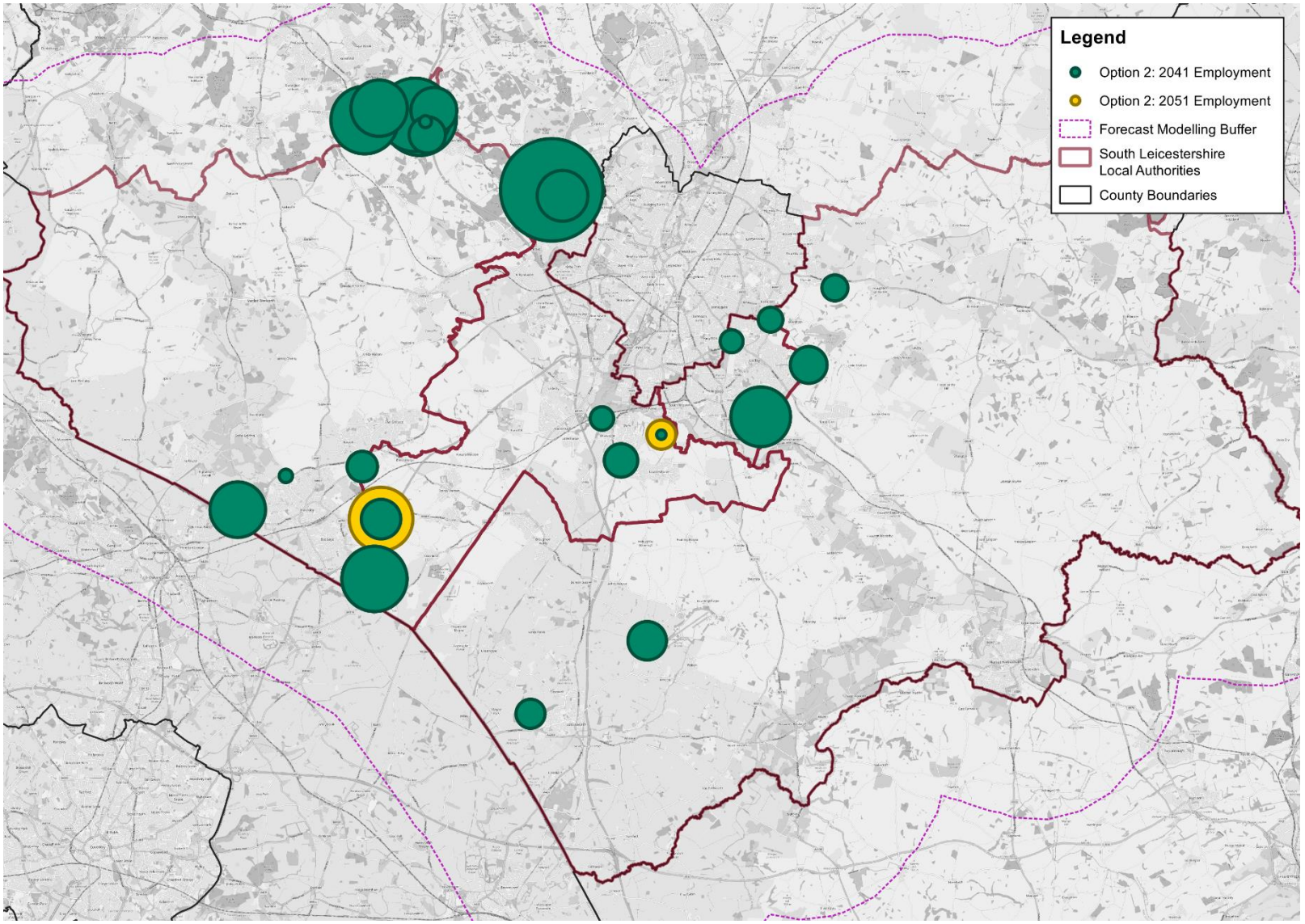

Figure C-4: Option 2 - Comparative Scale of Employment Growth

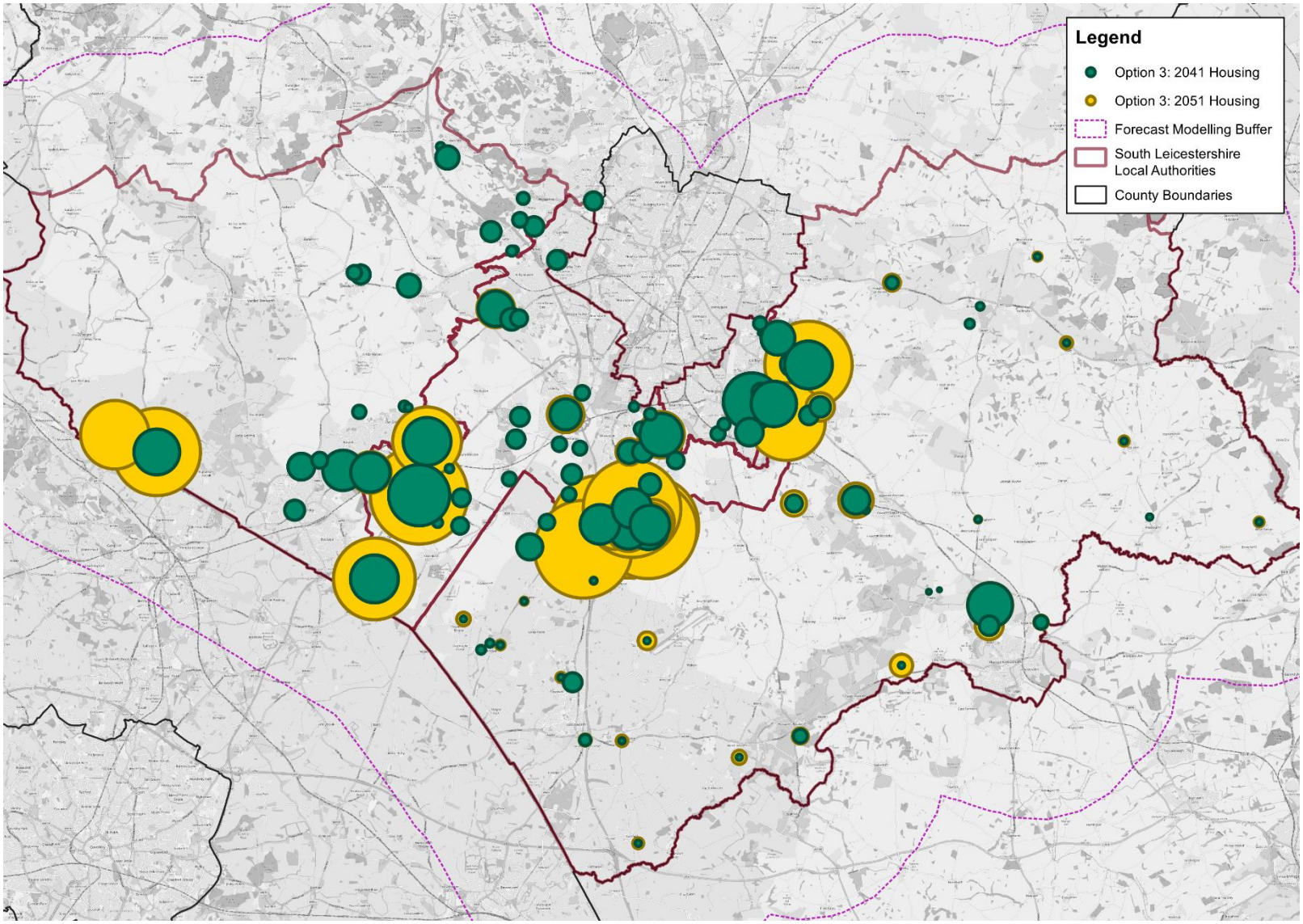

Figure C-5: Option 3 - Comparative Scale of Housing Growth

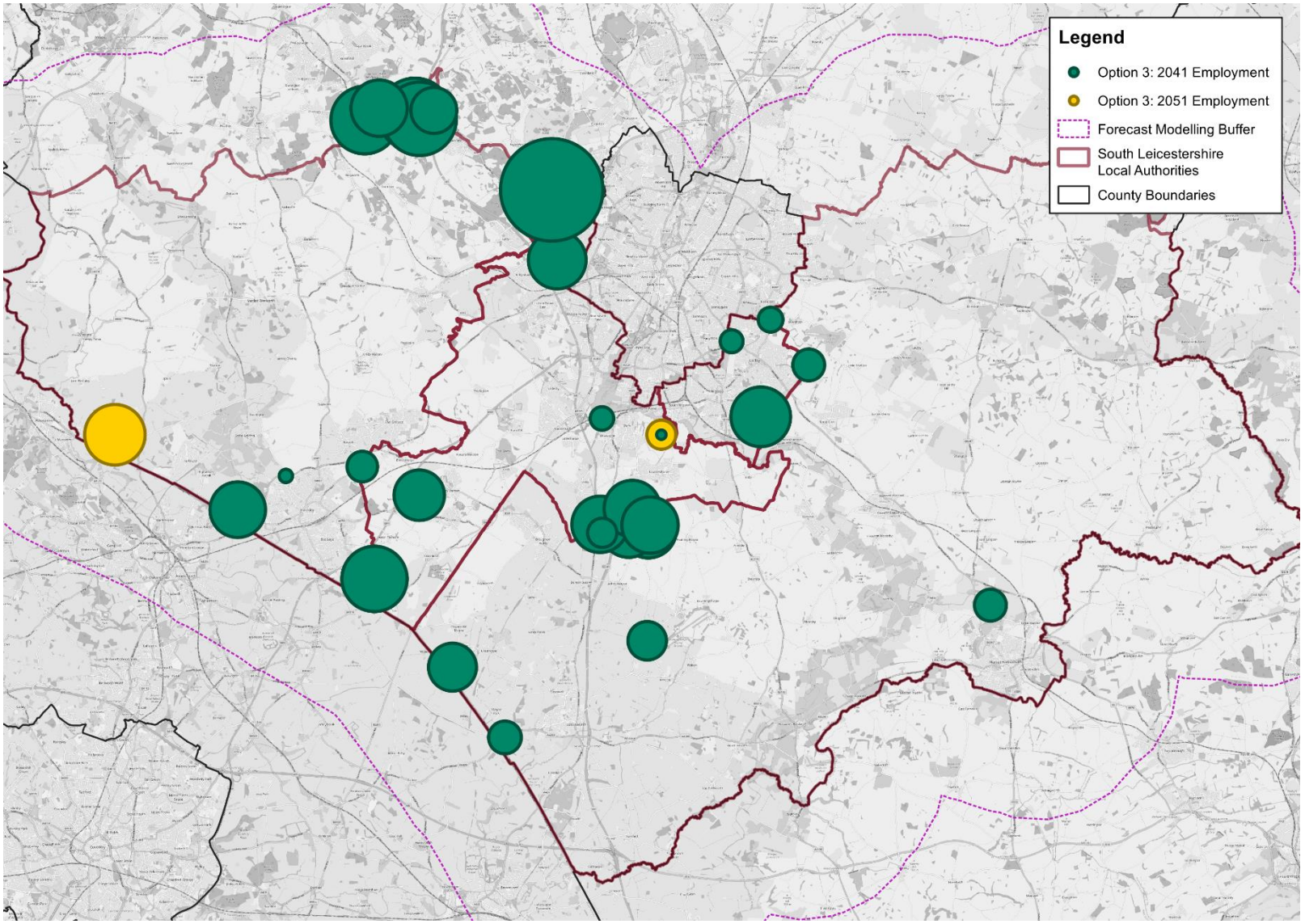

Figure C-6: Option 3 - Comparative Scale of Employment Growth

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