



# A46 Corridor Study – Phase 2 Task 1 Final Report

November 2020

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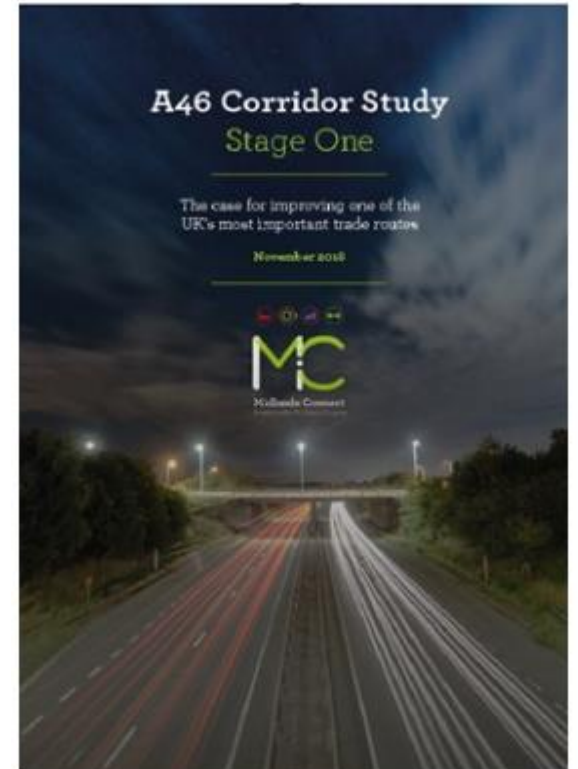
## Chapter 1: Introduction

## Background

Midlands Connect commissioned the A46 Phase 1 study in 2017 to establish the strategic case for investment in the A46 corridor.

The Phase 1 study developed an Enhanced Strategic Case for the corridor and established defined locations for further study in Phase 2, as follows:

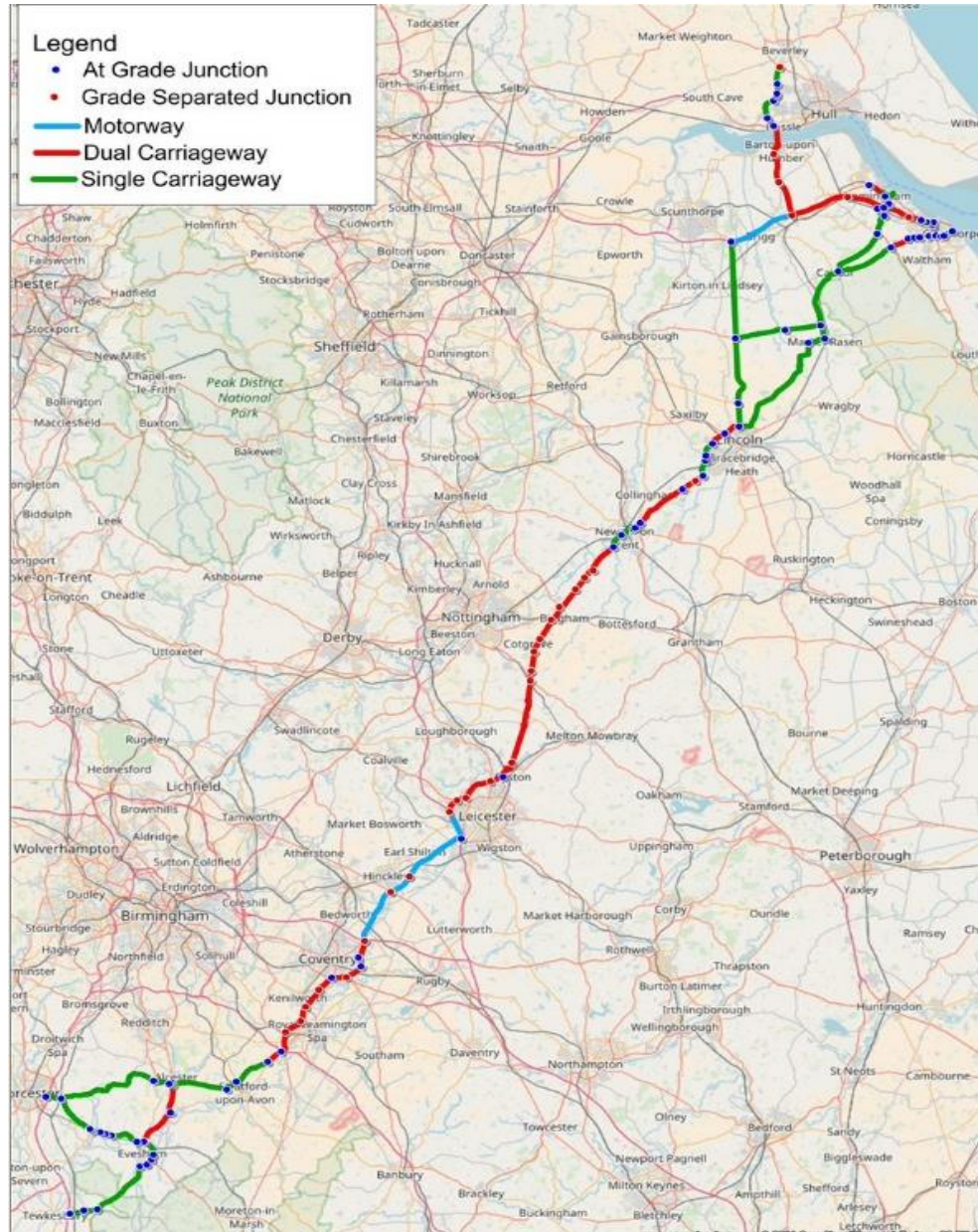
- Tewkesbury to Warwick;
- Leicester Area;
- Newark; and
- Lincoln Area.





# 1. Introduction

## Study area



**155**  
miles in length



**22%**  
of goods and services  
are exported



**2.9million**  
jobs



**47%**  
higher export rate  
than UK average



**5.5million**  
people



**16%**  
of GVA in  
manufacturing,  
20% in distribution



**£115 billion**  
economic output -  
9% of the English economy

## Phase 2 study

Midlands Connect commissioned Phase 2 of the A46 study to carry out more detailed work on those locations identified in the Phase 1 study and ultimately provide evidence to support a sequenced programme for the corridor as a whole.

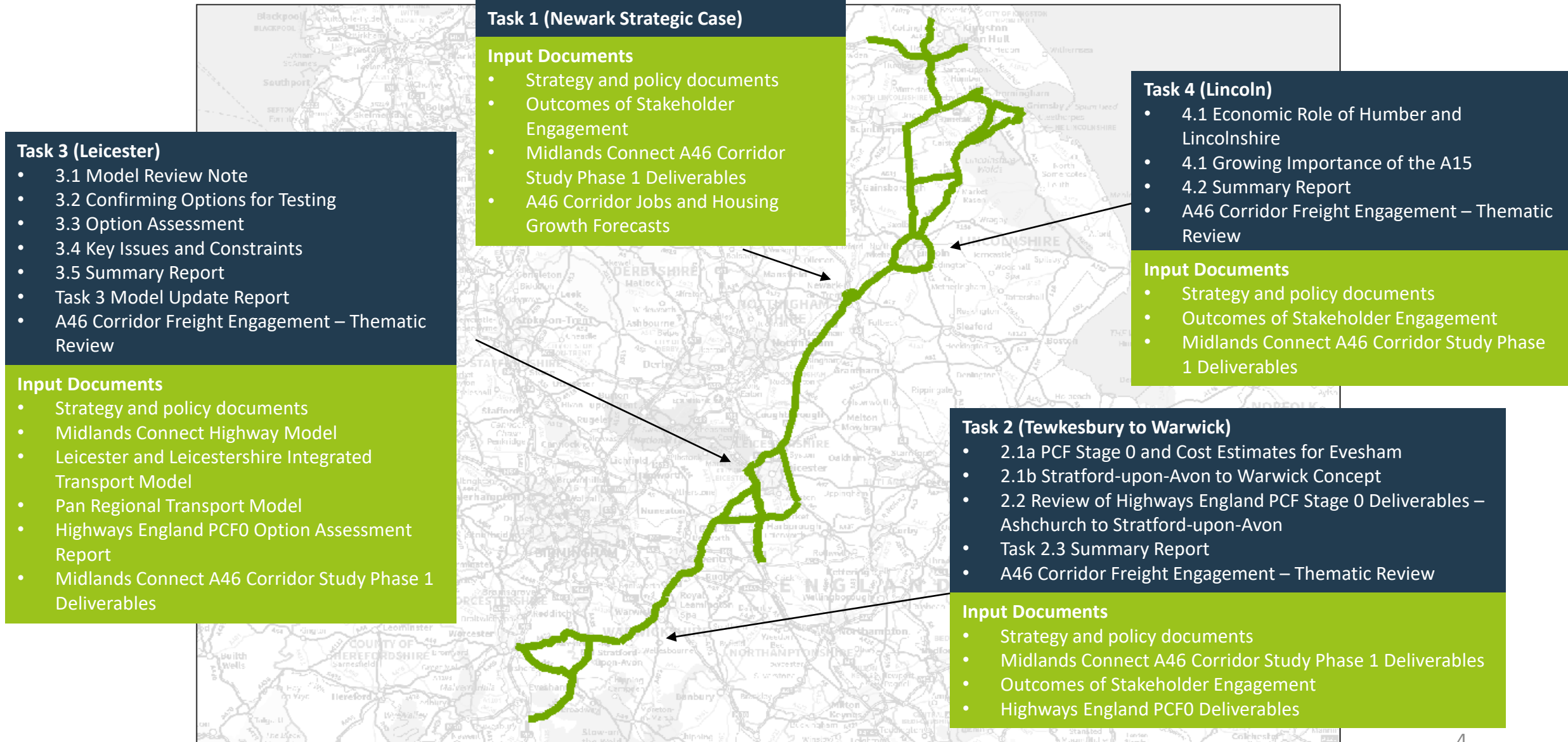
Task 1 has been undertaken by Atkins whilst Tasks 2-4 draws on work delivered by WSP (commissioned by Midlands Connect) and development work undertaken by Highways England as part of their Project Control Framework (PCF) process.

The Phase 2 Study consisted of four separate tasks, as follows:

- Task 1: Corridor Wide Sequencing Programme & Newark Strategic Case
- Task 2: Tewkesbury to Warwick
- Task 3: Leicester area
- Task 4: Lincoln area

A summary of the Phase 2 deliverables and their inputs is provided overleaf.

## Study Reference Documents and deliverables



## Purpose of this report

The purpose of this report is to assemble the work undertaken as part of Tasks 1-4 of the Phase 2 study. This report represents the final report of the A46 Phase 2 study.

This report identifies a sequenced approach to investment for the A46 for Midlands Connect to either develop, promote or support delivery in the years to come. Operational and delivery risks have been considered throughout the study process however, the information presented is focused on a timeline of need based on a range of issues and economic drivers for investment.

This represents an ambitious approach which will require the combination of multiple funding streams to enable delivery. Identified funding sources at this stage include Highways England's Road Investment Strategy, Large Local Majors, Housing Infrastructure Fund and developer contributions. This will need to be routinely monitored and updated as the funding landscape changes.

The report aims to assemble the key evidence and schemes developed to date to provide a rationale for the sequenced approach to investment presented. Any housing locations and numbers not currently identified in a Local Plan and/or coming forward through a planning process are assumed solely for the purposes of enabling modelling work as part of this study and should not be used or quoted for any other purpose. They do not necessarily represent suggested locations nor numbers for future development; future allocations will be made through the appropriate Local Plan making processes.

A detailed summary of each section is presented in the Appendix.





## Chapter 2: Midlands Connect strategic ambition

Midlands Connect published its long-term transport strategy “Powering the Midlands Engine” in March 2017 which identified a series of early priorities and long-term needs for investment to transform the connectivity of the Midlands, as follows:



To achieve a mile a minute on the Strategic Road Network



To achieve an average **speed of 60mph** on the SRN between our key centres, national, and international destinations



Journey Times should be reliable for people and freight



The journey time (in normal conditions) should be **no more than 20%** higher than the average journey, any time, everyday

### Midlands Connect Strategy Refresh

Midlands Connect are currently refreshing the 2017 Transport Strategy. In response to the growing body of evidence surrounding the risks and challenges from the changing climate, Midlands Connect are focused on advancing the role of strategic infrastructure planning and better understanding the implications of climate change on the transport network. This includes opportunities to future-proof transport corridors to the effects of climate change by combining road and flood defence infrastructure.

In recognition of this, Midlands Connect have developed a range of revised objectives (see below) for the transport strategy refresh that reflect this evolving agenda including an objective for the Midlands transport network to “positively contribute to the ‘Net Zero’ carbon target by 2050.” In addition, the need for a more holistic appraisal and decision-making framework for the strategy refresh is being established which will allow current research into climate resilience considerations and investment opportunities to feed into future scheme development across the Midlands Connect project portfolio.





## Chapter 3: The Trans-Midlands Trade Corridor

## Economic potential

The A46 corridor represents an opportunity to develop and evolve a cross-sector model for economic growth based on a geographic corridor.

The Trans-Midland Trade corridor builds on the economic assets of the A46. Key themes to note include:

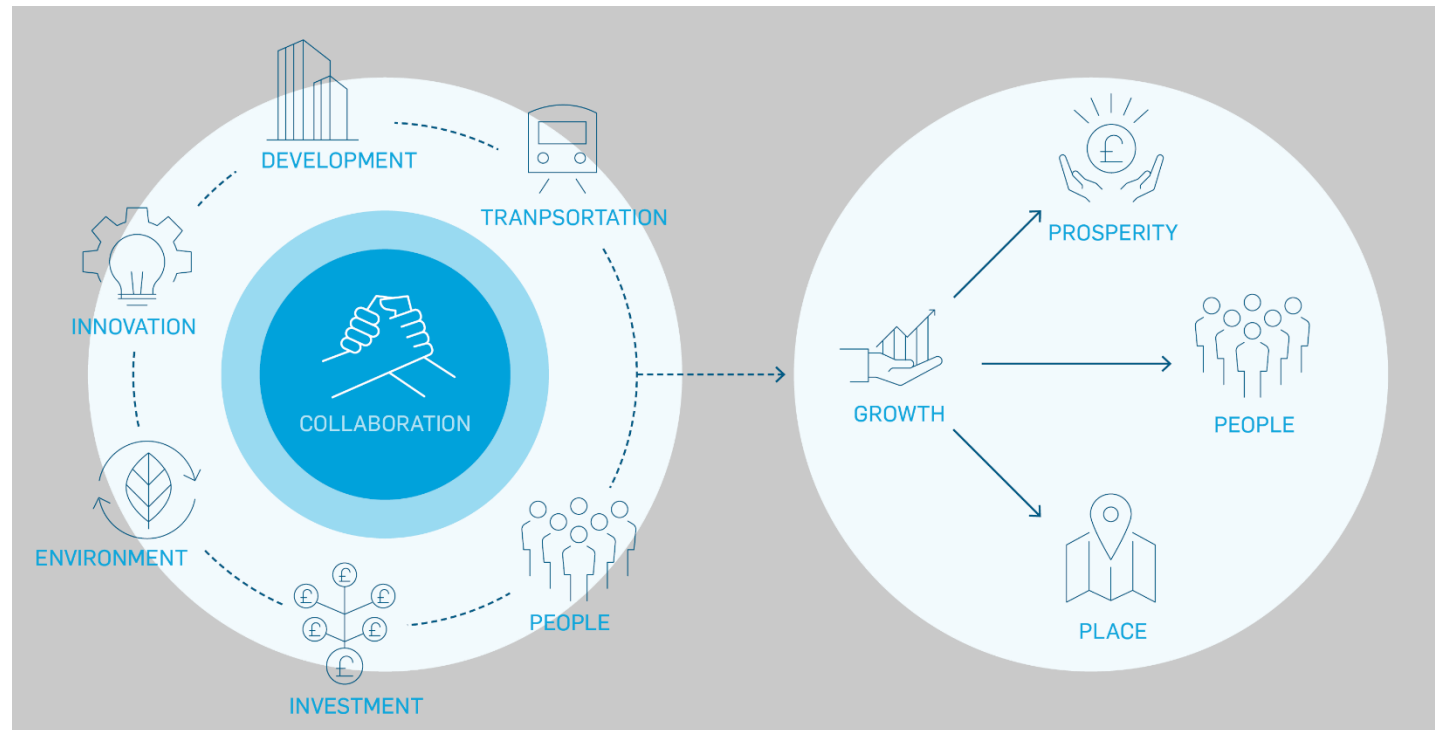
- **A Functional Economic Geography** - A46 businesses there produced £115 billion output in 2015 (circa 9% of English GVA) and is home to 5 million people.
- **Exporting strengths** – Provides excellent access to international gateways (e.g. Humber Ports & Bristol) for strong exporting industries (e.g. Automotive & Aerospace)
- **Industries which rely on roads** – high volumes of jobs in growing sectors including automotive, aerospace, agri-tech and clothes manufacturing which need efficient highway networks to access staff, supply chains and export markets via international gateways
- **Local appetite for jobs and housing** – an appetite for growth to deliver significant volumes of houses and jobs along the corridor.



## The Midlands Connect proposal

Midlands Connect has developed a proposition to Government which builds on the partnerships and collaboration already established along the A46.

Work to develop a balanced mix of infrastructure, governance, skills development and attraction could develop the right policy mix to accelerate growth and maximise the potential of the corridor.





## Chapter 4: Delivering on ambition

## 4. Delivering on ambition

### Introduction

A key component of the Trans-Midland Trade Corridor is the delivery of a fast and efficient highway network which can support economic growth.

The A46 Phase 1 study identified **Ashchurch, Evesham, Stratford, Coventry, Leicester, Newark and Lincoln** as areas which currently act as a barrier to growth.

These locations have been established based on a range of factors identified through a sustained period of evidence-gathering over the two phases of the study.

Key issues or gaps in performance vs Midlands Connect's ambitions were identified using a range of tools including Inrix data, the Highways England Midlands Regional Traffic Model (RTM), Business/Stakeholder interviews and Planning Authority Engagement.

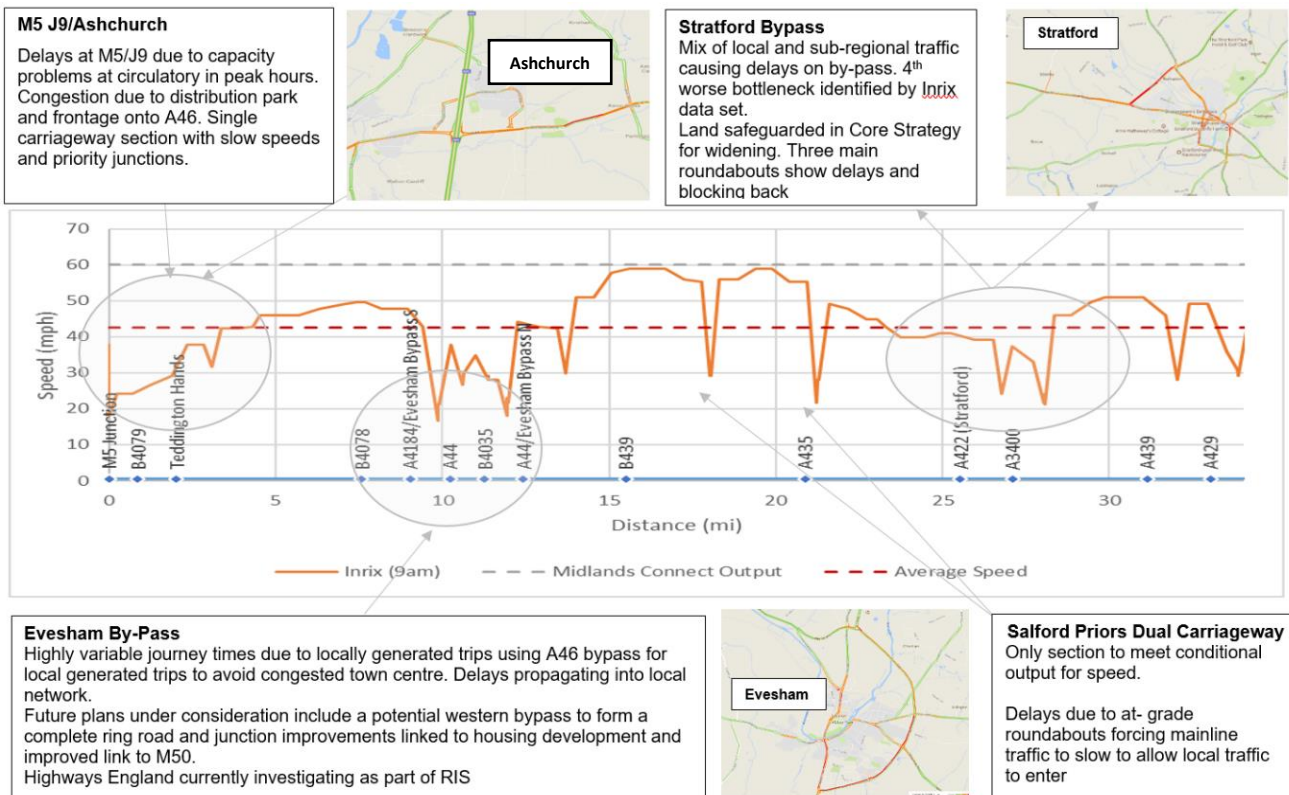
Midlands Connect and Highways England development work has helped to understand the scale and type of intervention needed at key locations to help realise the transport ambition of the corridor.

Key outputs from the evidence gathered are presented below to demonstrate the key barriers to growth.

## Barriers to growth: Tewkesbury (M5) to Warwick (M40)

This section experiences a 13 minute shortfall on the current journey time vs the Midlands Connect Conditional Output (CO).

The Inrix data graph below highlights where the differential between the Midlands Connect CO and actual performance is most acute. This includes Ashchurch, Evesham and Stratford.



*"I have no choice but to operate in the Tewkesbury area as this is central to where most of my clients are. If I were setting up business from scratch or considering moving to the area then the current congestion would make me think twice about considering alternative locations outside the area".*

Transport Business Owner,  
Ashchurch Industrial Park

## Barriers to growth: Warwick (M40) to Leicester (M1)

This section generally performs well against the Midlands Connect Conditional Output due to improvements made by the M40 J15 (Longbridge) Bypass Scheme in 2010 and the good performance of the M69 between Coventry and Leicester.

However, the graph below also highlights the delays experienced particularly around the Coventry Eastern Bypass section.

### A46 Stanks Junction, Warwick

Warwickshire County Council are currently delivering improvements to the Stanks Island and Birmingham Road. This work is due to complete at the end of 2020. The signalised junction will help to prevent blocking back at the A46 junction to the benefit of the A46 and local road network.

### A46 Stoneleigh & Thickthorn

Warwickshire County Council scheme to improve safety and reduce queueing at Stoneleigh are due to be implemented in 2020/21. There is also a developer funded scheme for the A46/A452 Thickthorn roundabout due for delivery in 2020-2025 (alongside emerging proposals for a wider Major Route Network scheme)

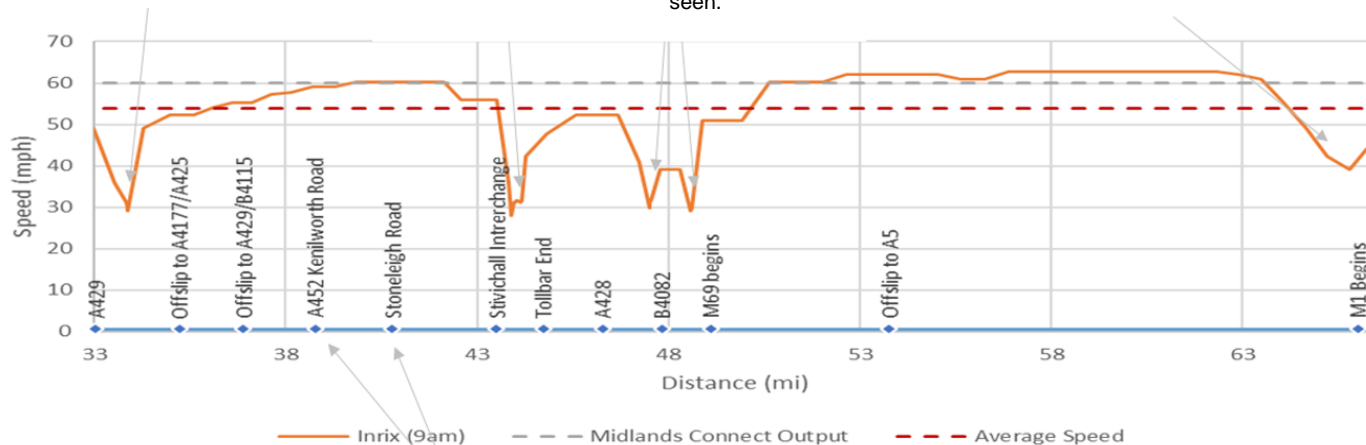
### Coventry Eastern Bypass

Delays at Binley (A428) and Walsgrave are due to be addressed by a Highways England RIS scheme with a grade separated junction. Work has started in Spring 2020.

The Tollbar End scheme was completed in December 2016. The improvement in performance can be seen.

### M69/M1 Junction

Delays at M69/M1 junction are part of the cluster of bottlenecks highlighted in the Inrix dataset. This section is carrying a mix of local, sub-regional and regional traffic. Highways England are assessing the case for investment as part of the Leicester Western Access scheme being developed in RIS2.



*"HS2 is likely to be digging up the A46 anyway, so the time is now to plan for the future and make the changes necessary"*

Stoneleigh Park Estate,  
Kenilworth, Warwickshire



## Barriers to growth: Leicester (M1) to Hobby Horse Interchange (A607)

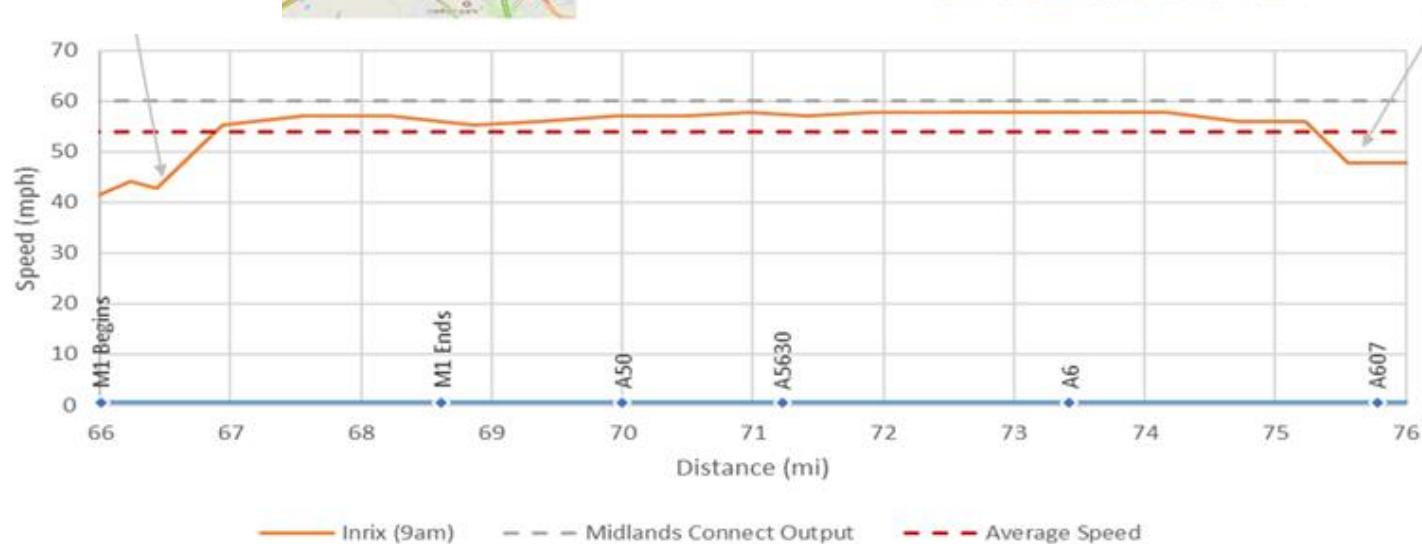
This section generally performs well against the Midlands Connect Conditional Output

However, the Inrix data graph below also highlights the delays experienced on the M1 and at Hobby Horse.

**M1 J21-J21a**  
Based on Inrix data, this junction is a significant source of delay. It is the third most congested section of the whole corridor. This junction is the source of significant delay for through traffic travelling between the East and West Midlands. RIS 2 includes RIS 3 pipeline schemes for M1 North Leicestershire extra capacity and Leicester Western Access.



**A46/Syston (Hobby Horse)**  
Identified as the number one bottleneck on the A46 by INRIX dataset. Queues at this location last for 25 minutes on average. Also saw the 4<sup>th</sup> highest accident count on the route between 2013-2017.



*"Network resilience, journey time reliability and enabling of new development locations is particularly important, but given the current issues the A46 can only operate as a secondary route in role and function."*

National Third Party Logistics Provider , Leicestershire

## Barriers to growth: Hobby Horse Interchange (A607) to Newark (A1)

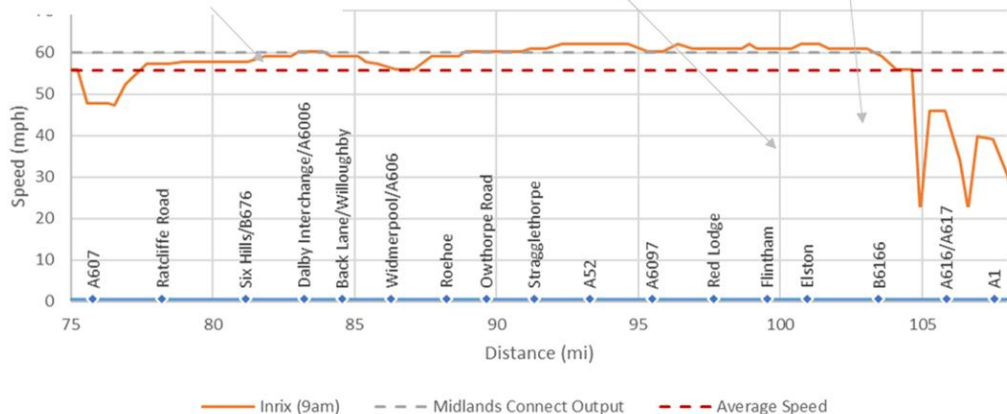
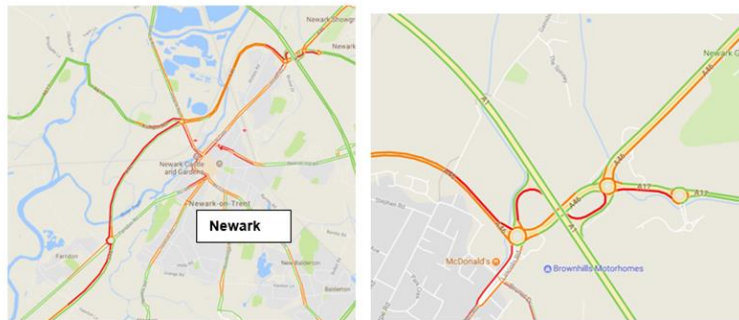
This section generally performs well against the Midlands Connect Conditional Output following the dualling of the Widmerpool to Newark section.

However, the Inrix data graph below also highlights the delays experienced at Newark.

### Newark

This section of the A46 experience major delays at Newark due to at grade roundabouts and a dumb bell junction with the A1. The Inrix data clearly highlights this as a major bottleneck.

Plans for a northern bypass have recently been given funding support by the Government for delivery during RIS2.



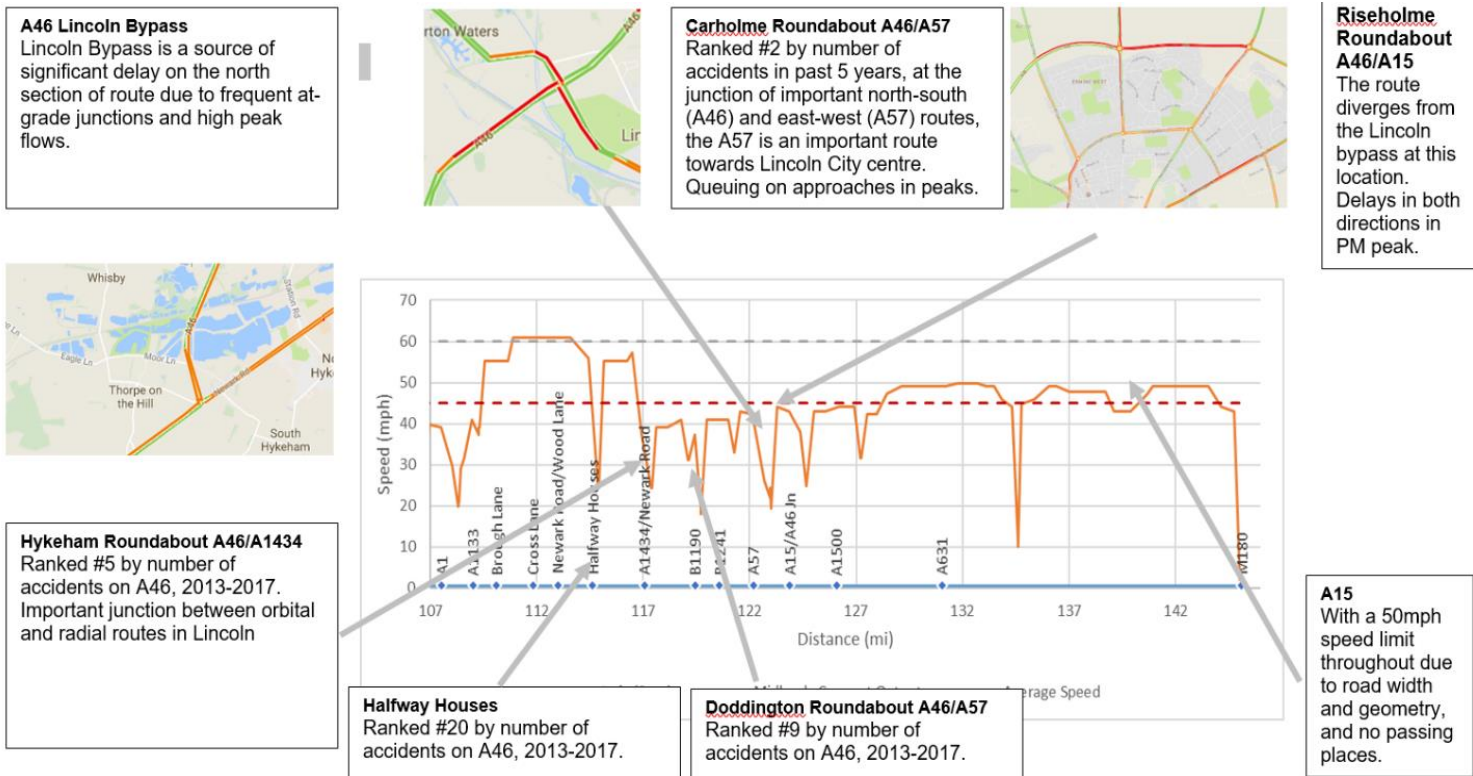
*"We experience daily delays along the A46 corridor, impacting on our 'delivery on time' targets, which in turn can drive inefficient routing, as the planners will plan to arrive on time but are unable to fill the vehicle due to driving time lost through delays."*

Nisa Retail, Lincolnshire

## Barriers to growth: Newark (A1) to Humberside

This section generally performs poorly against the Midlands Connect Conditional Output with a series of roundabouts and speed limit on the A15 (50mph) impacting on journey speed and reliability. As highlighted in the A46 Phase 1 Initial Report, road safety issues in this section are particularly acute with 12 of the top 20 accident hotspots on the corridor located in this section.

The Inrix data graph below highlights the delays experienced at Lincoln and the A15.



*"The A46 is currently an enabler – but there is not much alternative so if there is disruption it can cause significant problems. This causes delays and therefore business costs increase due to overtime requirements waiting with shipments to be picked up."*

Associated British Ports, Humberside



## Chapter 5: Planning for the future

## Introduction

Existing areas with high economic activity, such as Coventry and Leicester, need the right infrastructure to enable them to maximise their economic potential. In addition, new areas for growth and development need the infrastructure to build on the appetite for growth held by many of the local authorities across the corridor.

Significant plans for growth exist in the corridor including 10,000 homes at Ashchurch, the UK's Battery Industrialisation Centre at Coventry, the delivery of the North Hykeham Relief Road in Lincoln and the significant ambitions for housing growth detailed in the Leicester and Leicestershire Strategic Growth Plan.

However, as detailed in the A46 Phase 1 report, an inconsistent road standard, unreliable journey times and the resultant inability of the corridor to become a genuine viable alternative to other parts of Strategic Road Network will result in many of these ambitions being constrained or unrealised. Therefore, the conclusions of this study only hold true if growth in the A46 corridor is delivered in accordance with published Plans, such as the Leicester and Leicestershire Strategic Growth Plan. Any significant spatial distribution changes are likely to render the conclusions as invalid.

The subsequent slides set out the future constraints on growth based on outputs from the Midlands Regional Traffic Model (2015 Base Year, 2031 and 2041 Future Years) and interviews with the planning authorities in the corridor. NB – the RTM is buffer network beyond Lincoln hence no outputs available for A15.



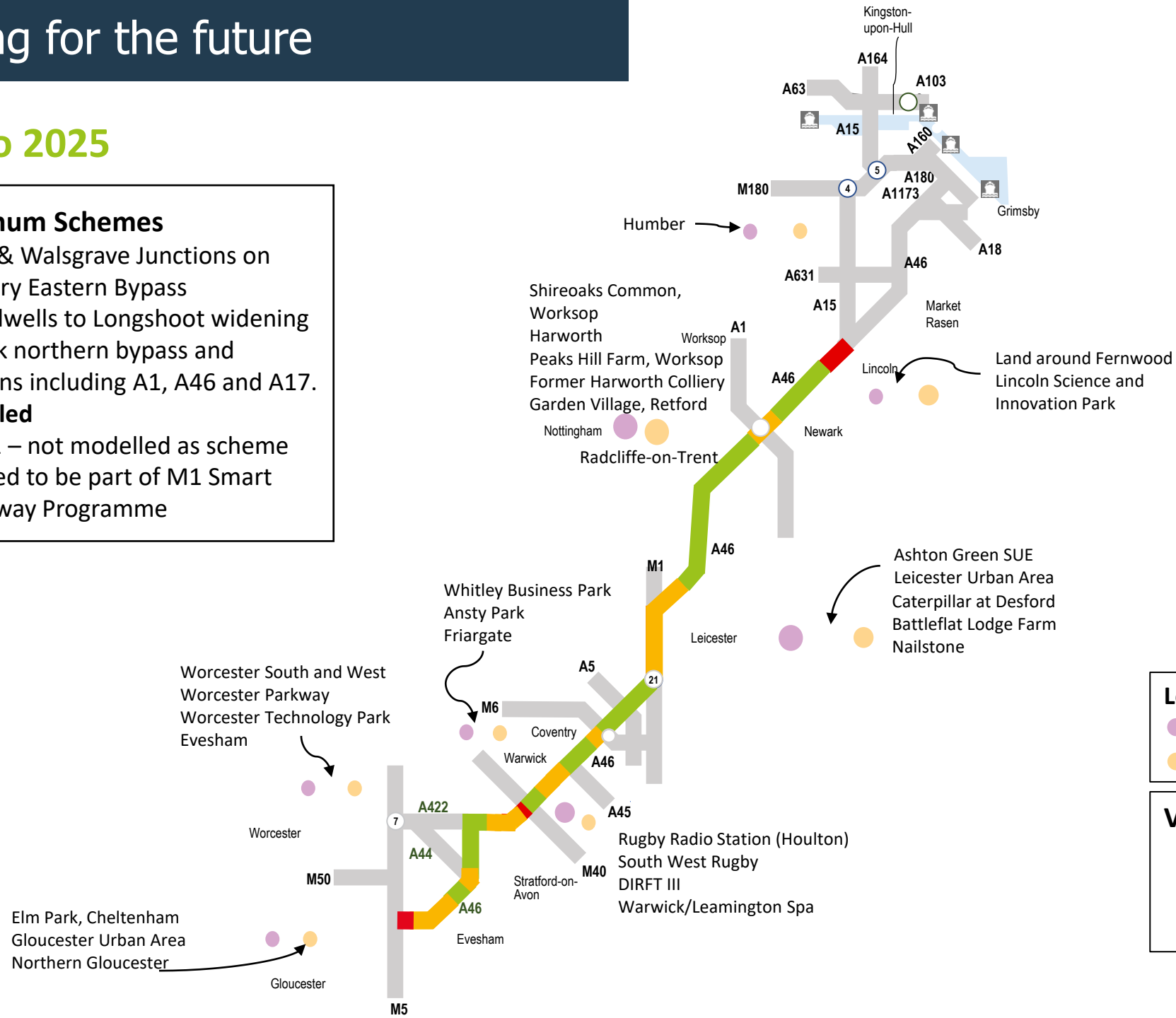
## 2020 to 2025

### Do Minimum Schemes

- Binley & Walsgrave Junctions on Coventry Eastern Bypass
- A5 Dodwells to Longshoot widening
- Newark northern bypass and junctions including A1, A46 and A17.

### Not modelled

- M1 J21 – not modelled as scheme assumed to be part of M1 Smart Motorway Programme



**Legend:**

- Housing Growth
- Employment Growth

**Volume / capacity ratio:**

- 0 – 50%
- 50 – 75%
- 75% +



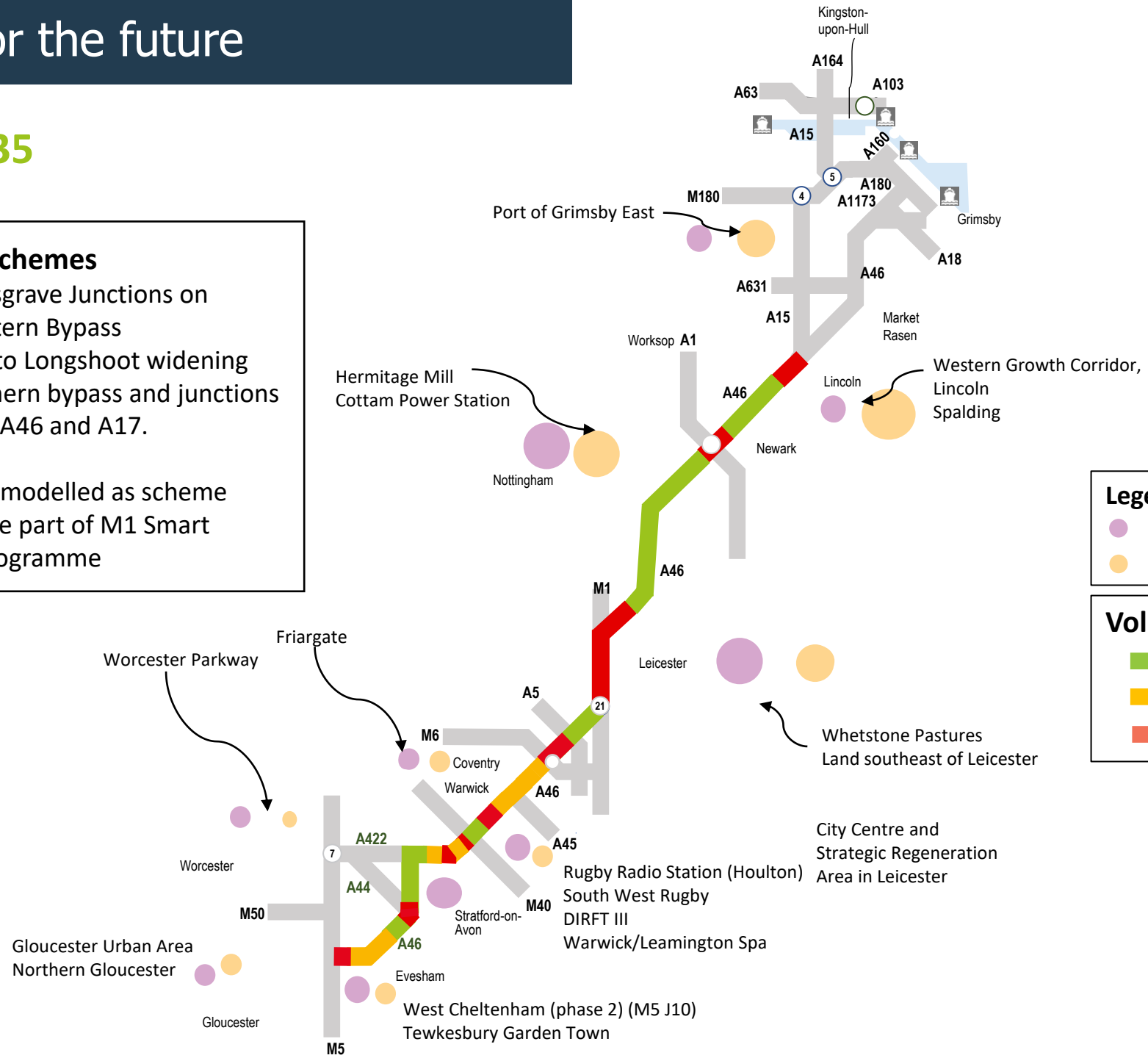
## 2030 to 2035

### Do Minimum Schemes

- Binley & Walsgrave Junctions on Coventry Eastern Bypass
- A5 Dodwells to Longshoot widening
- Newark northern bypass and junctions including A1, A46 and A17.

### Not modelled

- M1 J21 – not modelled as scheme assumed to be part of M1 Smart Motorway Programme



**Legend:**

- Housing Growth
- Employment Growth

**Volume / capacity ratio:**

- 0 – 50%
- 50 – 75%
- 75% +

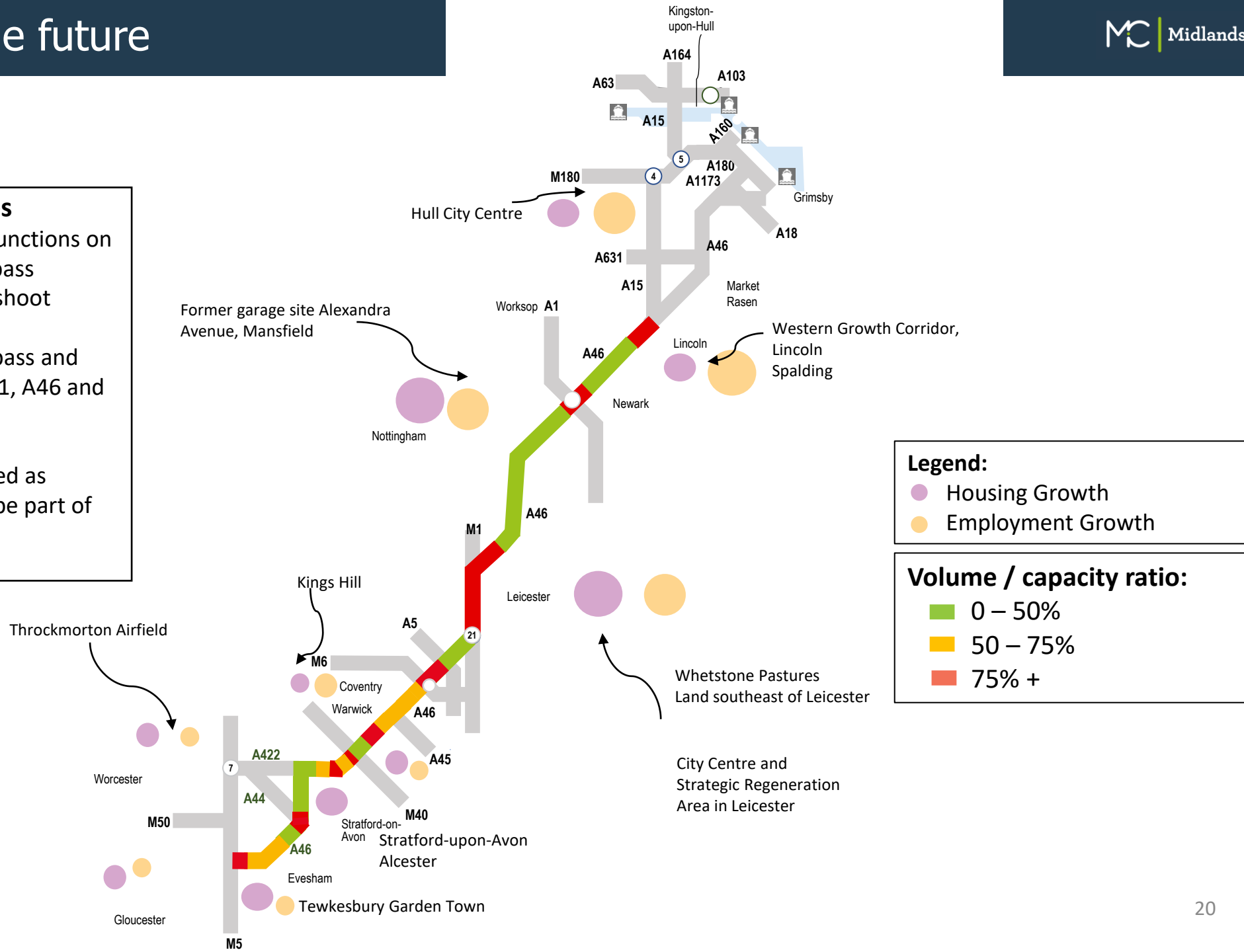
## 2035 to 2040

### Do Minimum Schemes

- Binley & Walsgrave Junctions on Coventry Eastern Bypass
- A5 Dodwells to Longshoot widening
- Newark northern bypass and junctions including A1, A46 and A17.

### Not modelled

- M1 J21 – not modelled as scheme assumed to be part of M1 Smart Motorway Programme



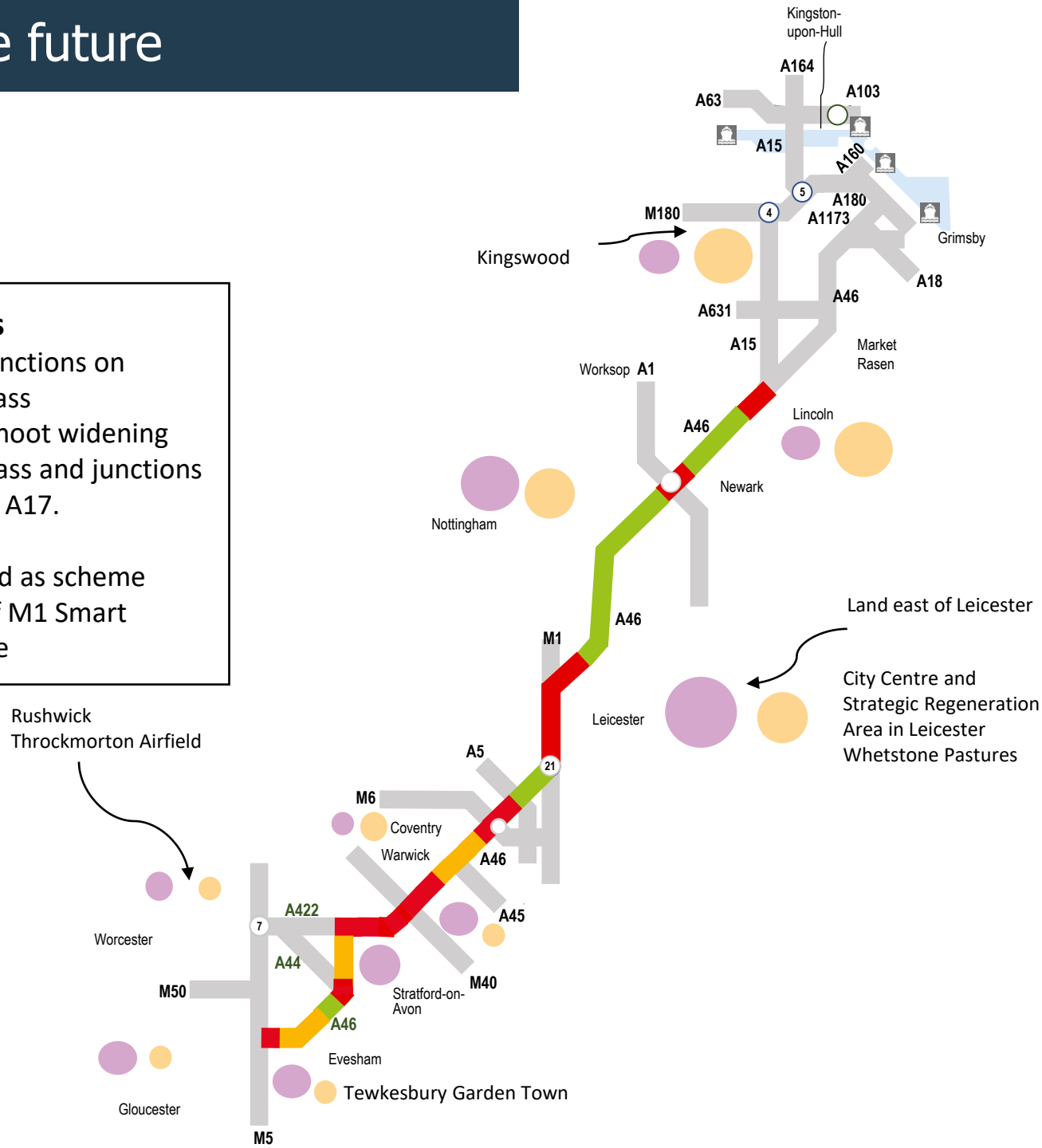
## 2040 to 2045

### Do Minimum Schemes

- Binley & Walsgrave Junctions on Coventry Eastern Bypass
- A5 Dodwells to Longshoot widening
- Newark northern bypass and junctions including A1, A46 and A17.

### Not modelled

- M1 J21 – not modelled as scheme assumed to be part of M1 Smart Motorway Programme



**Legend:**

- Housing Growth
- Employment Growth

**Volume / capacity ratio:**

- 0 – 50%
- 50 – 75%
- 75% +



## Summary

Based on the evidence presented, the following key conclusions can be made on the phasing of growth and associated transport impacts on the corridor:

- The schemes at Coventry, Newark and M1 J21 need to progress as soon as possible given existing plans for housing and employment growth in these areas.
- In the short term (2020-25) transport problems are most acute at Ashchurch, M40 Interchange at Warwick and Lincoln.
- Employment and Housing growth between 2020-2030 is focused around Lincoln, Leicester, and Nottingham.
- Between 2030-2040 further transport problems develop at Evesham, Stratford, Coventry, Leicester and Newark.
- Employment and Housing growth between 2030-2040 is focused around Hull and Leicester.
- Beyond 2040 transport issues are more extensive across Coventry and Warwickshire
- Employment and Housing Growth beyond 2040 is focused around Leicester.

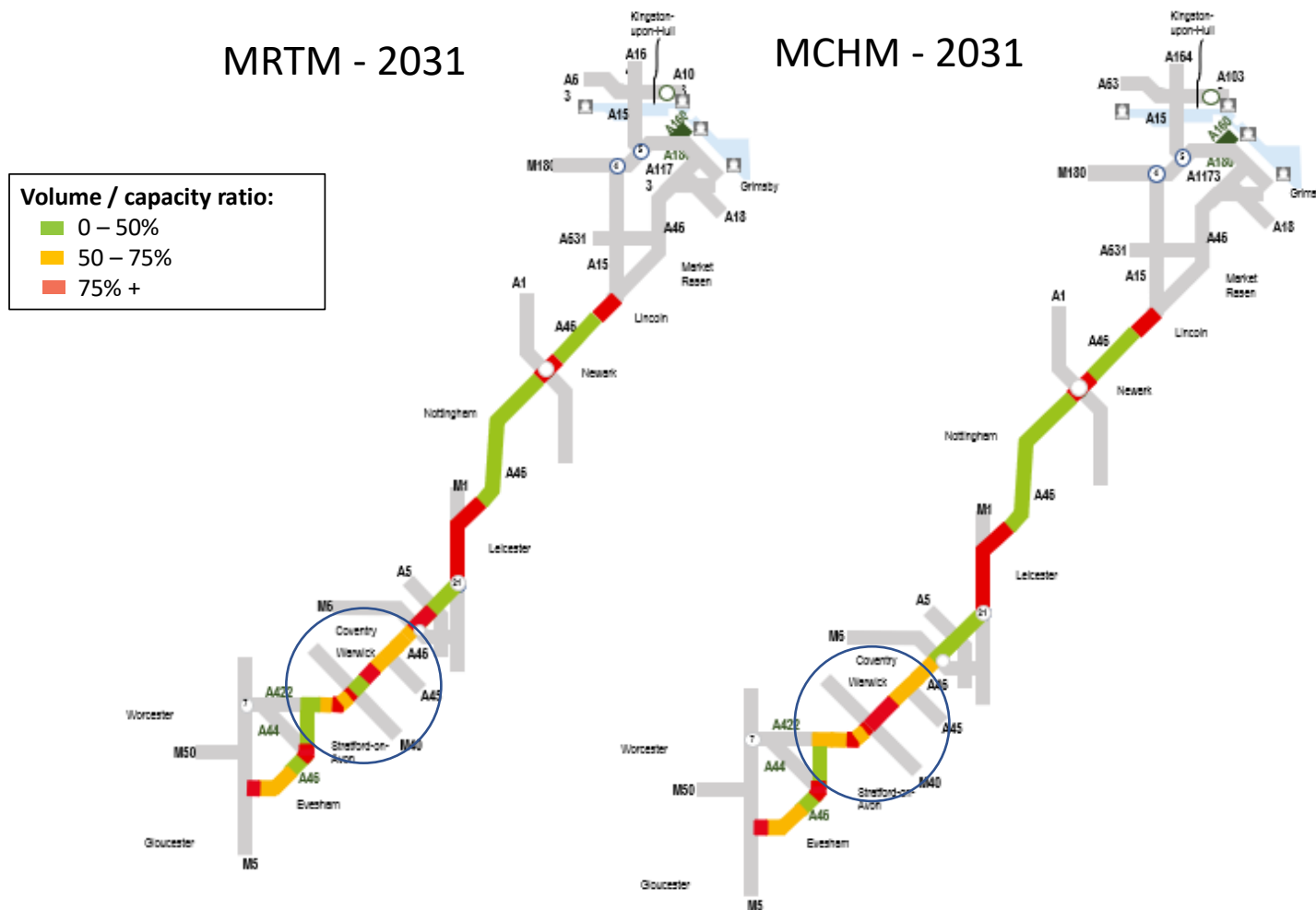
### Midlands Regional Traffic Model (MRTM) vs Midlands Connect Highway Model (MCHM)

Midlands Connect has developed an Alternative Growth Scenario for Highways England's MRTM for the 2031 Future Year.

MRTM is based on TEMPro 7.2 Growth whilst MCHM has looked to intensify growth across 25 sites in the Midlands Connect area. The sites relevant to the A46 are detailed overleaf.

MCHM shows the A46 is constrained further between Alcester and Warwick. This highlights the effects intensified growth in the corridor at locations such as Coventry & Warwickshire. This will be noted to inform the sequencing conclusions and the effect of the growth sites identified by the planning authorities.

## Midlands Regional Traffic Model (MRTM) vs Midlands Connect Highway Model (MCHM)



A46 Development Sites included in MCHM

Site name	Jobs	Houses
UK Central (Solihull)	20,000	
Friargate (Coventry)	15,000	
A46 – North east of Thurmaston/North East of Leicester SUE	3,545	4,500
Newark Future (Nottinghamshire)	2,465	3,150
Whitley Business Park (Coventry)	5,000	
Ashton Green Leicester (SUE)	1,481	3,000
Lubbesthorpe Planned New Community (Blaby, Leicestershire)		4,256*
Eastern Green (Coventry)		4,000
Land at Canwick Heath (Lincolnshire)		3,500

\* Figure of 4,256 houses at Lubbesthorpe correct at time of modelling. Figure of 4,475 quoted later in report based on more recent evidence.



## Chapter 6: Transport & development pipeline

## Introduction

In addressing the phasing and delivery of transport schemes to tackle the challenges presented a range of schemes have been developed to date by different promoters.

They have been categorised as follows:

- **More advanced schemes** – Highways England schemes due to be delivered during the next RIS period (2020-2025). A preferred scheme has been established.
- **Large Local Majors (LLM)** – Schemes submitted for LLM funding to the Department for Transport. A decision on scheme progression is pending Government approval.
- **Highways England development work to date** – Highways England have instigated early scheme development work. However, a preferred scheme is still to be confirmed.
- **A46 Phase 2 development work to date** – Development work commissioned by Midlands Connect as part of the Phase 2 study. Outputs have been provided by WSP.

## Introduction

The following slides provide an overview of each scheme in the development pipeline. Identified funding sources at this stage include Highways England's Road Investment Strategy, Large Local Majors, Housing Infrastructure Fund and developer contributions. This will need to be routinely monitored and updated as the funding landscape changes.

The key provides a summary of the range and type of information collated and summarised from the work to date.

### More advanced schemes:

- Coventry Eastern Bypass (RIS2)
- Newark Northern Bypass (RIS2)

### Large Local Major (LLM) Schemes:

- North Hykeham Relief Road
- Ashchurch Bypass

### Highways England development work to date:

- Ashchurch Bypass
- Hobby Horse Roundabout (A607)
- Stratford Northern Bypass
- Leicester Western Access including M1 J21







- North Leicestershire Extra Capacity including M1 mainline and M1 J21A

### A46 Phase 2 development work to date:




- Evesham Eastern/Western Bypass
- Stratford Northern Bypass
- Warwick Bypass
- Leicester Southern/Eastern Bypass
- A15 improvements

### KEY:




#### Scheme description:

-  Location
-  Description
-  Promoter
-  Cost
-  Timeframe
-  Development stage

#### Growth:

-  Low level of growth
-  Medium level of growth
-  High level of growth

#### Volume / capacity ratio without intervention:

-  0 – 50%
-  50 – 75%
-  75% +



## More advanced schemes

### Coventry eastern bypass: overview



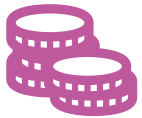
Coventry



Grade separation of Binley and Walsgrave roundabouts (preferred option for Walsgrave to be confirmed)



Highways England



Unknown



Construction started in Spring 2020 and finish in Spring 2022

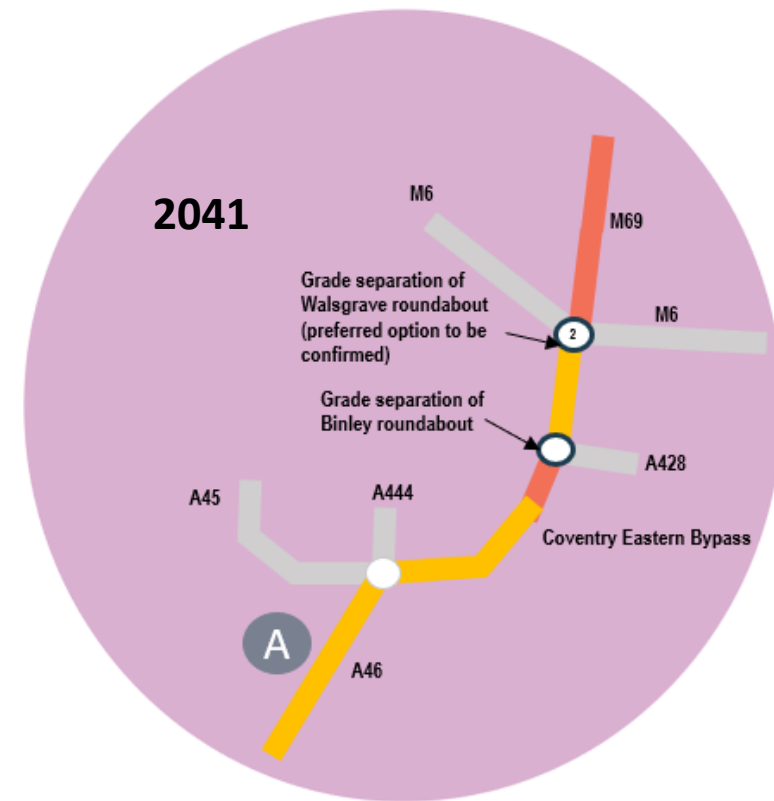
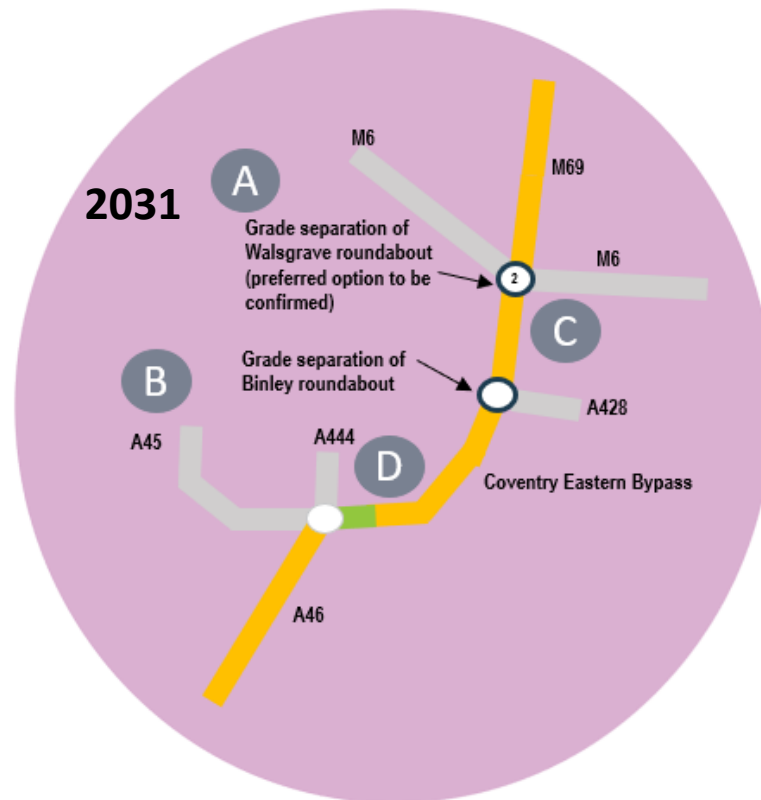
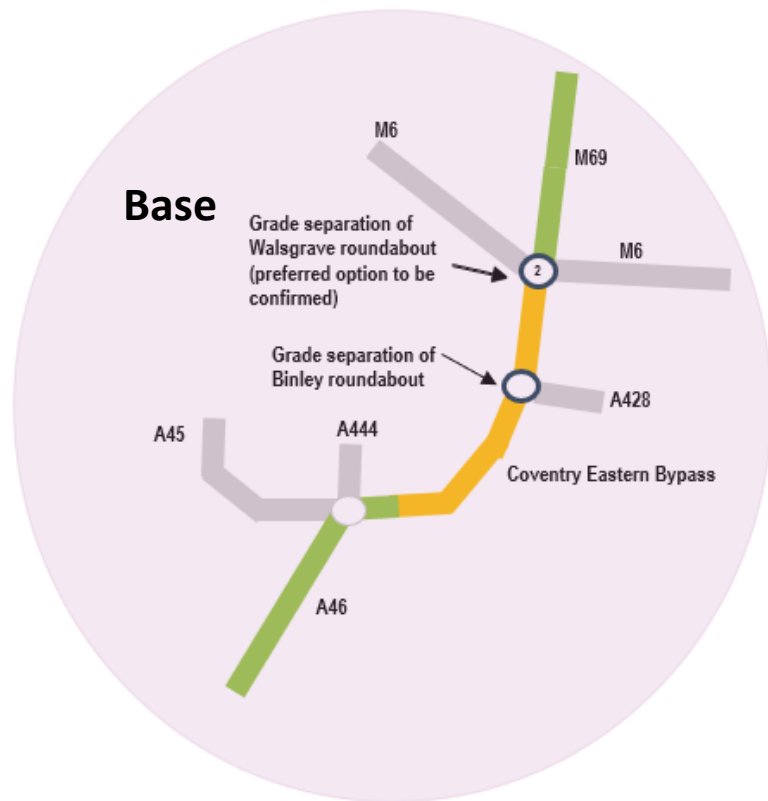


Under construction



## More advanced schemes

### Coventry eastern bypass: transport & growth



A. 3,100 houses at Keresley SUE  
B. 3,000 houses at Eastern Green  
C. 10,000 jobs at Ansty Park  
D. 11,000 jobs at Whitley South including National Battery Manufacturing

A. 4,000 houses at Kings Hill

## More advanced schemes

### Newark Northern Bypass: overview



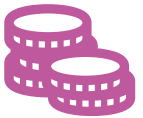
Newark-on-Trent, Nottinghamshire



New bypass to the north of Newark, including a new junction with the A1



Highways England



+£250 million



To commence delivery during RIS 2 (2020-25)

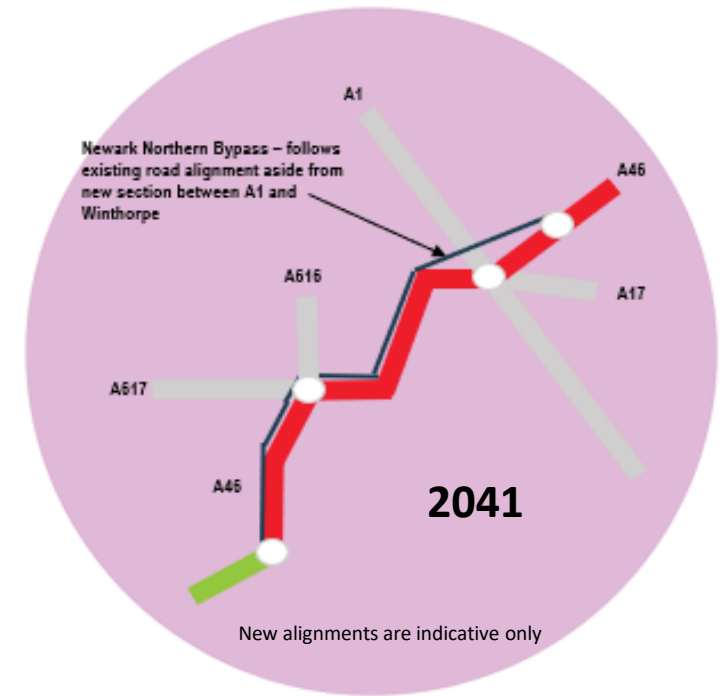
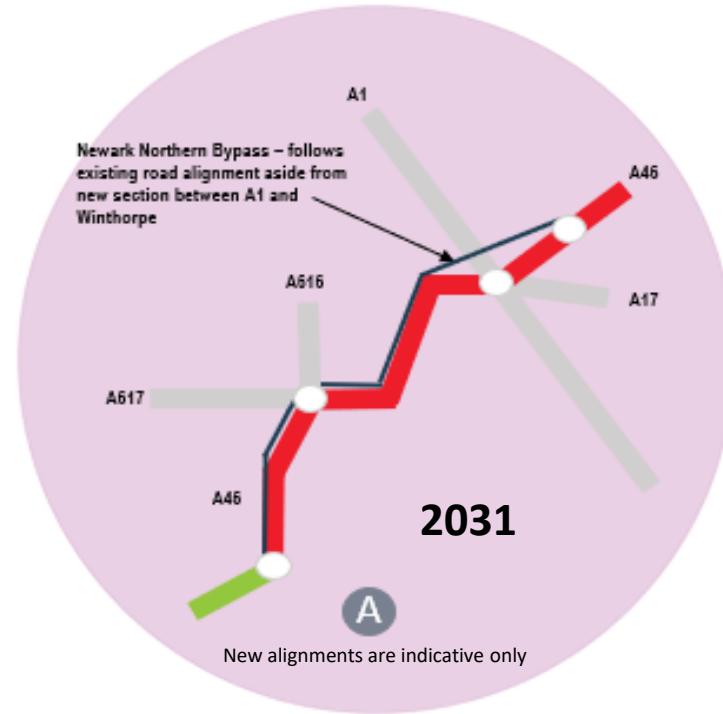
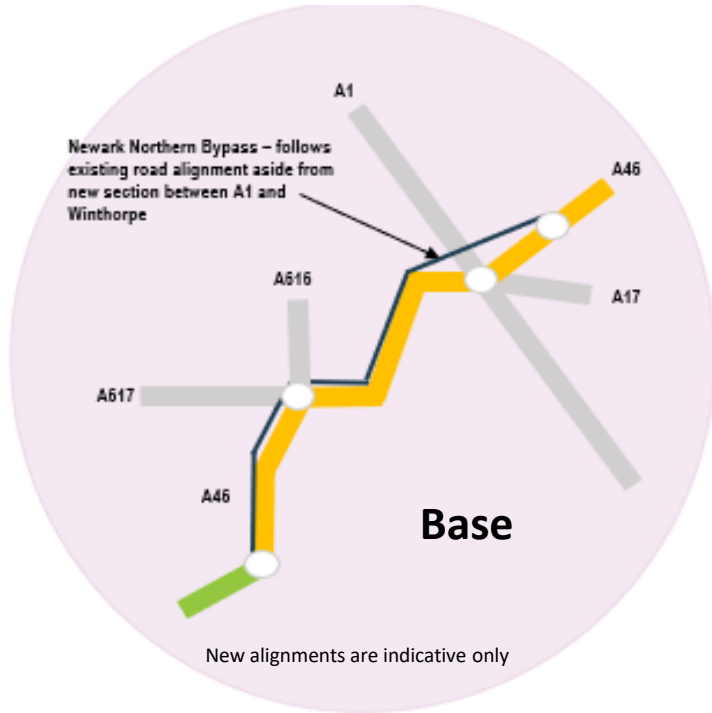


Examination



## More advanced schemes

### Newark Northern Bypass: transport & growth



A. 7,500 homes delivered through Sustainable Urban Extensions around Newark

## Large Local Major Schemes

### North Hykeham Relief Road: overview



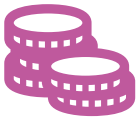
North Hykeham, Lincolnshire



A new link to the south of Lincoln, connecting the A46 in the west to the A15 Lincoln Eastern Bypass, which is currently under construction



Lincolnshire County Council & Midlands Connect



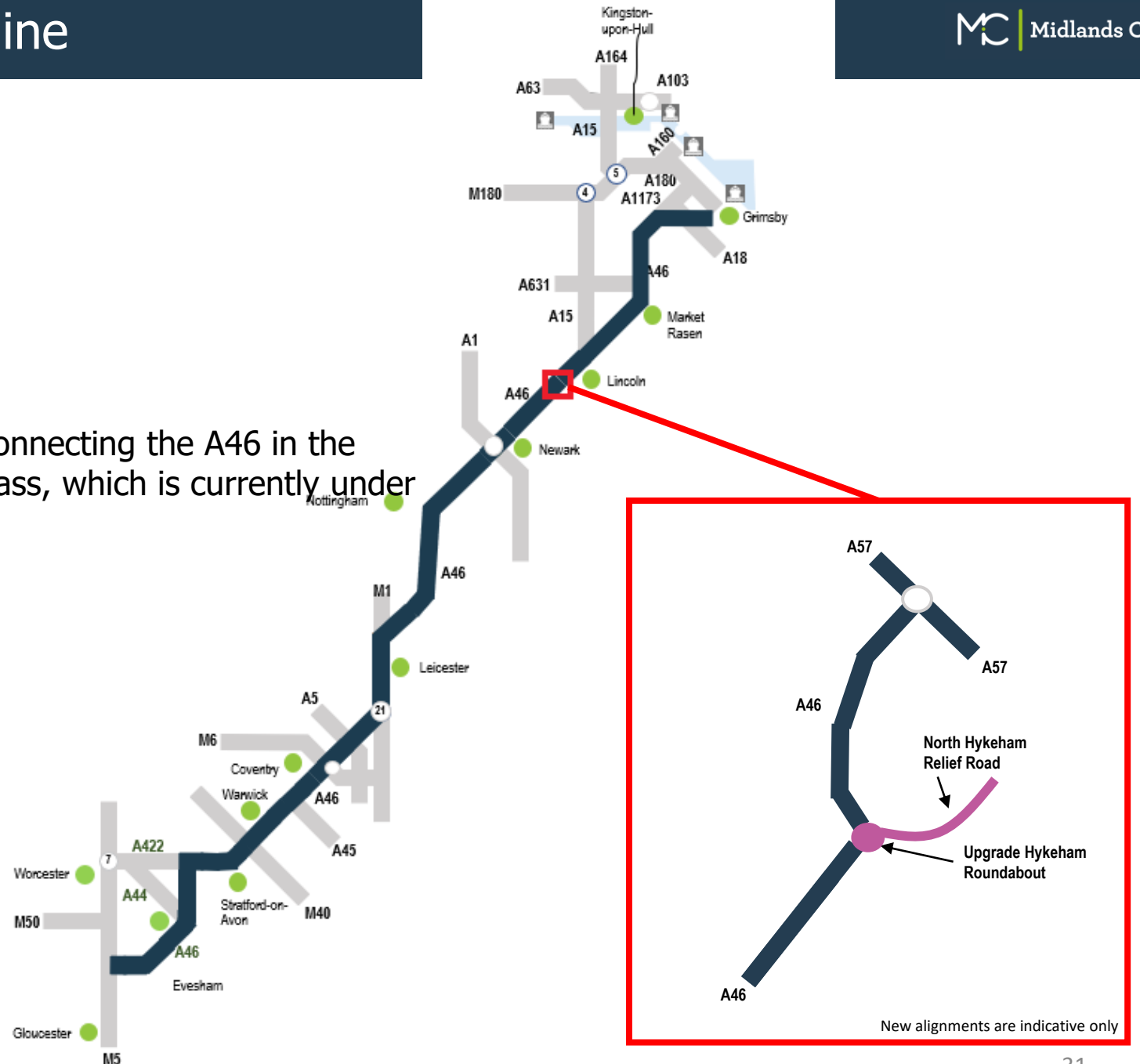
£153 million



Opening year: 2026



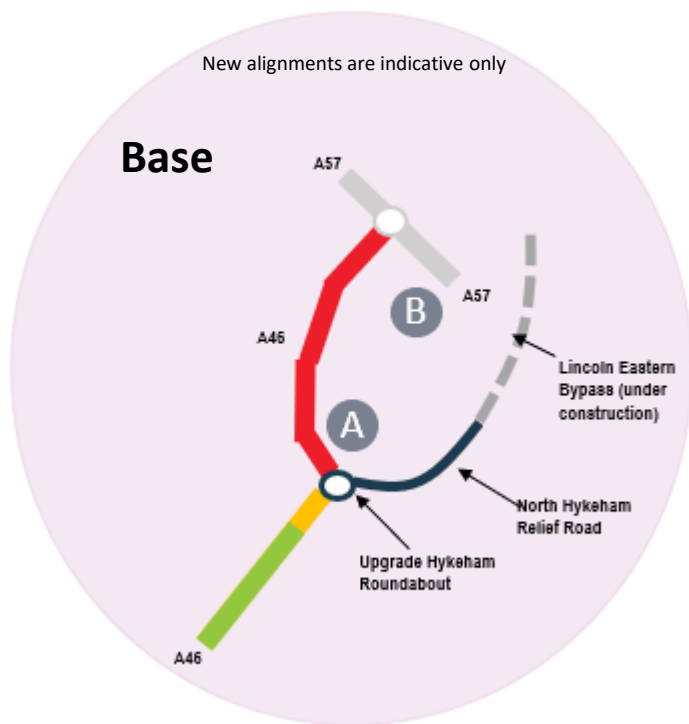
Outline Business Case



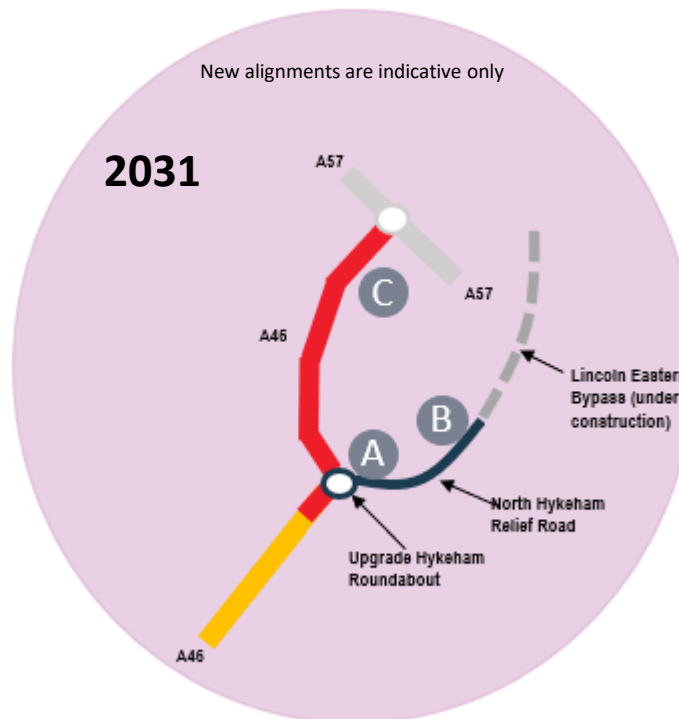
New alignments are indicative only

## Large Local Major Schemes

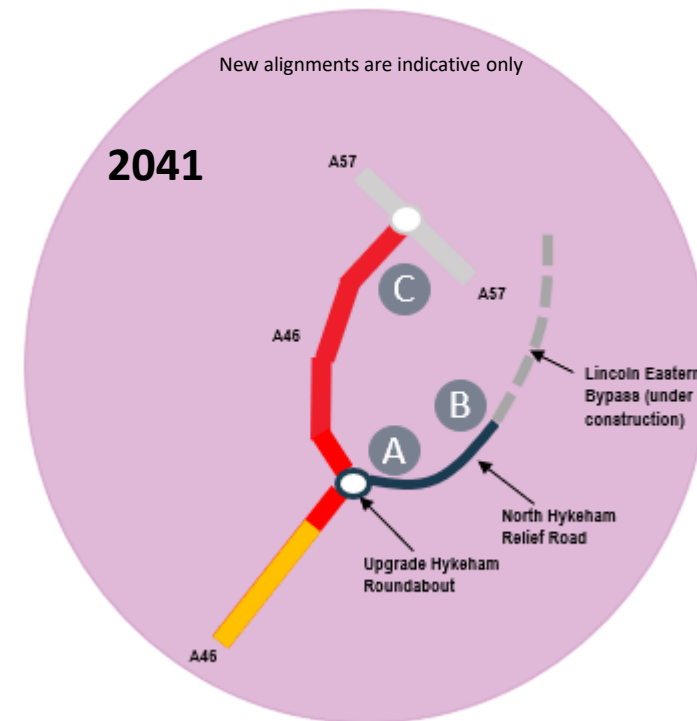
### North Hykeham Relief Road: transport & growth



A. 3,000 jobs Teal Park  
B. 800 jobs Lincoln Science and Innovation Park



A, B, C: 9,700 homes and associated jobs delivered through Lincoln Sustainable Urban Extensions (SUEs)



A, B, C: Continuing build out of Lincoln SUEs



## LLM Schemes / Highways England development work

### Ashchurch Bypass: overview



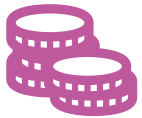
Ashchurch, Gloucestershire



Bypass of Ashchurch including new or reconfigured M5 J9 & upgrade of Teddington Hands roundabout



Highways England, Gloucestershire County Council & Western Gateway STB



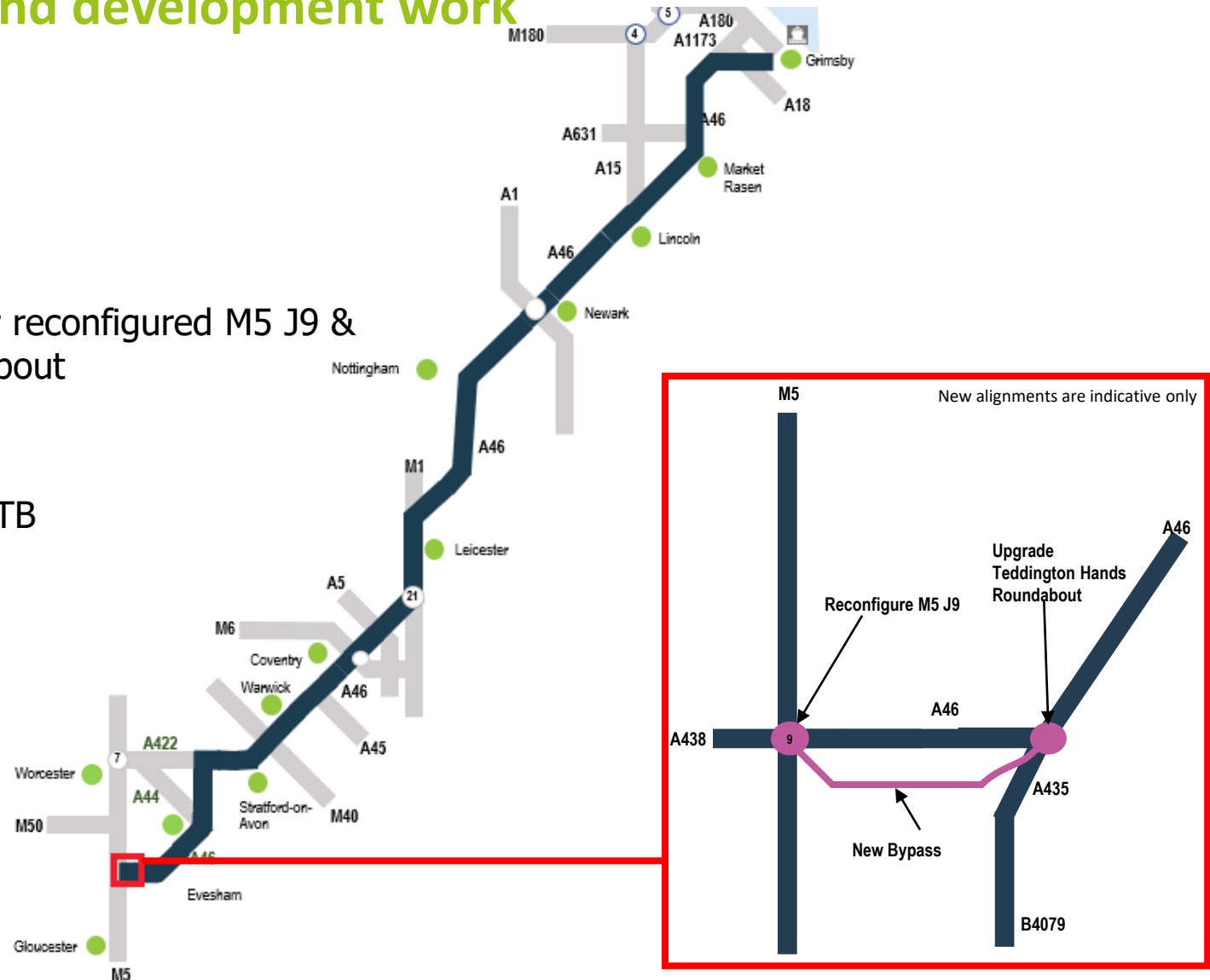
£250m+



Delivery to commence in 2024/2025

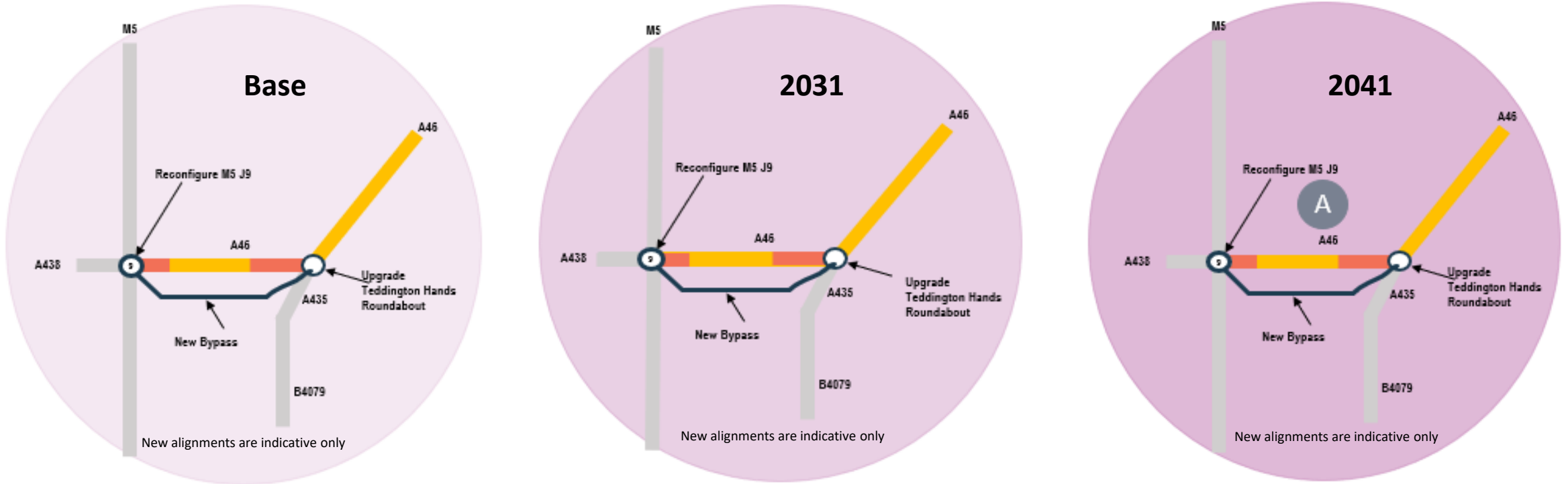


OBC has commenced & PCF Stage 0



## Large Local Major Schemes / Highways England development work

### Ashchurch Bypass: transport & growth



A. 10,000 houses and associated jobs at Ashchurch, Tewkesbury – Garden Town Proposal

## Highways England development work

### Hobby Horse roundabout: overview



Syston, Leicestershire



Grade separation of hobby horse roundabout



Highways England



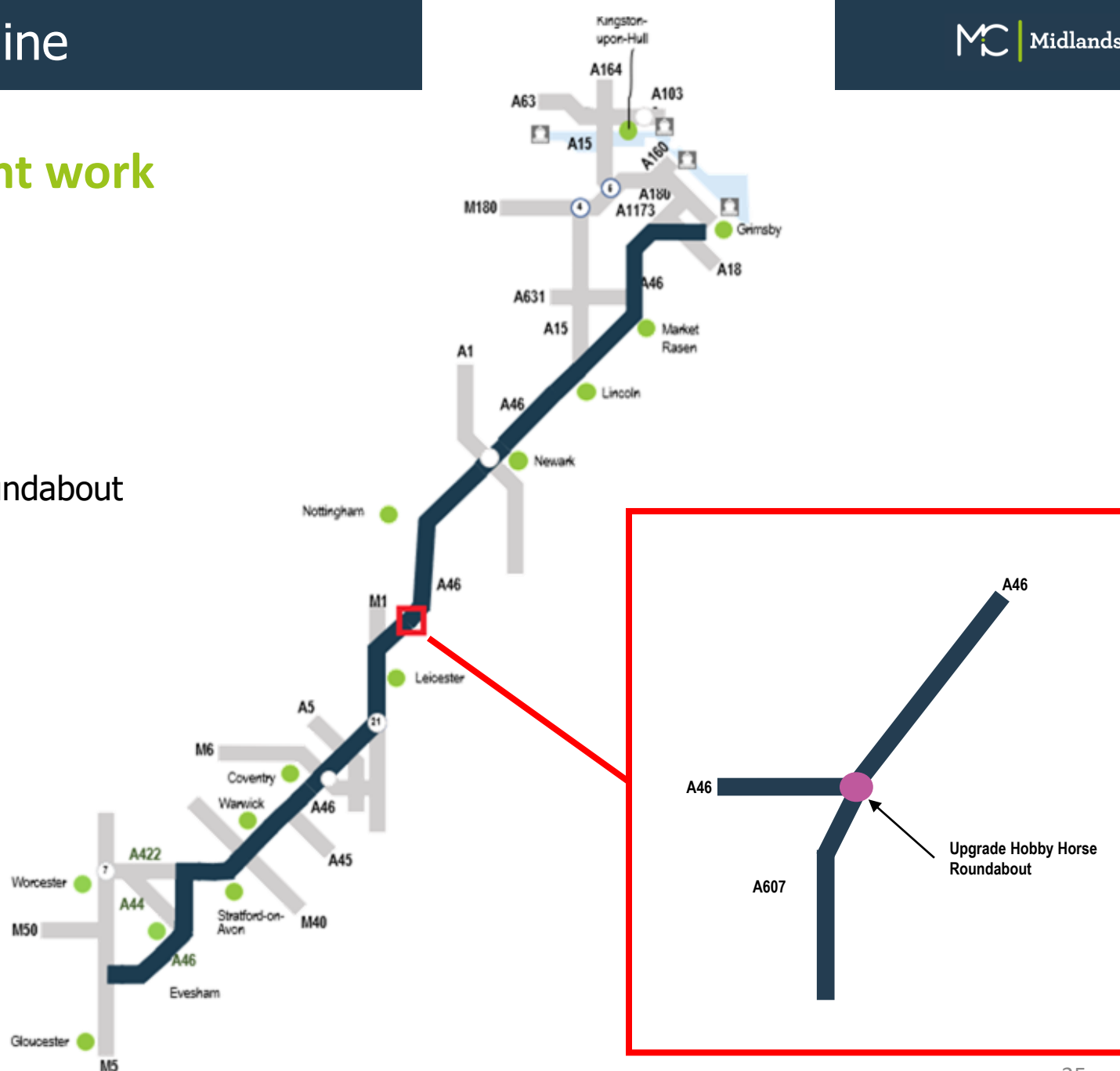
Unknown



Opening year: Unknown

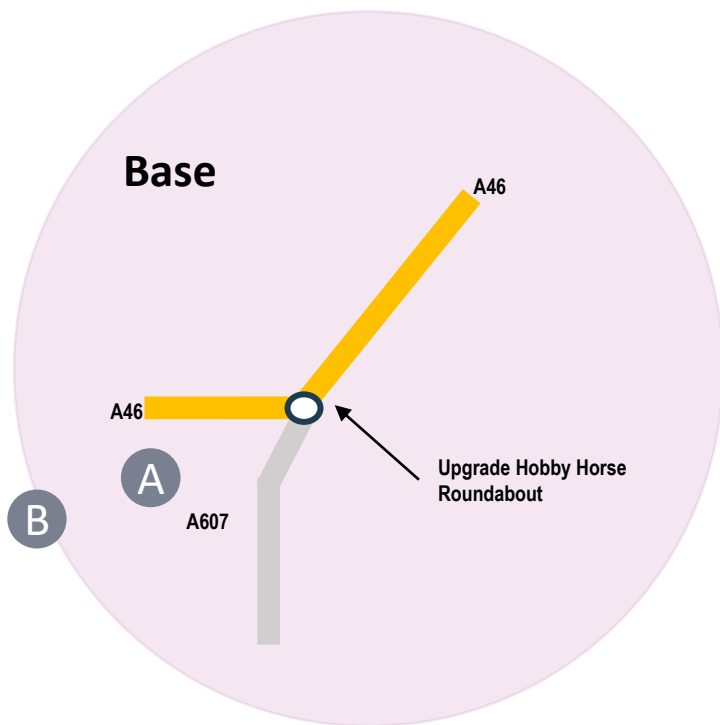


PCF Stage 0

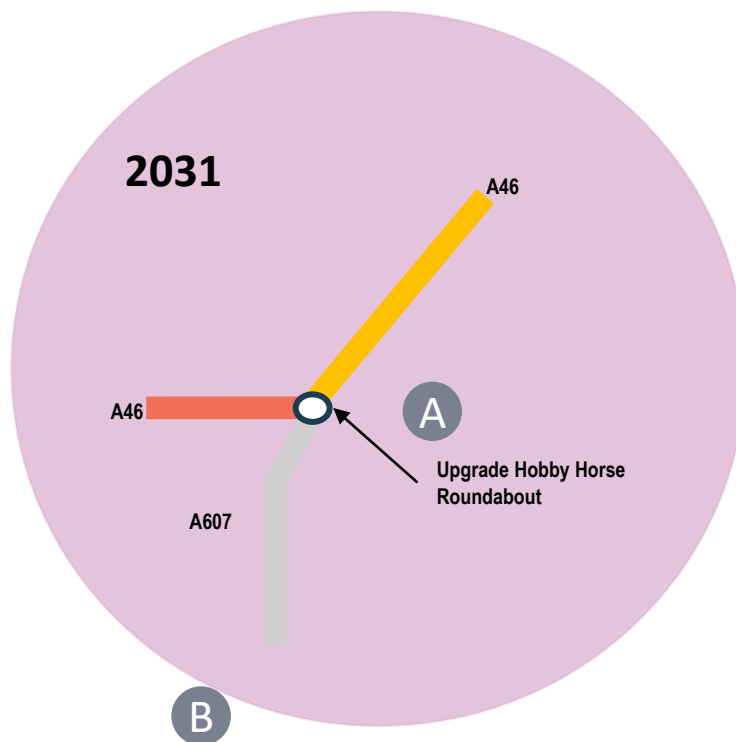


## Highways England development work

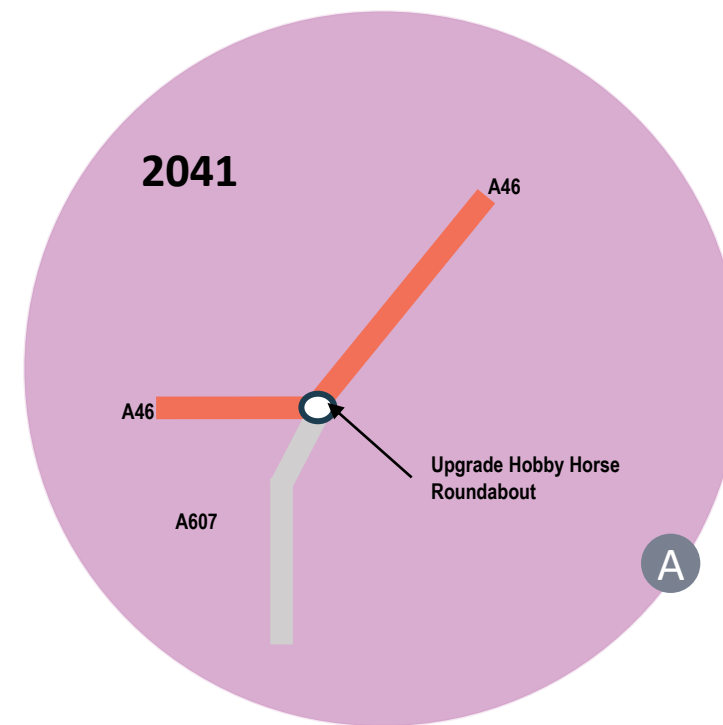
### Hobby Horse roundabout: transport & growth



- A. 3,000 houses at Ashton Green
- B. 2,500 jobs at Caterpillar at Desford



- A. 4,500 houses at NE of Leicester SUE
- B. 3,500 houses (minimum) and 4,000 jobs at Whetstone Pastures – Garden Village Proposal



- A. 10,000 homes east of Leicester

## Highways England development work/A46 Phase 2 Development Work

### Stratford Northern Bypass: overview



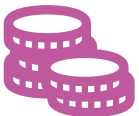
Stratford-upon-Avon, Warwickshire



Grade separation of Wildmoor, Bishopton and Marraway Roundabouts and online dualling in between junctions.



Highways England



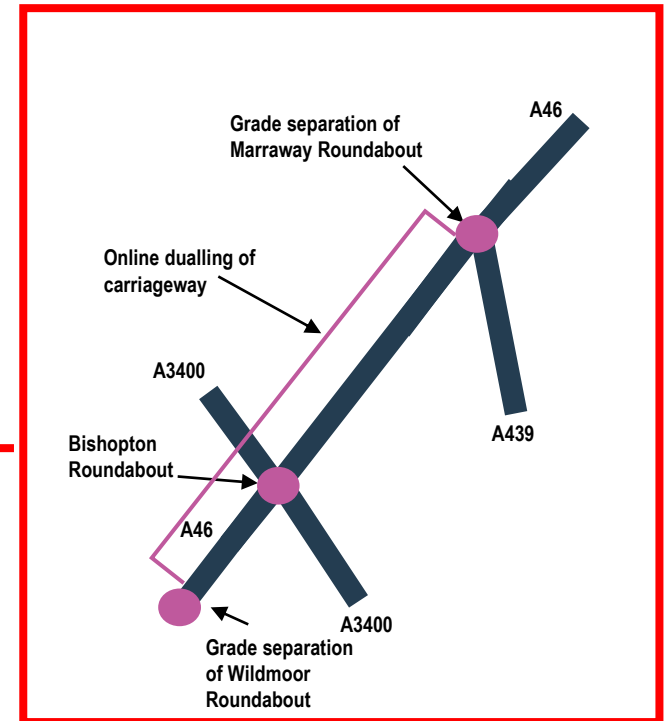
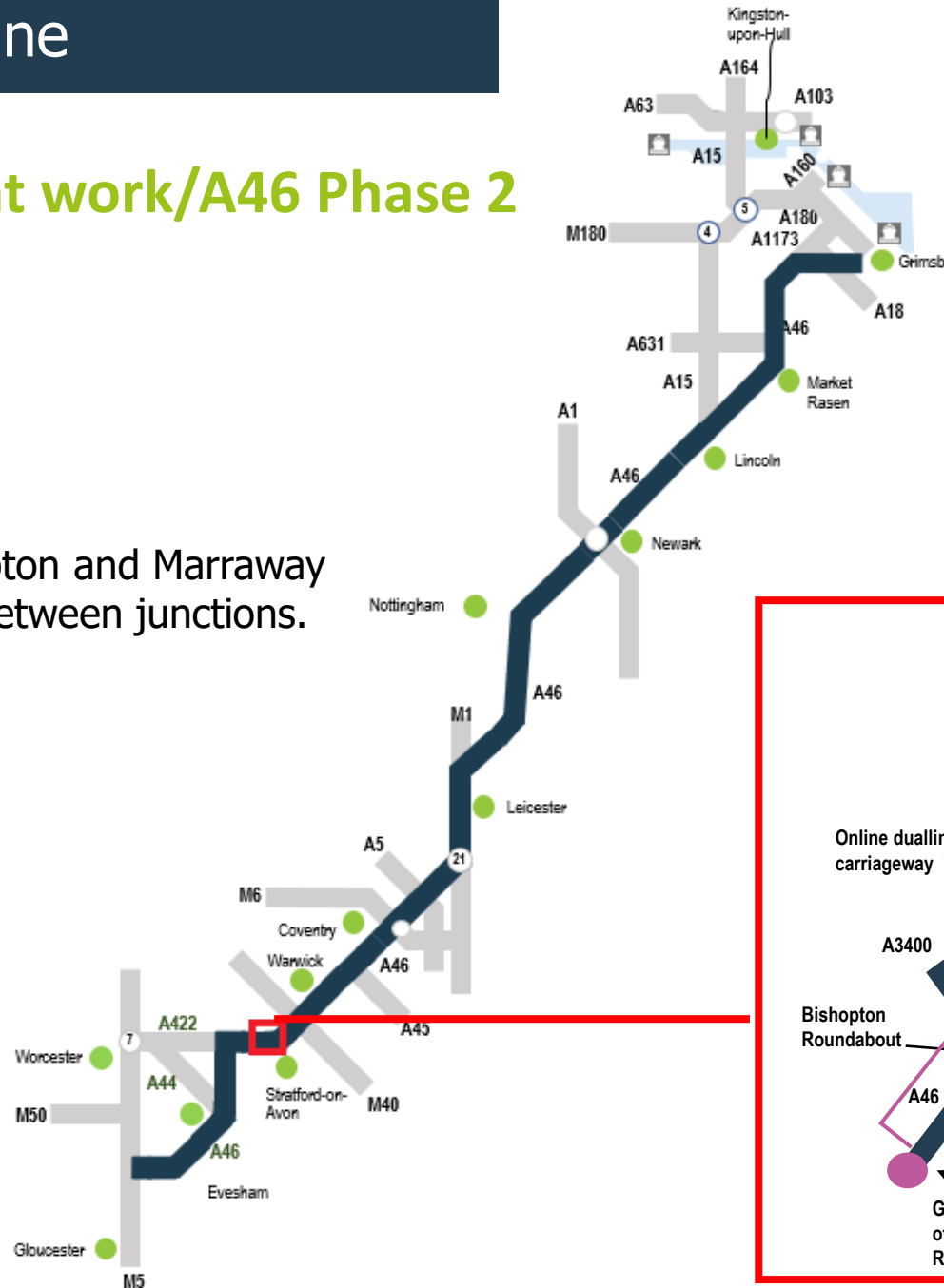
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Opening year: Unknown

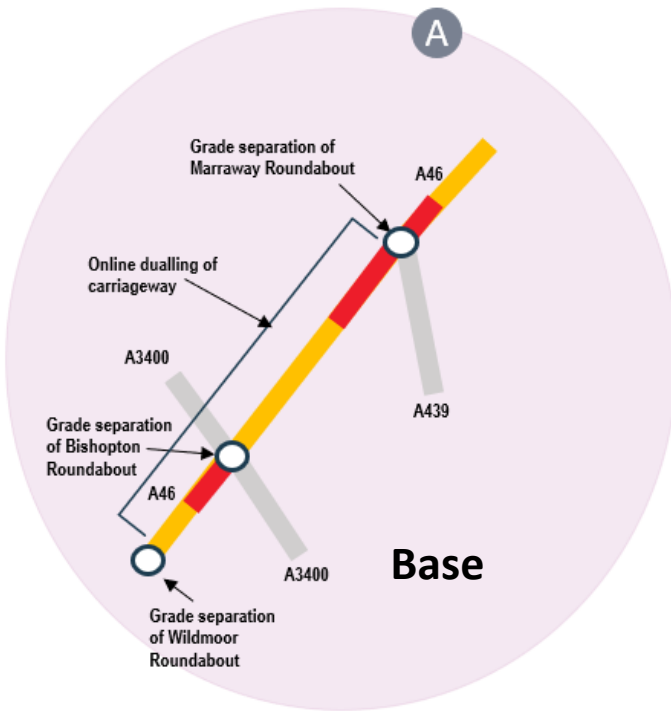


PCF Stage 0

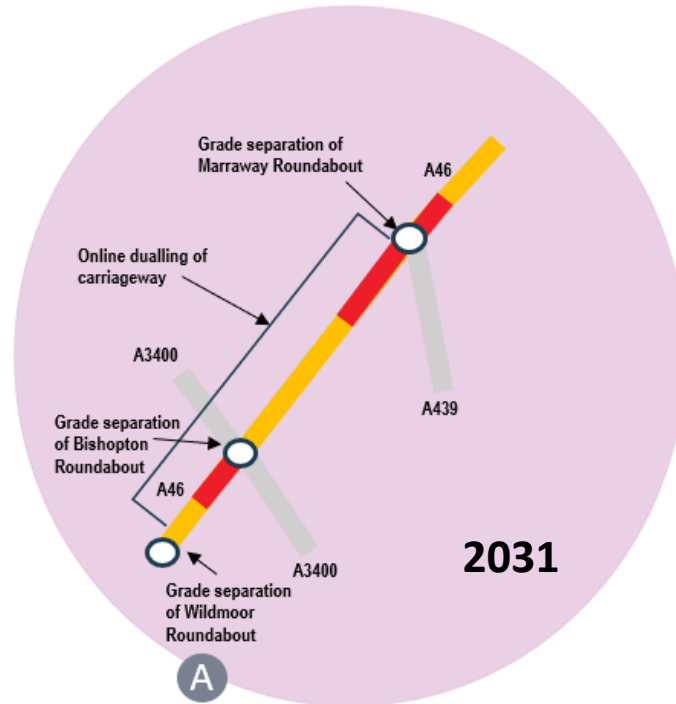


## Highways England development work

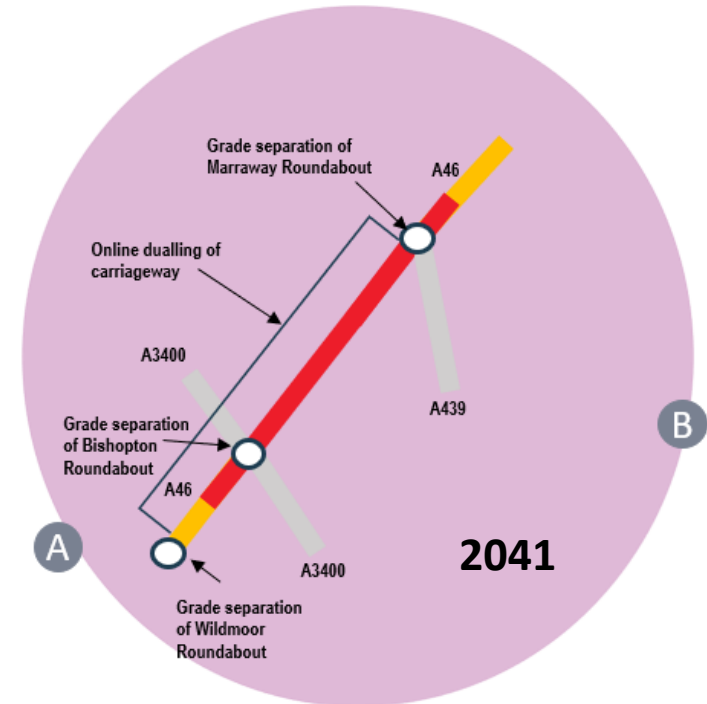
### Stratford Northern Bypass: transport & growth



A. 6,560 houses at Warwick/  
Leamington Spa



A. 3,500 houses at Long Marston Airfield  
– Garden Village Proposal



A. 2,000 houses at Alcester  
B. 6,600 jobs at JLR Gaydon



## Highways England development work

Leicester Western Access and North Leicestershire Extra Capacity including M1 J21, M1 J21A and M1 Mainline improvements: overview



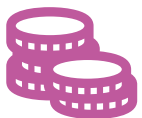
Leicestershire



Upgrade to M1 J21, M1 J21A and M1 Mainline



Highways England



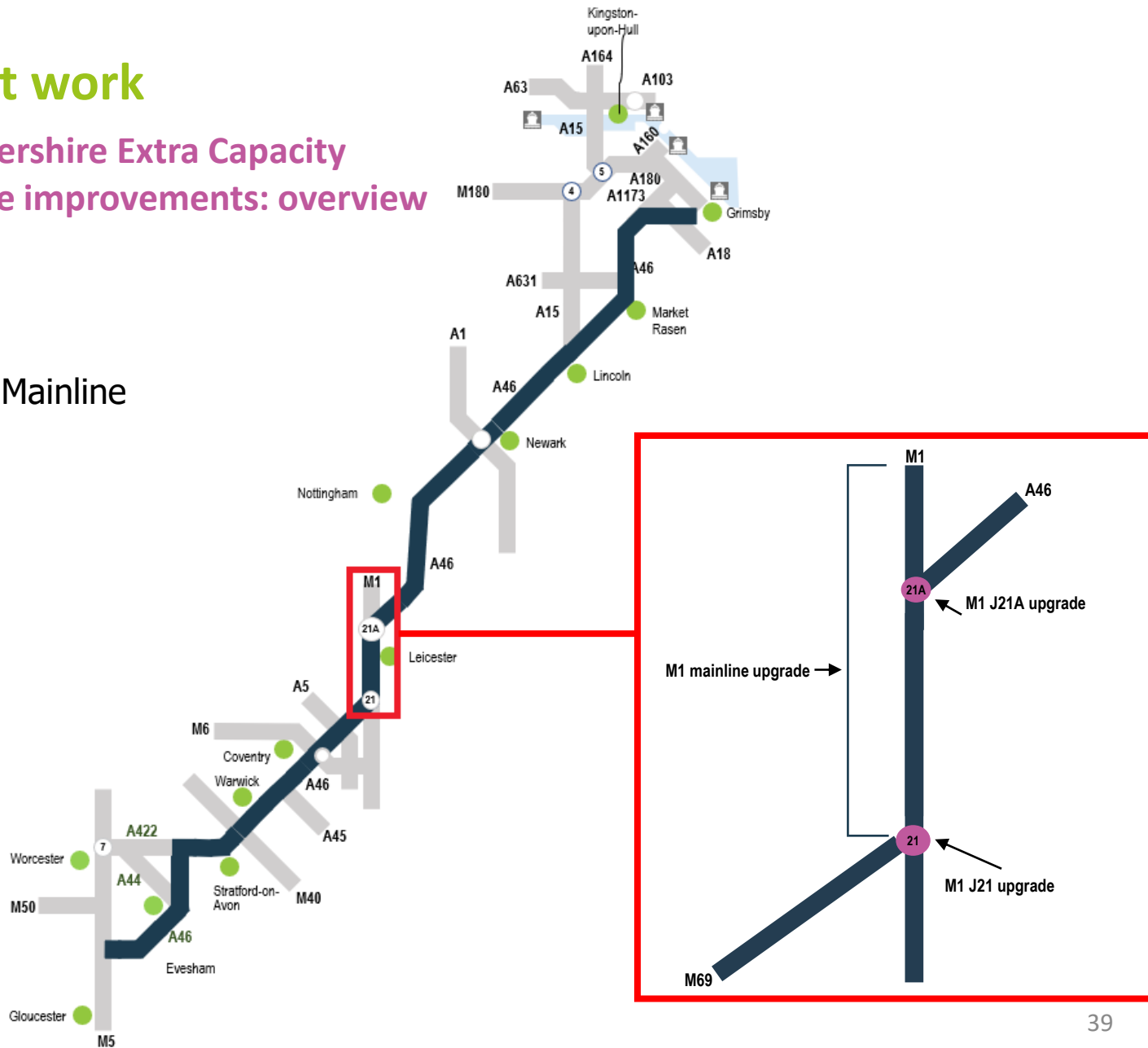
Unknown



Leicester Western Access and North Leicestershire Extra Capacity detailed in RIS2 as RIS3 pipeline

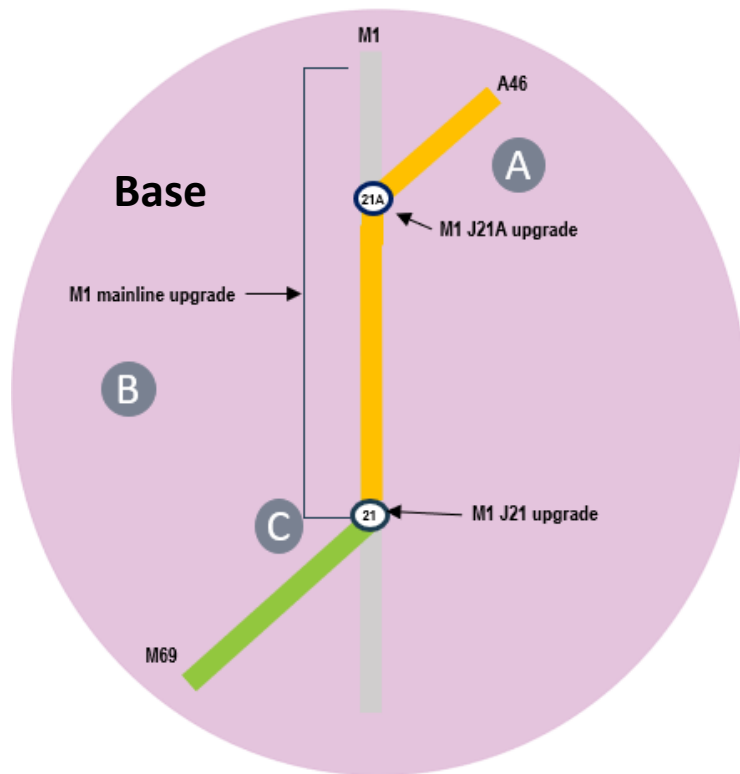


PCF1

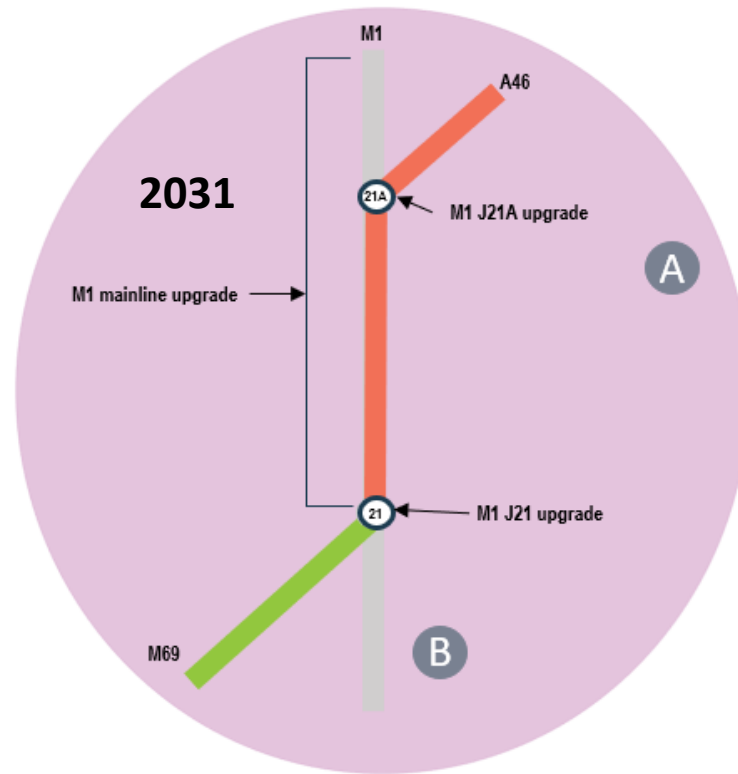


## Highways England Development Works

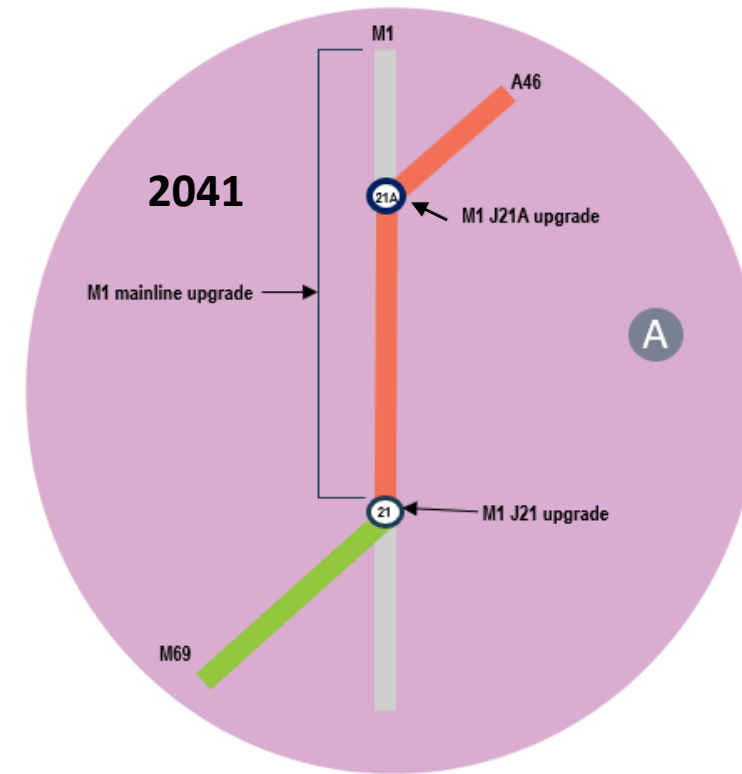
### Leicester Western Access and North Leicestershire Extra Capacity improvements: transport & growth



- A. 3,000 houses at Ashton Green
- B. 2,500 jobs at Caterpillar at Desford
- C. 4,475 houses at Lubbethorpe Planned New Community



- A. 4,500 houses at NE of Leicester SUE
- B. 3,500 houses (minimum) and 4,000 jobs at Whetstone Pastures – Garden Village Proposal



- A. 10,000 homes east of Leicester

## A46 Phase 2 development work

### Evesham Eastern/Western Bypass: overview



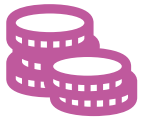
Evesham, Worcestershire



New bypass to the east of Evesham with new junctions to north and south of Evesham, but no intermediate junctions. Western bypass also included within option assessment but discounted.



Midlands Connect



£144 million



Unknown

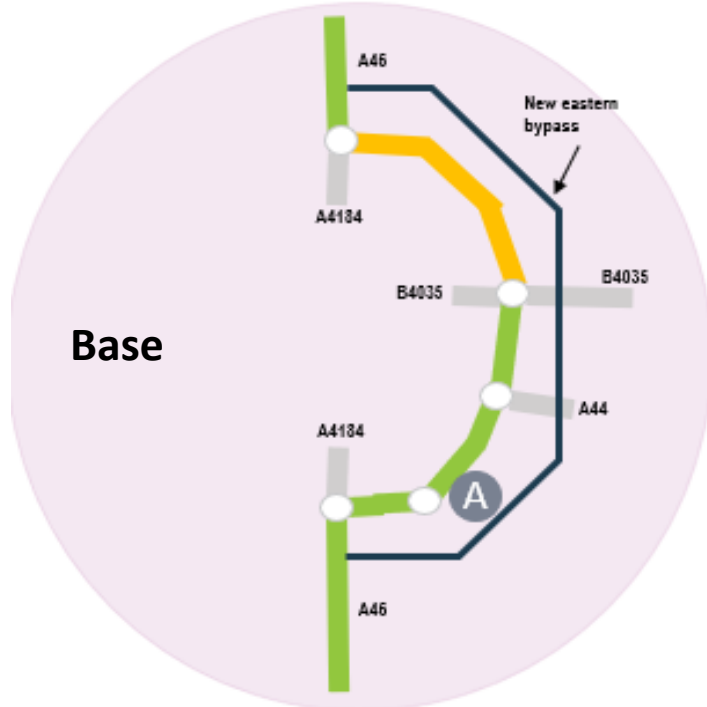


PCF Stage 0



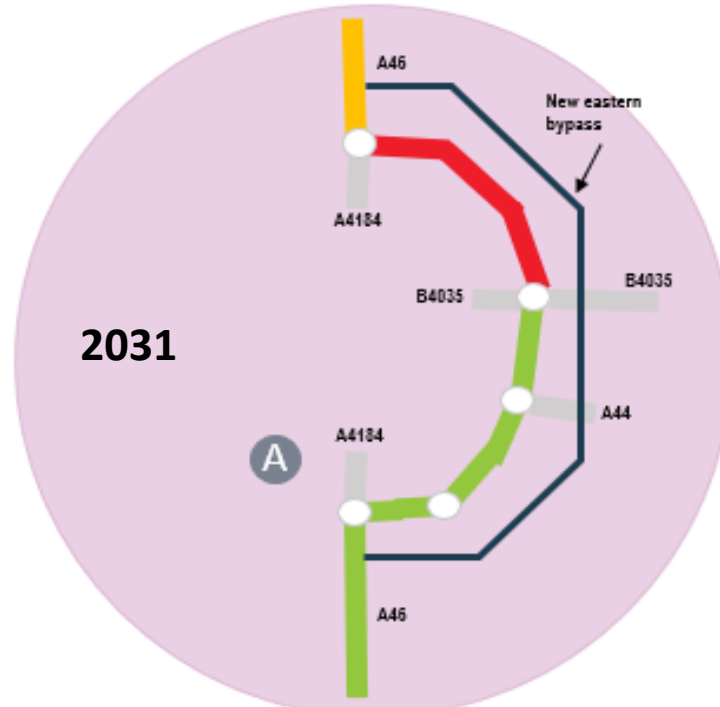
## A46 Phase 2 development work

### Evesham Eastern Bypass: transport & growth



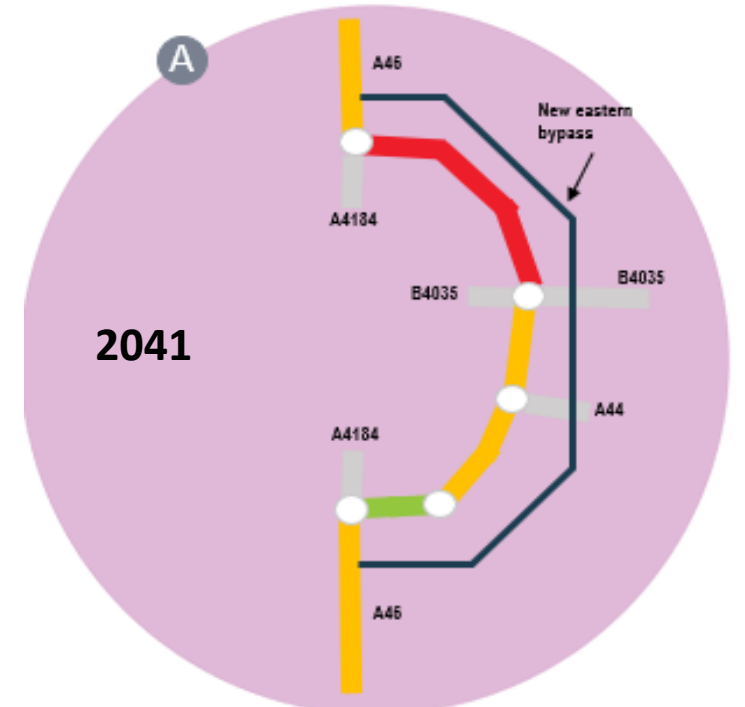
New alignments are indicative only

A. 1,300 jobs at Vale Park, Evesham



New alignments are indicative only

A. 1,000 houses through Evesham Sustainable Urban Extension



New alignments are indicative only

A. 5,000 houses Throckmorton Airfield

## A46 Phase 2 development work

### Warwick Bypass: overview



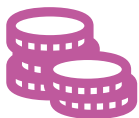
Warwick, Warwickshire



Grade separated junction of '10p Island' south of M40 J15 (Longbridge Island) and lane gain on Warwick bypass from Birmingham Road (A4177) to provide 3 lanes in each direction



Midlands Connect



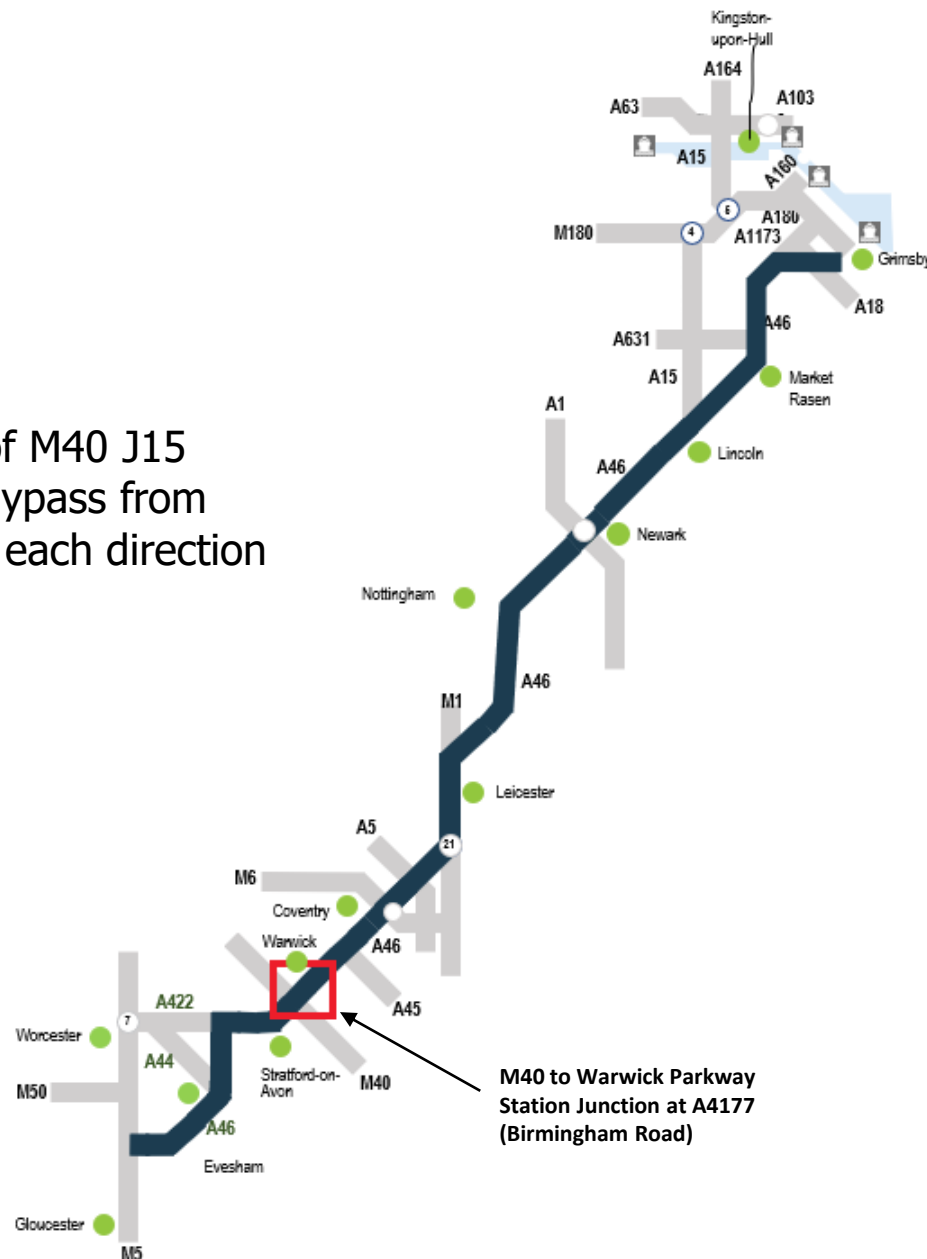
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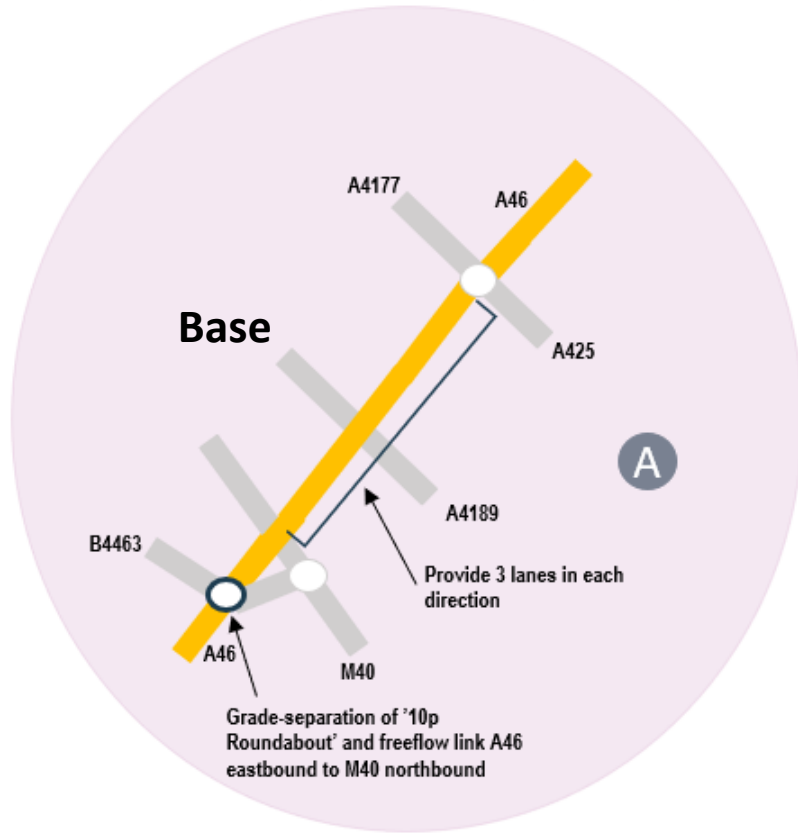


Concept

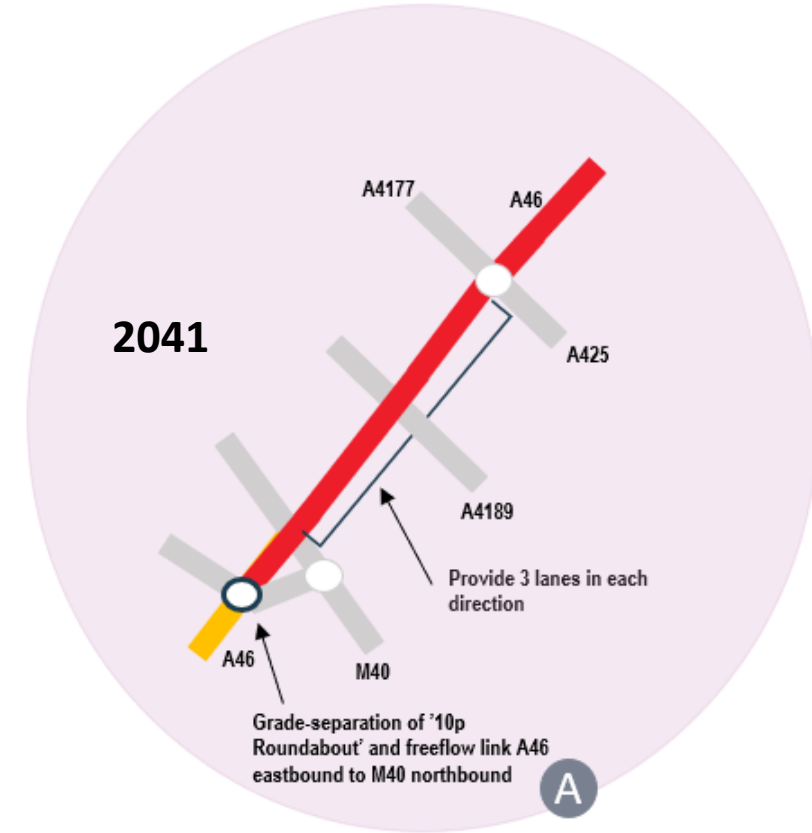
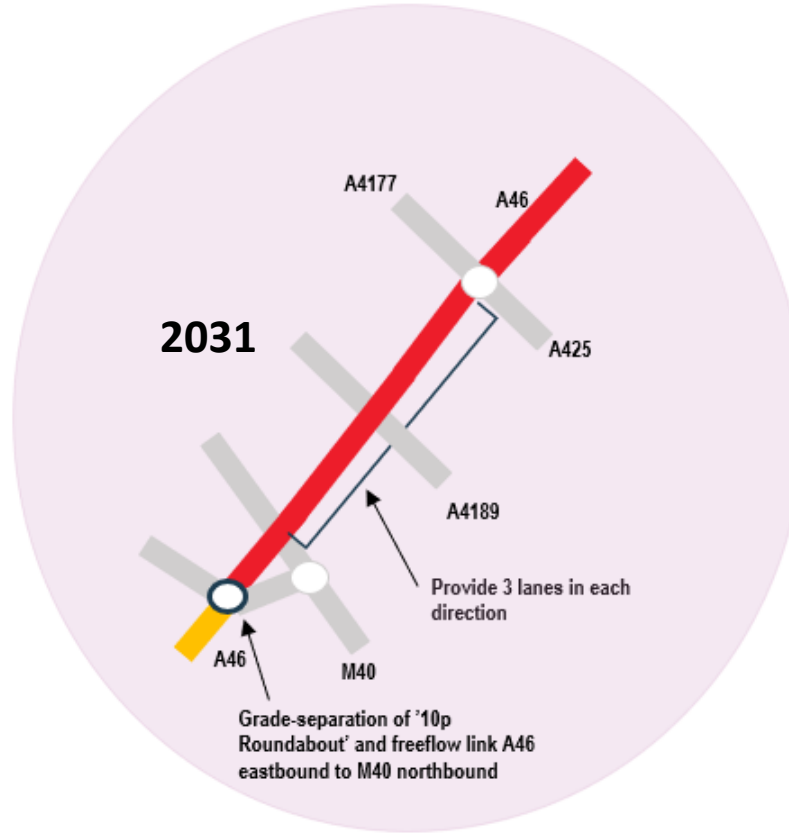


## A46 Phase 2 development work

### Warwick Bypass: transport & growth



A. 6,560 houses at Warwick/Leamington Spa



A. 6,600 jobs at JLR Gaydon

## A46 Phase 2 development work

### Leicester Western Bypass: overview



Leicester, Leicestershire



Online upgrade of existing A46 corridor on Leicester Western bypass between M1 J21a and Hobby Horse Interchange



Highways England



Unknown



Opening year: Unknown



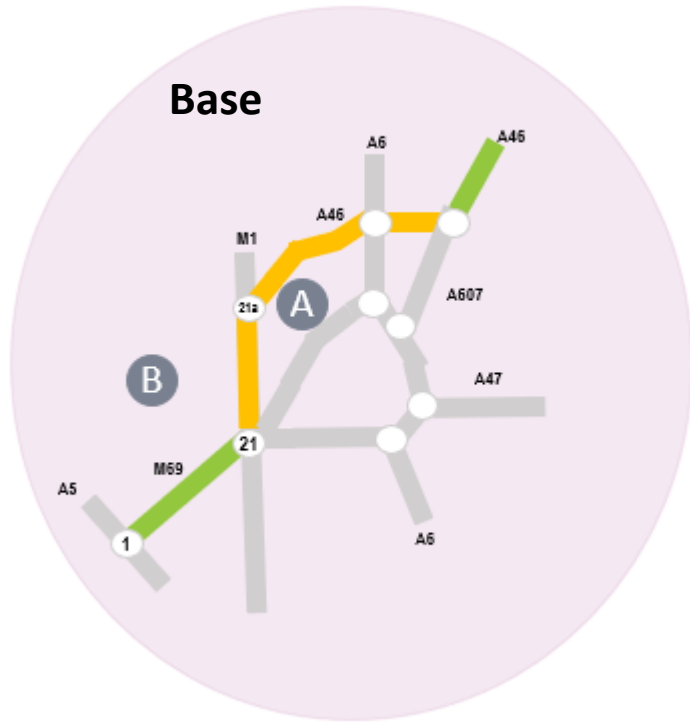
Concept



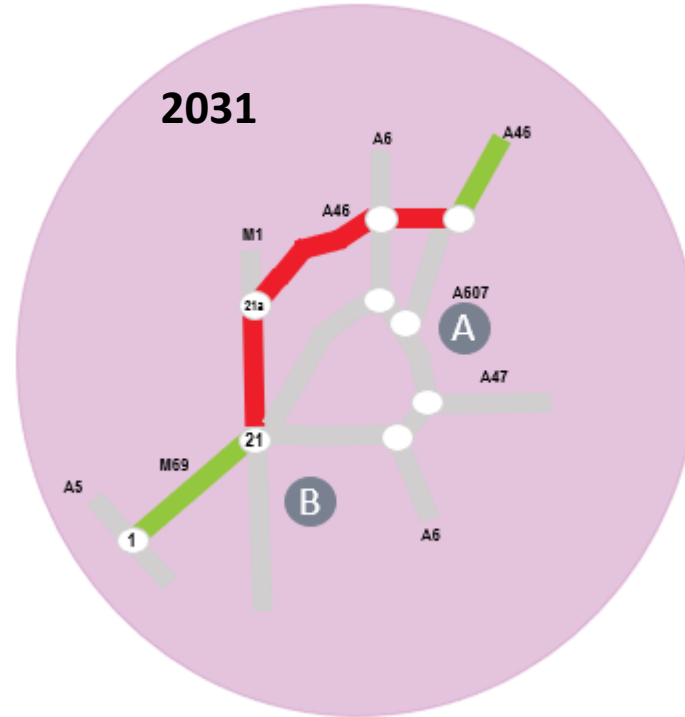


## A46 Phase 2 development work

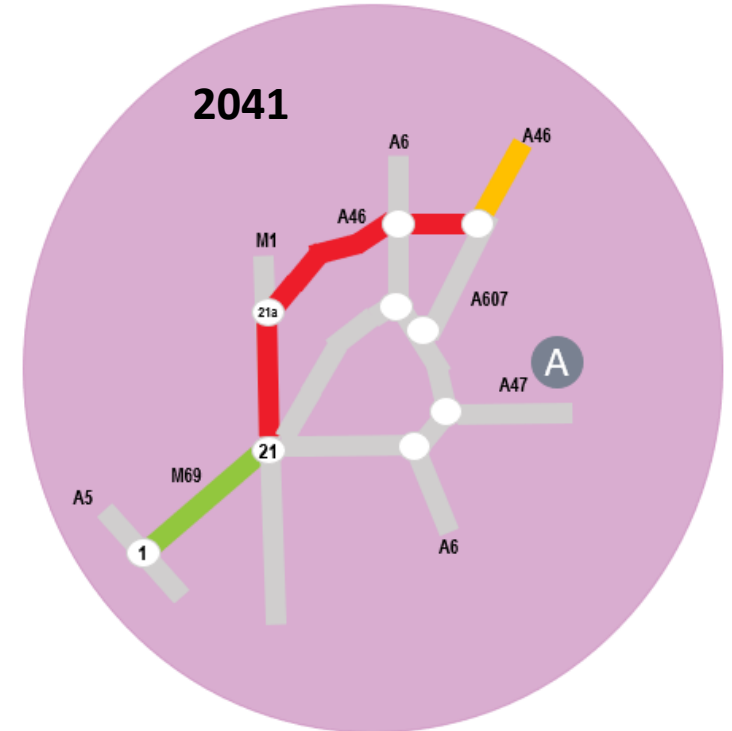
### Leicester Western Bypass: transport & growth



A. 3,000 houses at Ashton Green  
B. 2,500 jobs at Caterpillar at Desford



A. 4,500 houses at NE of Leicester SUE  
B. 3,500 houses (minimum) and 4,000 jobs at Whetstone Pastures – Garden Village Proposal



A. 10,000 homes east of Leicester

## A46 Phase 2 development work

### Leicester Southern/Eastern Bypass: overview



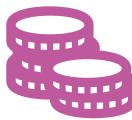
Leicester, Leicestershire



Assessment of Southern Spur from M69 J1 to new M1 J20A, Northern spur from Hobby horse junction and South Eastern Link providing a complete South Eastern bypass of Leicester



Leicestershire County Council



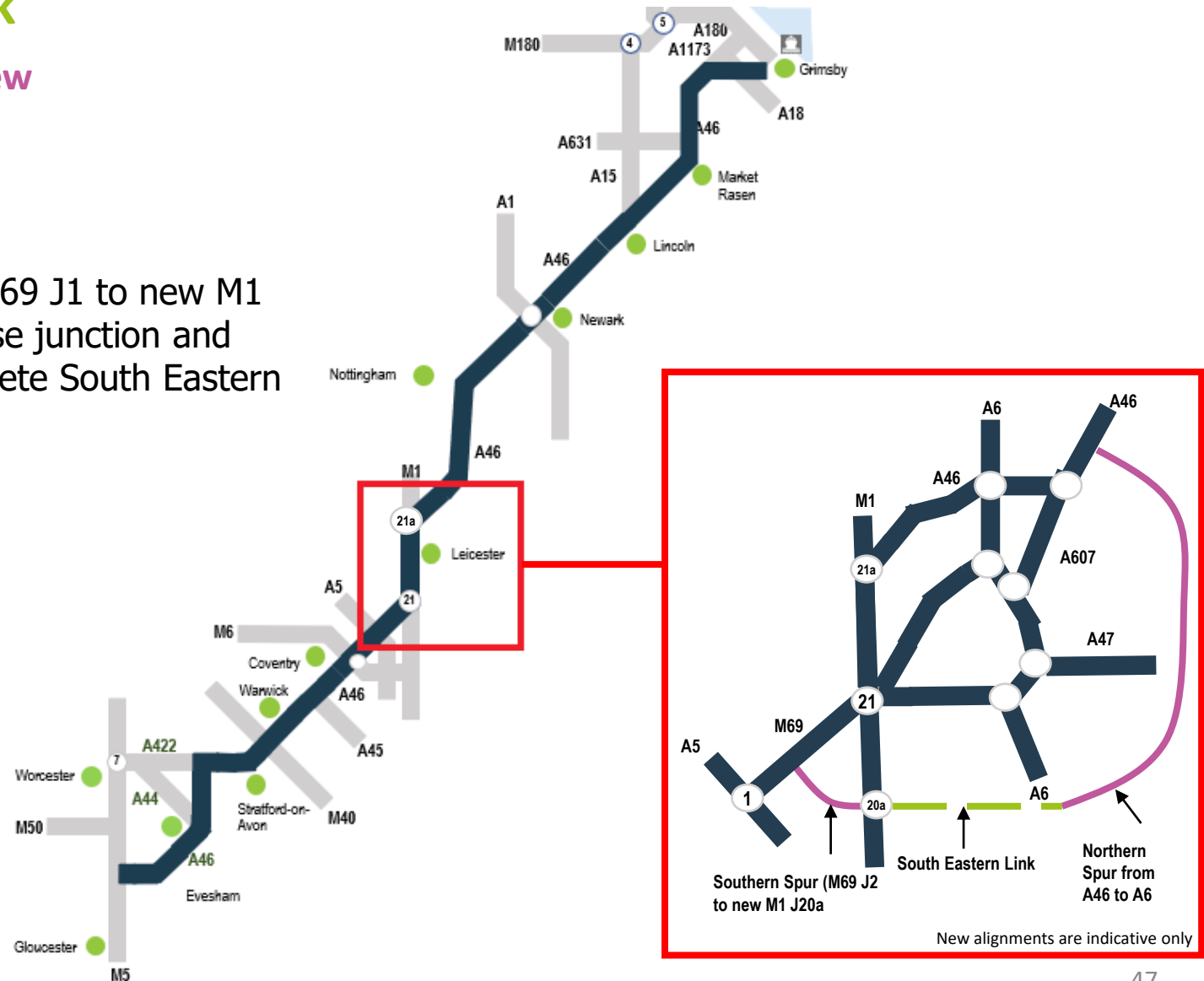
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Opening year: Unknown

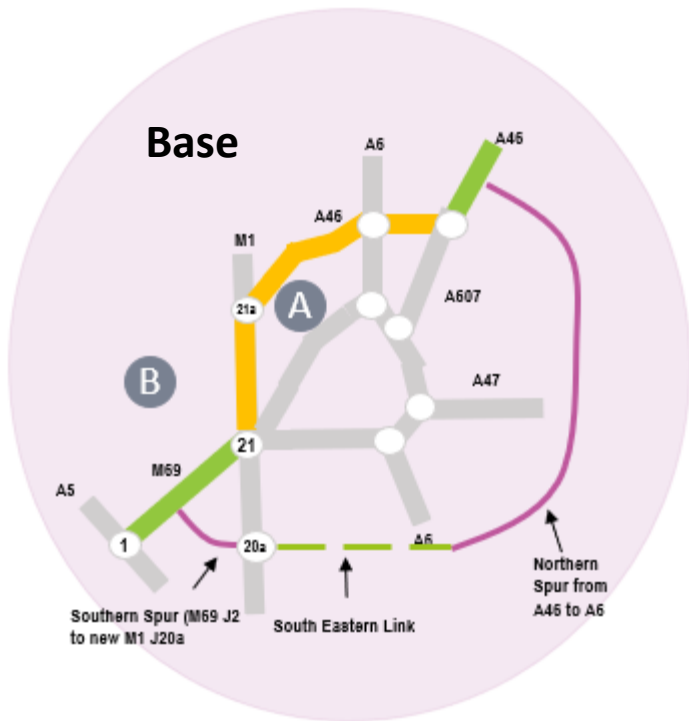


Concept



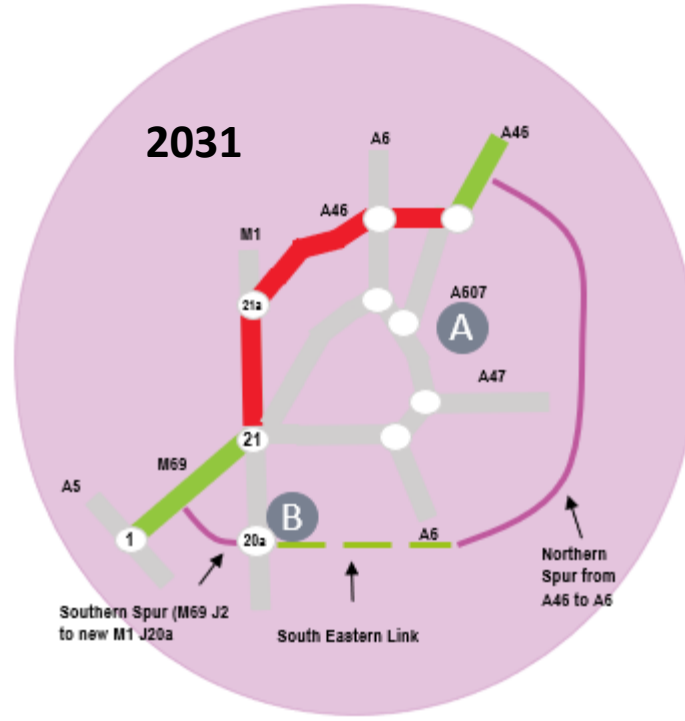
## A46 Phase 2 development work

### Leicester Southern/Eastern Bypass: transport & growth



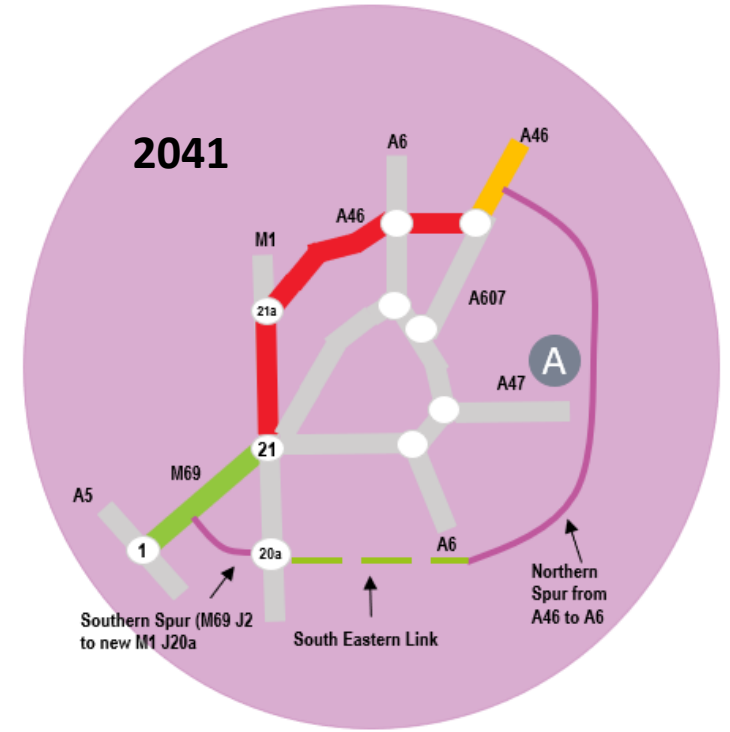
New alignments are indicative only

- A. 3,000 houses at Ashton Green
- B. 2,500 jobs at Caterpillar at Desford



New alignments are indicative only

- A. 4,500 houses at NE of Leicester SUE
- B. 3,500 houses (minimum) and 4,000 jobs at Whetstone Pastures – Garden Village Proposal



New alignments are indicative only

- A. 10,000 homes east of Leicester

## A46 Phase 2 development work

### A15 corridor: overview



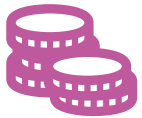
Lincoln, Lincolnshire



Targeted upgrades to A15 between Lincoln and M180



Midlands Connect



Unknown



Opening year: 2025

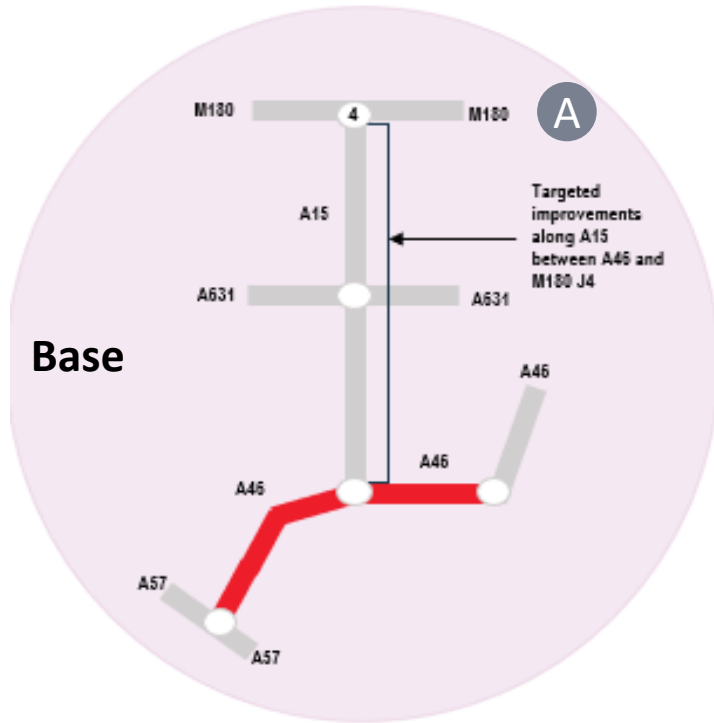


Concept

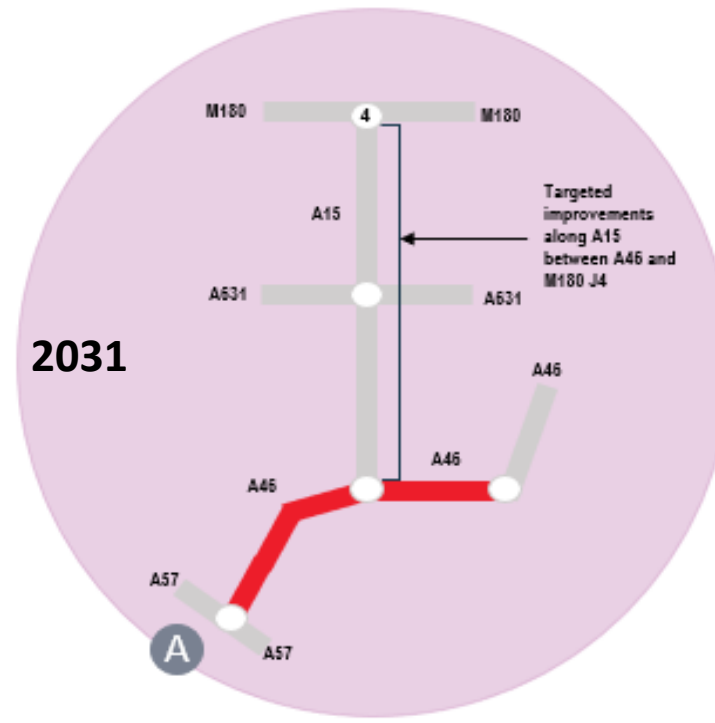


## A46 Phase 2 development work

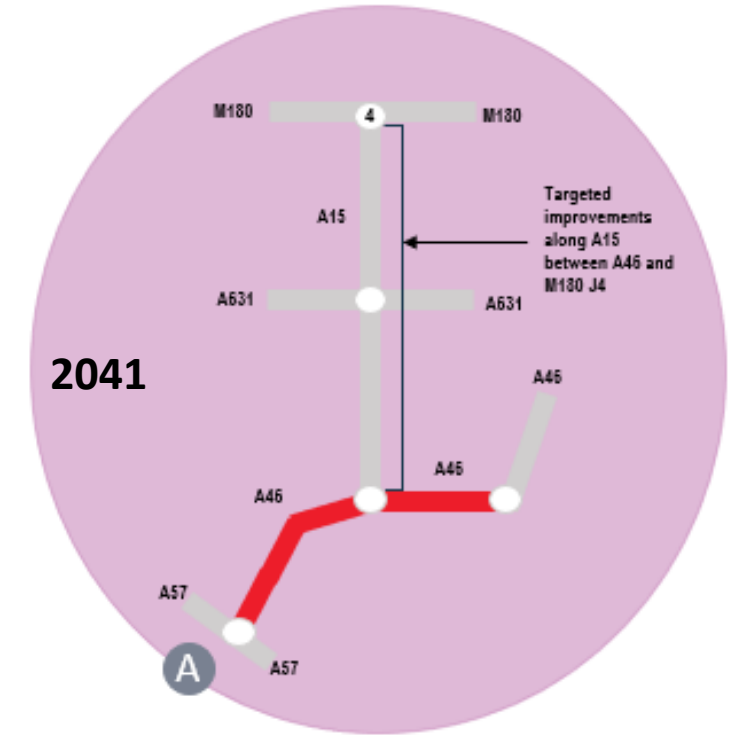
### A15 corridor: transport & growth



A. 5,350 jobs Able Business and Logistics Park, Humber



A. 9,700 homes and associated jobs delivered through Lincoln Sustainable Urban Extensions (SUEs)



A. Continuing build out of Lincoln SUEs



## Chapter 7: Recommendations by area

## Introduction

Based on the intervention categories presented in the previous section, a proposed timeline for development has been established for each area along the A46 corridor. This has been used to inform the programme shown in Chapter 8.

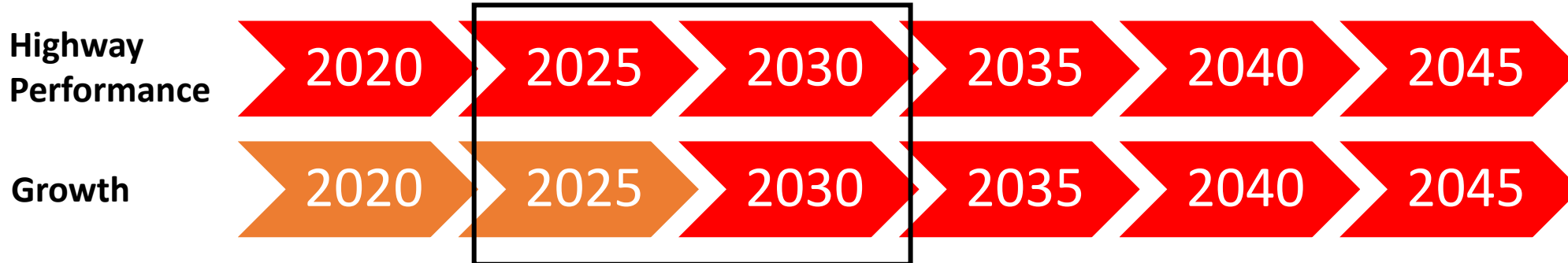
In this section, recommendations are also made in terms of how Midlands Connect could progress investment in each area.



## Ashchurch area

### Timeline for development

Based on the evidence, intervention is needed in the Ashchurch area (including improvements at M5 J9, Ashchurch, and Teddington Hands) by 2030 at the latest. However, given the poor highway performance in the area and wider pressures for growth in the south west, Gloucestershire and Worcestershire; there is justification for a scheme to facilitate local growth and wider regional connectivity sooner than 2030.



## Ashchurch area

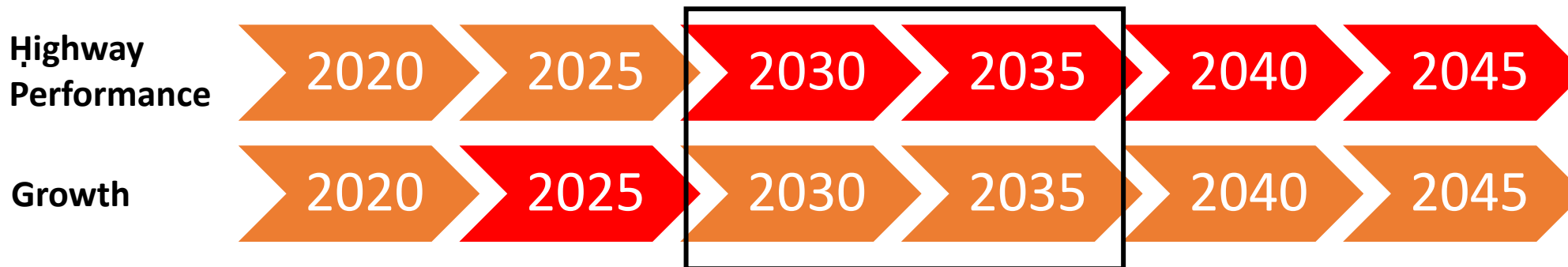
### Recommended Midlands Connect approach

- Work with Highways England and Gloucestershire County Council to identify a preferred option which provides a long-term solution by 2030.
- Support GCC's LLM bid which includes a dual, rather than single-carriageway link road to a new motorway junction to the south of the existing J9.
- Work towards delivery of a scheme at Ashchurch and Evesham by 2035 to improve the performance and reliability of the southern section of the A46. However, delivery should be sequenced based on funding availability and expected levels of planned growth at Ashchurch and Evesham.
- Due to the fact that Ashchurch has a scheme identified for Large Local Majors and higher levels of growth associated with the 10,000 homes Garden Town proposal there is a strong case for Ashchurch to be delivered ahead of Evesham.

## Evesham area

### Timeline for development

Based on the evidence, intervention is needed at Evesham by 2035 at the latest. Combined with improvements at Ashchurch and Stratford the performance and reliability of the southern section would deliver a genuine alternative to the wider motorway network. Delivery should be sequenced based on an appreciation of relative levels of planned growth at Ashchurch and Evesham and the funding available.



### Evesham area

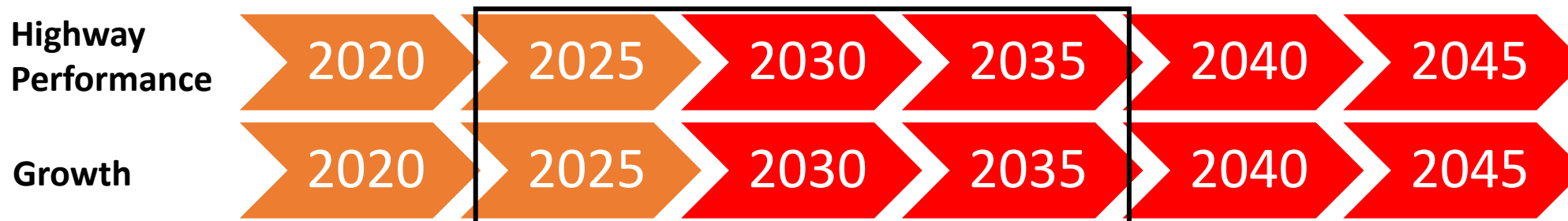
#### Recommended Midlands Connect approach

- In the medium term, there are plans to deliver 1,200 jobs at Vale Park in Evesham by 2030. Permission is required from HE to deliver these expansion plans. In order to facilitate this growth, Midlands Connect should continue to provide support to Worcestershire County Council and Wychavon District Council in delivering their plans for growth.
- Work with Highways England and Worcestershire County Council to identify a preferred option for a bypass to the east of Evesham. Scheme development for Evesham should include work to examine the case for additional junctions on the eastern bypass where it crosses the A44 (Broadway Road) and potentially also the B4510 and B4035. Consideration should also be given to upgrading the A44/A46 roundabout (The Squires) to the north of Evesham to understand the case for upgrading this junction and its interactions with plans for the bypass.
- Undertake further work to understand the interaction between the Ashchurch and Evesham areas of interest to better understand their mutual impact and influence.

## Stratford area

### Timeline for development

Based on the evidence, intervention is needed in the Stratford area by 2035 at the latest. However, given possible development scenarios tested within this study including 10-12k houses at Long Marston Green airfield and the plans for a Stratford Western Relief Road there is a case to accelerate the timeline for investment in this area. The MCHM also highlights the impact of accelerated growth on the Stratford and Alcester area by 2031.



## Stratford area

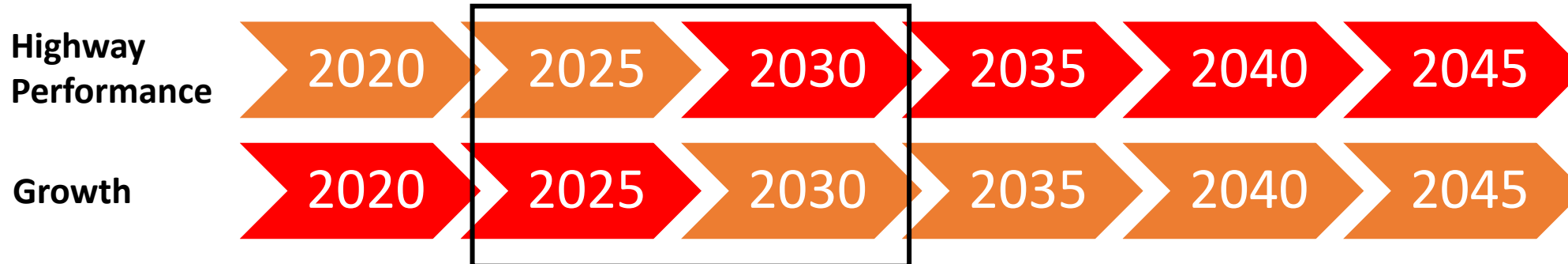
### Recommended Midlands Connect approach

- Work with Highways England and Warwickshire County Council to identify a preferred option for the Stratford bypass which provides a long-term solution within the recommended 2035 timeframe. This includes the case for a full Wildmoor-M40 upgrade based on expected growth potential around Stratford and the wider corridor. The MCHM Alternative Growth Scenario highlights that this section of the A46, and also at Alcester, experiences a reduction in highway performance by 2031 given the focus of development in the corridor. The interaction and deliverability of improvement schemes at both Warwick and Stratford also needs to be considered. Currently the evidence suggests Warwick should be sequenced first.
- Examine the relationship between improvements at Wildmoor and Bishopton Roundabouts (due to their proximity) and examine opportunities for significant at-grade roundabout improvements to provide short-term benefits.
- Improvements to the Wildmoor roundabout also have the added dependency of plans for a Stratford Western Relief Road (SWRR) which could influence sequencing. Development plan scenarios for 10-12,000 houses at Long Marston Airfield should also be taken into account.

## Warwick area

### Timeline for development

Based on the evidence, intervention is needed in the Warwick area by 2030 at the latest to support the known short term growth plans in the Warwick and Leamington area; and ahead of any reduction in highway performance from 2030 onwards (as highlighted in the MCHM Alternative Growth Scenario) caused by additional demand from growth locations to the north and south of Warwick including Stratford and Coventry.



## Warwick area

### Recommended Midlands Connect approach

- Work with Highways England and Warwickshire County Council to identify a preferred option for the Warwick area which provides a long-term solution within the recommended 2030 timeframe. This would include examination of the benefits for additional widening of the A46 from 2 to 3 lanes between the M40 and Leek Wootton (A429), thereby providing 3 lanes for the whole section between the M40 to Stivichall Junction at Coventry.
- Improvements in the Warwick and Stratford areas need to be delivered by 2035 to improve the performance and reliability of this section. Delivery should be sequenced based on an appreciation of the levels of planned growth at Warwick and Stratford and any interaction with improvements in the Coventry area.

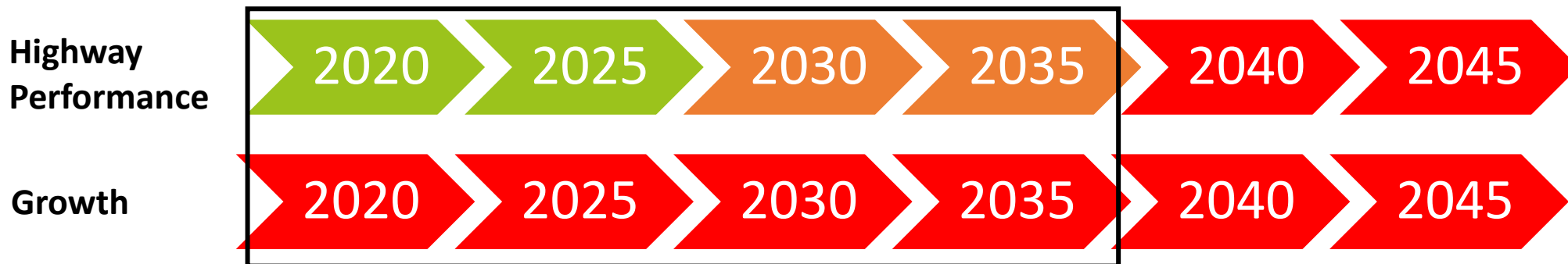


## Coventry area

### Timeline for development

Intervention at the Coventry Eastern bypass is urgently needed. The upgrade of Binley and Walsgrave was assumed within the 'Do Minimum' and highlights the positive impact of the scheme on highway performance.

High levels of growth are anticipated in Coventry over future years therefore, further intervention in the longer term will be needed to mitigate growth in the immediate area and beyond. This has been demonstrated in the MCHM Alternative Growth Scenario for 2031.



## Coventry area

### Recommended Midlands Connect approach

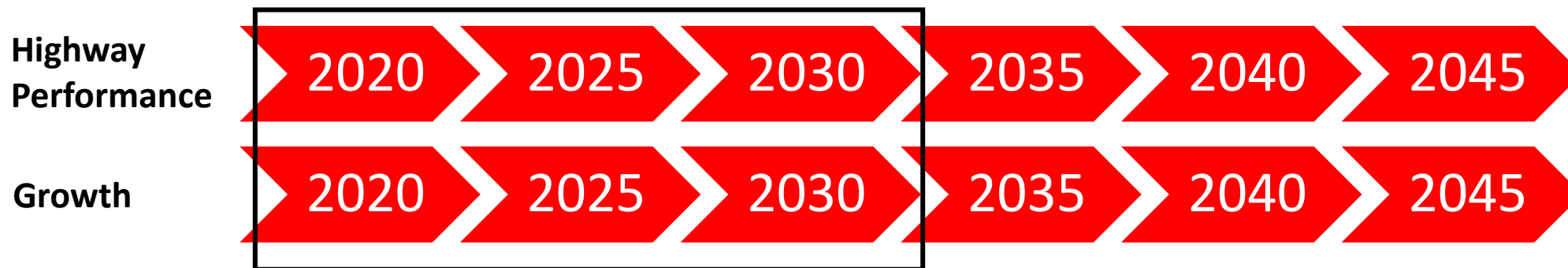
- Maintain pressure on Highways England to ensure delivery of Coventry Eastern Bypass Package in RIS2 (2020-2025).
- Examine the impacts of long-term and alternative growth scenarios on the Warwick-M6 section, including jobs expansion at Whitley and Ansty Park and the resulting case for further investment at Stivichall Interchange (A46/A444/A45) by 2035 and Ansty Interchange (A46/M6/A444) by 2030.
- Demand generated or mitigated from other proposed improvements in the corridor will influence the case for accelerated development work in Coventry and the timescale for improvements. Midlands Connect should maintain an active understanding of the developments and transport schemes influencing Coventry. The need for further scheme development work around Coventry should therefore remain fluid depending on the changing case and timescale for transport intervention.

## M1 corridor

### Timeline for development

Based on the evidence, intervention is needed on the M1 Corridor immediately. However, following the publication of RIS2 the planned upgrade of the M1 J19 – J23A appears to now be focused on M1 J21- 23a under the scheme name M1 North Leicestershire extra capacity. This is included within the RIS 3 pipeline alongside improvements to the interchange between the M69 and M1 at Junction 21 (titled Leicester Western Access).

Investment is also needed on the Leicester Western bypass by 2025 – 2030. A focus on this section will help to support short-medium term growth whilst the infrastructure needed to support the Strategic Growth Plan is confirmed.



## M1 corridor

### Recommended Midlands Connect approach

- Continue support and lobby for Smart Motorway implementation between J19 – 23A including J21 as soon as possible.
- Develop plans for sequenced investment on Leicester Western bypass by 2025 – 2030 to strengthen the performance of the A46 corridor at Leicester to support existing and emerging (pre 2031) local plan commitments. Scheme development will need to appreciate the interaction with M1 Smart Motorway improvements and Hobby Horse interchange and the local city and county networks
- Acknowledge that the distribution of medium and longer term proposed development to the south and east of Leicester as planned in the Leicester and Leicestershire Strategic Growth Plan may require additional investment in appropriately designed local and sub regional access infrastructure which complements rather than solely relies upon the above planned capacity enhancements to the existing Strategic Road Network (SRN).
- Continue to work with Leicestershire County Council to understand the interactions between an improved M1 corridor and measures to enable growth in and around Leicester reflecting SRN resilience needs and the need to minimize impacts of longer-term spatial distribution of growth on this.
- Continue to review and align the medium to long term plans for both local and strategic capacity as greater certainty around development plans and travel patterns post 2031 is known.

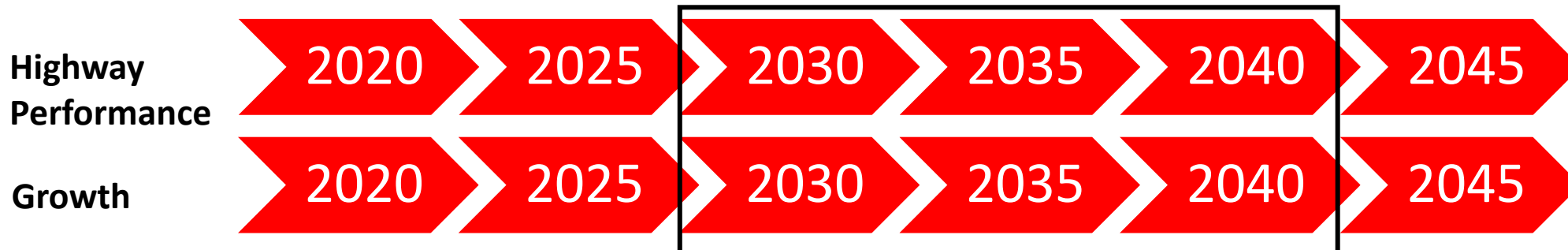
## Leicester area

### Timeline for development

The recommended investment in the M1 Corridor (including M1 J21) and the Syston area (i.e. Hobby Horse Interchange) is detailed elsewhere in this report. Based on the policy evidence, the Leicester area presents a significant challenge and development committed to 2031 to the north and west of Leicester will rely on these interventions. High levels of housing and employment growth are forecast within the Leicester and Leicestershire Strategic Growth Plan (SGP) up to 2050. The aspiration for the SGP beyond 2031 to 2050 is to shift the emphasis of housing growth away from the northern and western edges of Leicester and to deliver large scale strategic growth in a corridor to the south and east of the City for reasons including not placing an over reliance on the existing urban area and SRN.

Modelling work undertaken in the Leicester area highlighted that combined investment in the Western bypass, M1 J21 and Hobby Horse interchange generated journey time savings of up to 8 minutes or 30% less in 2031 than if no interventions were included.

New spur roads to the north and south of the Leicester area were also assessed as well as a complete bypass to the south east of Leicester. Whilst these options would at least be necessary to facilitate traffic from strategic growth sites to enter the wider network, they provided a limited strategic function for longer range journeys. The assessment of the full bypass demonstrated that trips passing Leicester, experienced a journey up to 36% longer than the A46, and hence this does not at present justify full commitment to long-term strategic alternative to upgrading the A46 corridor purely for strategic movements. Should there be no case for the full bypass to serve a strategic role, then accordingly it could be built to a lower standard (i.e. not as an Expressway). Worthwhile local and sub regional network benefits including within the urban area would be derived through implementing the SGP spatial distribution with appropriately designed non-strategic access infrastructure from 2040 onwards. If this distribution is followed and planned appropriately, its transport demands should not overload the existing/enhanced M1/A46 SRN. (As noted earlier, however, significant spatial distribution changes would likely render this conclusion invalid).



## Leicester area

### Recommended Midlands Connect approach

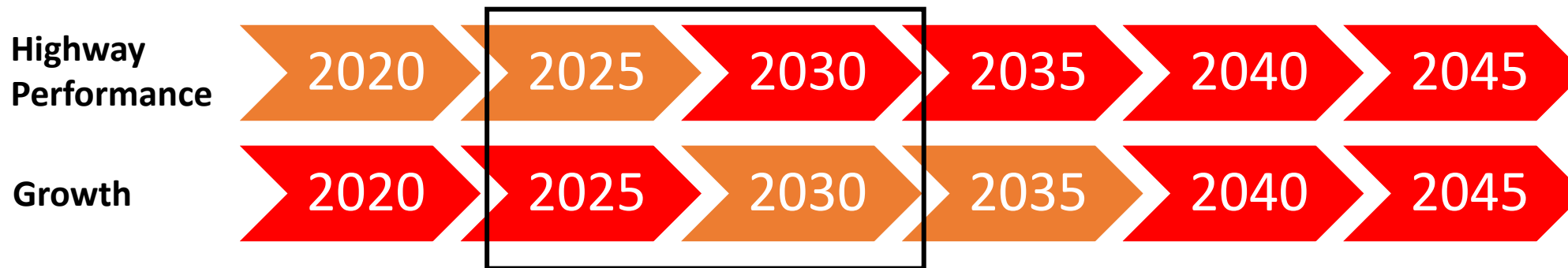
- There should be an approach of incremental upgrades of the existing A46 route as referenced elsewhere in the report (including the M1 and M69 junctions) to support existing and emerging local plan commitments to the north and west of Leicester.
- It is recognised that the exact locations and scale of future growth, along with the infrastructure needed to support it requires further development work considering local and sub-regional demands as well as longer distance SRN resilience as the potential of short and medium term interventions is confirmed. Should these assumptions change (in particular any changes to post 2031-2050 spatial distribution of development) then the longer term strategic transport needs will need to be reviewed.
- As we move forward, we will also have a better understanding of how climate change strategies affect future travel patterns across the wider network which will require multi modal considerations to be fully assessed.
- Local and sub-regional transport requirements in terms of infrastructure to support growth and avoid compromising the resilience of the short and medium term interventions planned for the existing SRN will need to be brought forward in the next stages of analysis for the Strategic Growth Plan by the planning authorities.
- Midlands Connect will continue to work with Leicester City and County Councils, MCHLG and Highways England over the coming years to ensure spatial development distribution and additional traffic generated by future developments coming forward between 2031 and 2050 will be consistent with short and medium term plans for the A46 corridor and how this may relate to local, sub-regional and strategic infrastructure needs.
- The medium and long term plan for the A46 will be reviewed and updated as we achieve greater certainty on the longer terms conditions post 2031 and the actual extent of deliverable capacity enhancement on the existing SRN as detailed designs progress .

## System area

### Timeline for development

Based on the evidence, intervention is needed at Hobby Horse interchange in the Syston area by 2030. This will help to address existing congestion and support growth to the north of Leicester.

In the longer term consideration will need to be given to the interaction with the growth forecast in the Strategic Growth Plan and the infrastructure needed to accommodate this growth (including a possible northern spur and its interaction with the A46).



## System area

### Recommended Midlands Connect approach

- Consider tactics for making the case for both the Hobby Horse interchange (to resolve shorter-term issues) and longer-term infrastructure needed to support growth in the Leicester and Leicestershire area.
- Growth is focused to the north of Leicester in the short term including the completion of 3,000 homes at Ashton Green SUE by 2025. The interaction with the growth forecast in the Strategic Growth Plan and the impact of potential growth sites to the south and east of Leicester will influence long term design requirements for Hobby Horse but should not detract from the need for intervention in the short term which will support the strategic north east to south west connectivity role of the A46.

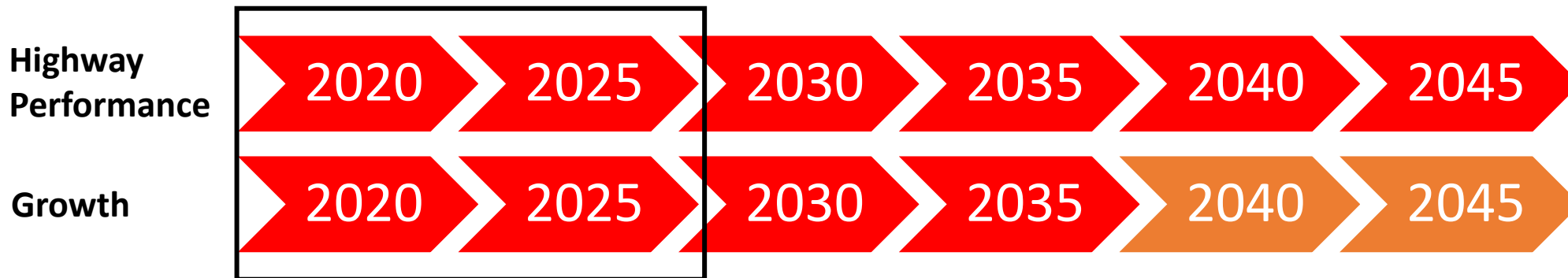


## Newark area

### Timeline for development

Based on the evidence, intervention is needed in the Newark area by 2025 at the latest. This will help to mitigate the current congestion in the area and will help to deliver growth in housing and jobs in the area.

The delivery of the Southern Link Road at Newark will also need to be considered in assisting highway network performance in the area (including the A46) and unlocking land for development.



## Newark area

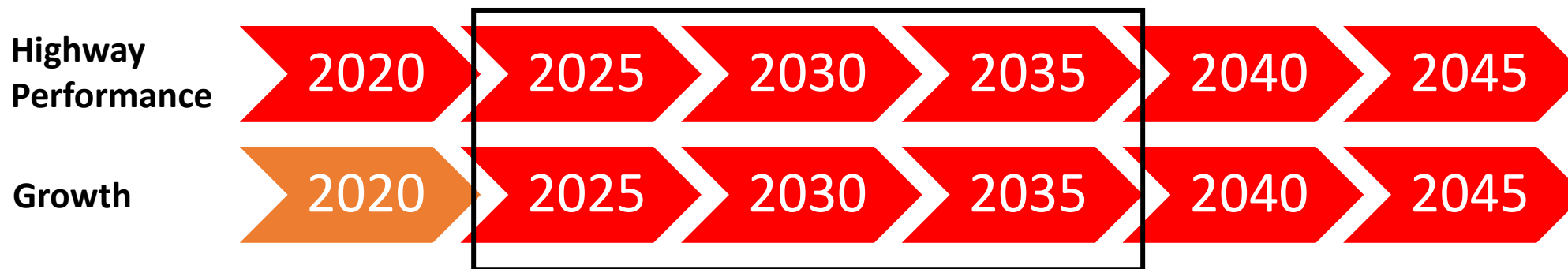
### Recommended Midlands Connect Approach

- Support Highways England in identifying a preferred option for the A1/A46 at Newark which supports Midlands Connect's objectives, and those of stakeholders, in the area.
- Support Highways England in progressing the preferred option through the PCF and RIS processes to ensure delivery in the mid-2020s following the Government's recent support for the scheme.

## Lincoln area

### Timeline for development

Based on the evidence, intervention is needed in the Lincoln area across a sustained period between 2025-2035. The North Hykeham Relief Road (scheduled for delivery in 2026) will help to support housing and employment growth in the Lincoln area however, the impact of this new road, a potential Lincoln southern bypass, and planned improvements at the A1 will need to be established to make the case for further investment on the Lincoln Northern Bypass. Consideration will also need to be given to safety concerns in the Lincoln area when considering the case for investment.



## Lincoln area

### Recommended Midlands Connect approach

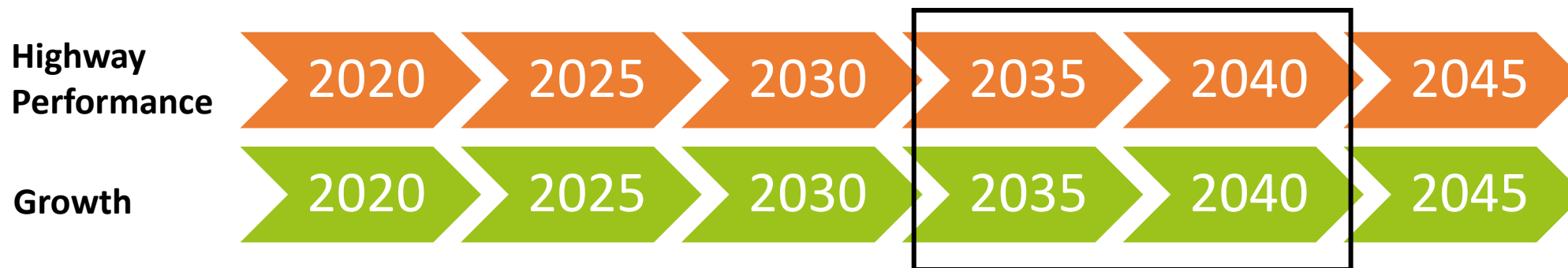
- Maintain support for the North Hykeham Relief Road bid for £148 million submitted to Government as part of Large Local Major Bid. The scheme is scheduled for delivery in 2026 and will help to support delivery of the homes required for the Lincoln SUE.
- Develop the case for improvements to the Lincoln Northern Bypass. This will be dependent on the impact of the Lincoln Eastern bypass (due for delivery in May 2020), North Hykeham Relief Road and Newark upgrade. The changes in vehicle movements around Lincoln and increased flow from/to Newark could influence performance in the section between Newark and the A15. Supporting further growth in Lincoln and strategic connectivity to the ports via an improved A15 will also need to be considered alongside safety concerns and approaches to mitigation.

## A15 corridor

### Timeline for development

The A15 Corridor currently provides a local function given the current standard of the route. Local planning authorities have expressed an appetite to focus further growth in the corridor should transport investment be targeted in the corridor. This could accelerate the need for a higher level of intervention over and above targeted upgrades in the shorter term.

The A15 would form the 'final piece of the jigsaw' should the vision for the A46 corridor be achieved. Given this, it is recommended that significant upgrades to the A15 corridor should be in the 2035-2040 period following upgrades to the south.



## A15 corridor

### Recommended Midlands Connect approach

- Options have been identified for improving the A15 in the short term to enhance local access and facilitate additional growth in the corridor. These options should be developed further with Lincolnshire County Council. Scheme development should consider the role these schemes could play in strengthening the A15 as part of the Midlands Connect Major Road Network (MRN).
- Any further upgrades to deliver a consistent corridor standard with the A46 would need to follow upgrades to the south of A15.



## Chapter 8: Proposed timeline of need

### Introduction

An approach to future investment has been established which provides a rolling development and delivery timetable for the A46 corridor in five-year periods. Operational and delivery risks have been considered throughout the study process however, the information presented is focused on a timeline of need based on a range of key issues and economic drivers for investment which have been considered in developing this approach to investment as referenced in the Sequencing Tool developed for the study. These include:

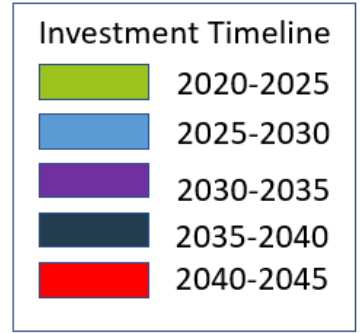
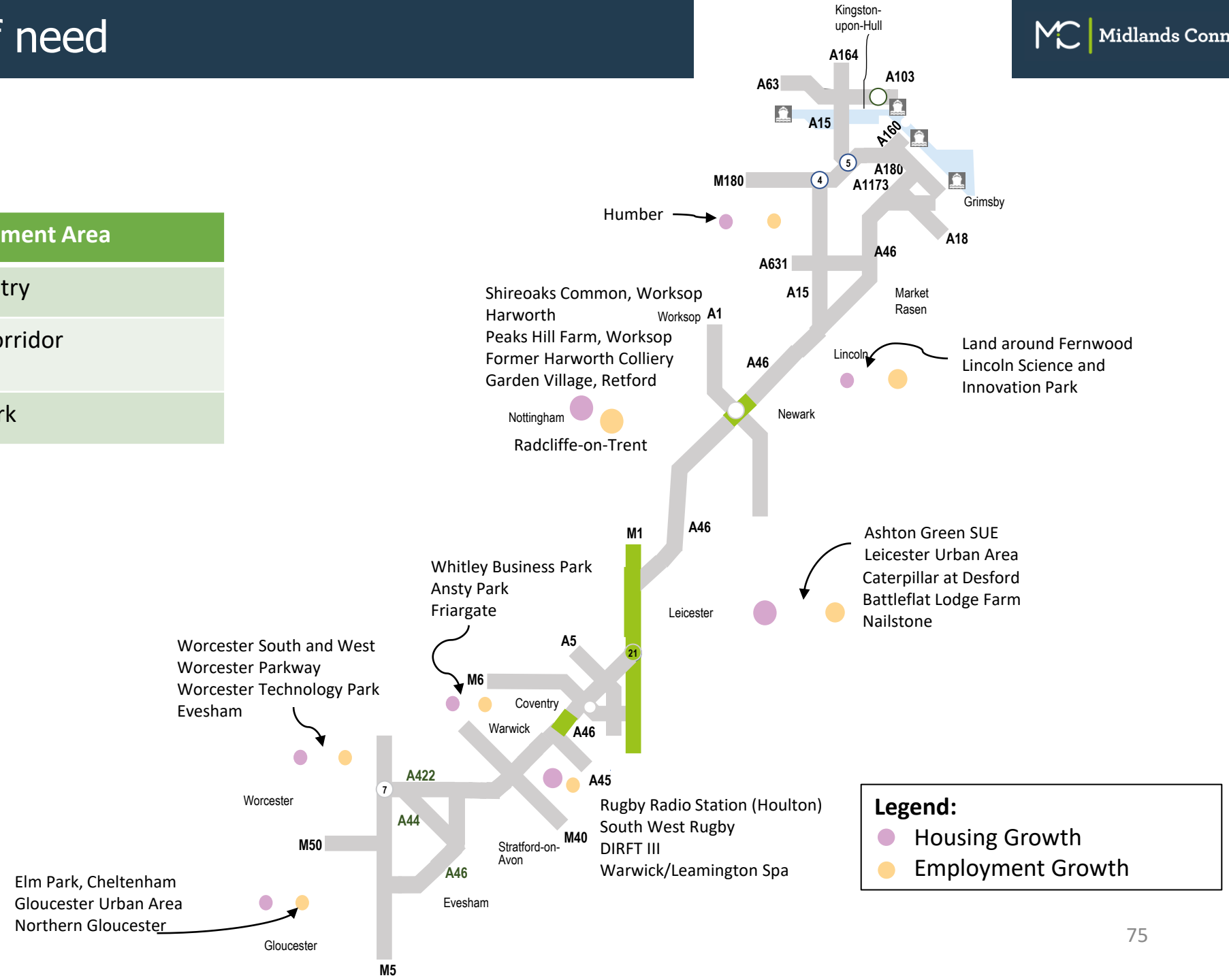
- current and future highway performance utilising both Inrix and Regional Traffic Model data;
- the intensity of housing and employment growth sites over the strategy period utilising evidence presented by the planning authority's in the corridor;
- interdependencies with other schemes in development within the corridor area e.g. Stratford Western Relief Road;
- scheme development work already undertaken by Midlands Connect and Highways England;
- opportunities to access funding e.g. Large Local Majors, Road Investment Strategy, Housing Infrastructure Funds and Developer contributions;
- an appreciation of alternative schemes in the intervention area; and
- interdependencies between schemes elsewhere in the corridor to allow for funding and construction programming e.g. the interaction between schemes at Stratford and Warwick.



# 8. Proposed timeline of need

## 2020 to 2025

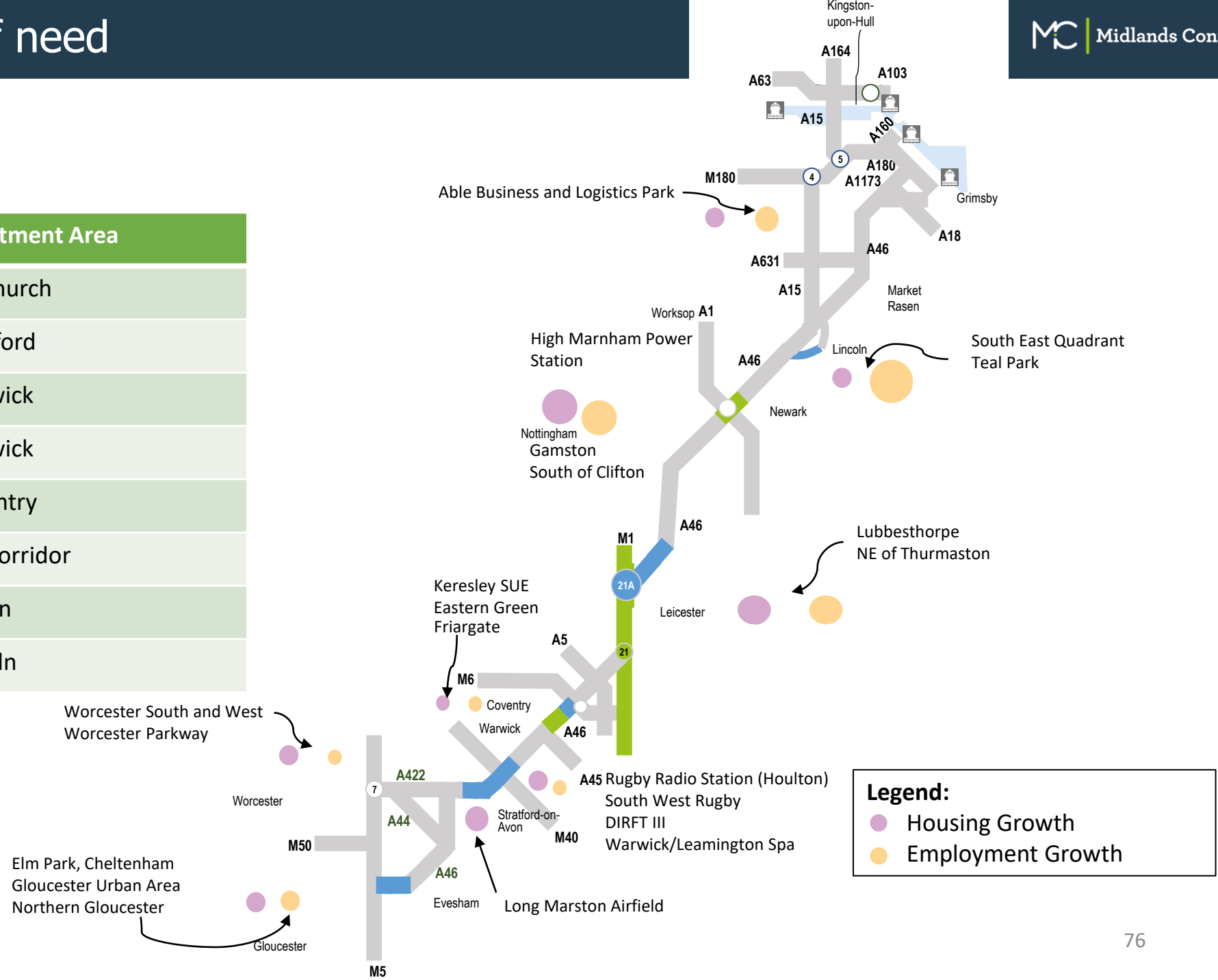
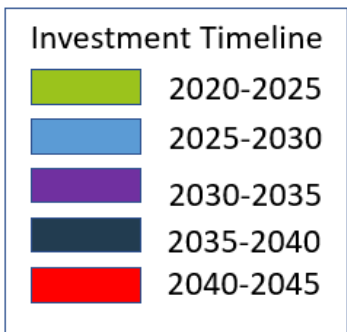
Scheme Description	Investment Area
Coventry Eastern Bypass	Coventry
Smart Motorway M1 J19-23A (including M1 J21)	M1 Corridor
Newark Northern Bypass	Newark



# 8. Proposed timeline of need

## 2025 to 2030

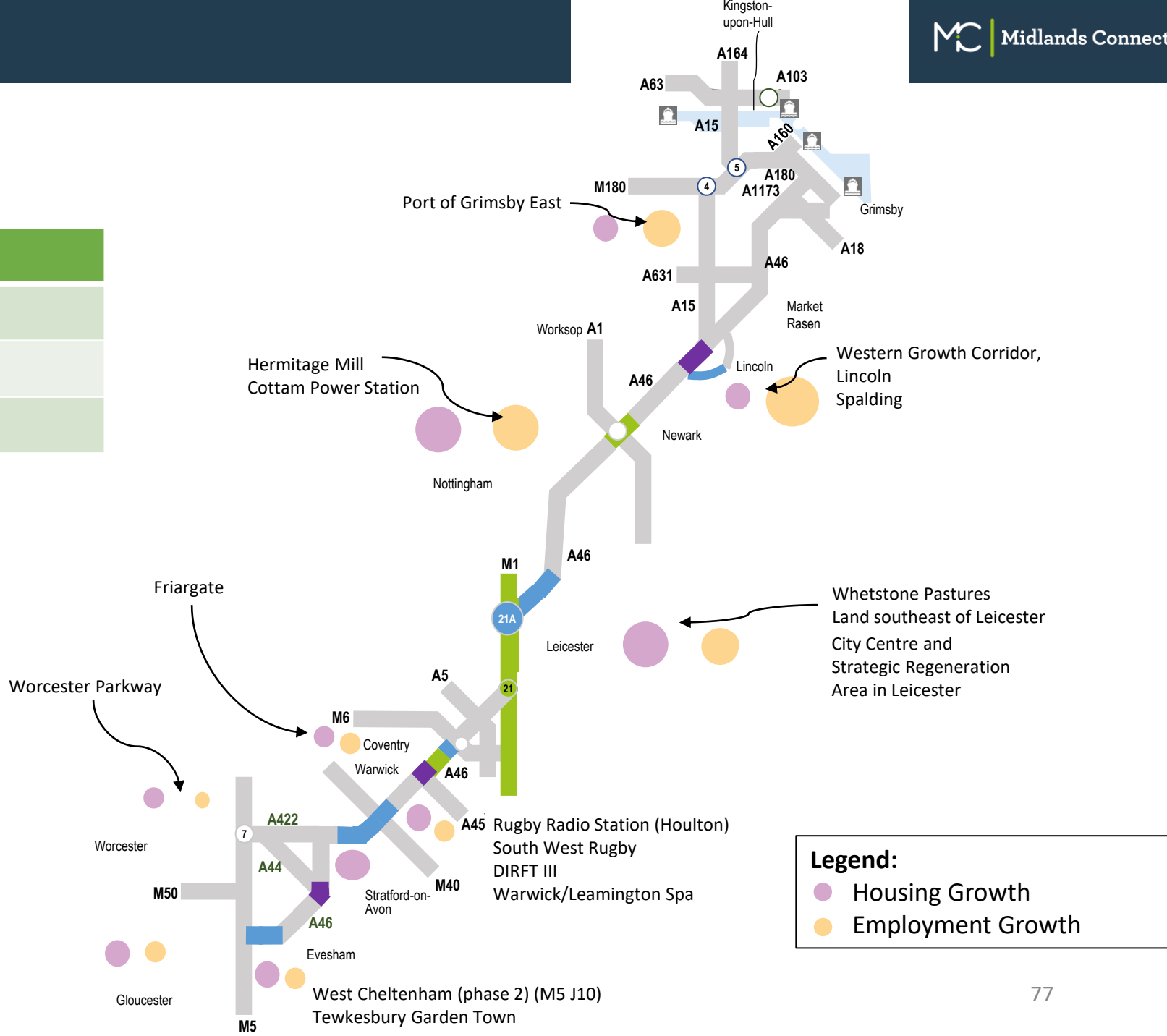
Scheme Description	Investment Area
Ashchurch Bypass	Ashchurch
Stratford Bypass	Stratford
Longbridge Island	Warwick
Warwick Bypass	Warwick
Ansty Interchange	Coventry
Leicester Western Bypass	M1 Corridor
Hobby Horse Interchange	Syston
North Hykeham Relief Road	Lincoln



# 8. Proposed timeline of need

## 2030 to 2035

Scheme Description	Investment Area
Evesham Bypass	Evesham
Stivichall Interchange	Coventry
Lincoln Relief Road	Lincoln



**Investment Timeline**

- 2020-2025
- 2025-2030
- 2030-2035
- 2035-2040
- 2040-2045

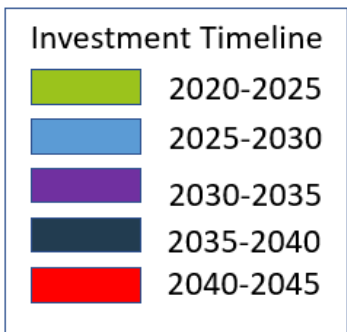
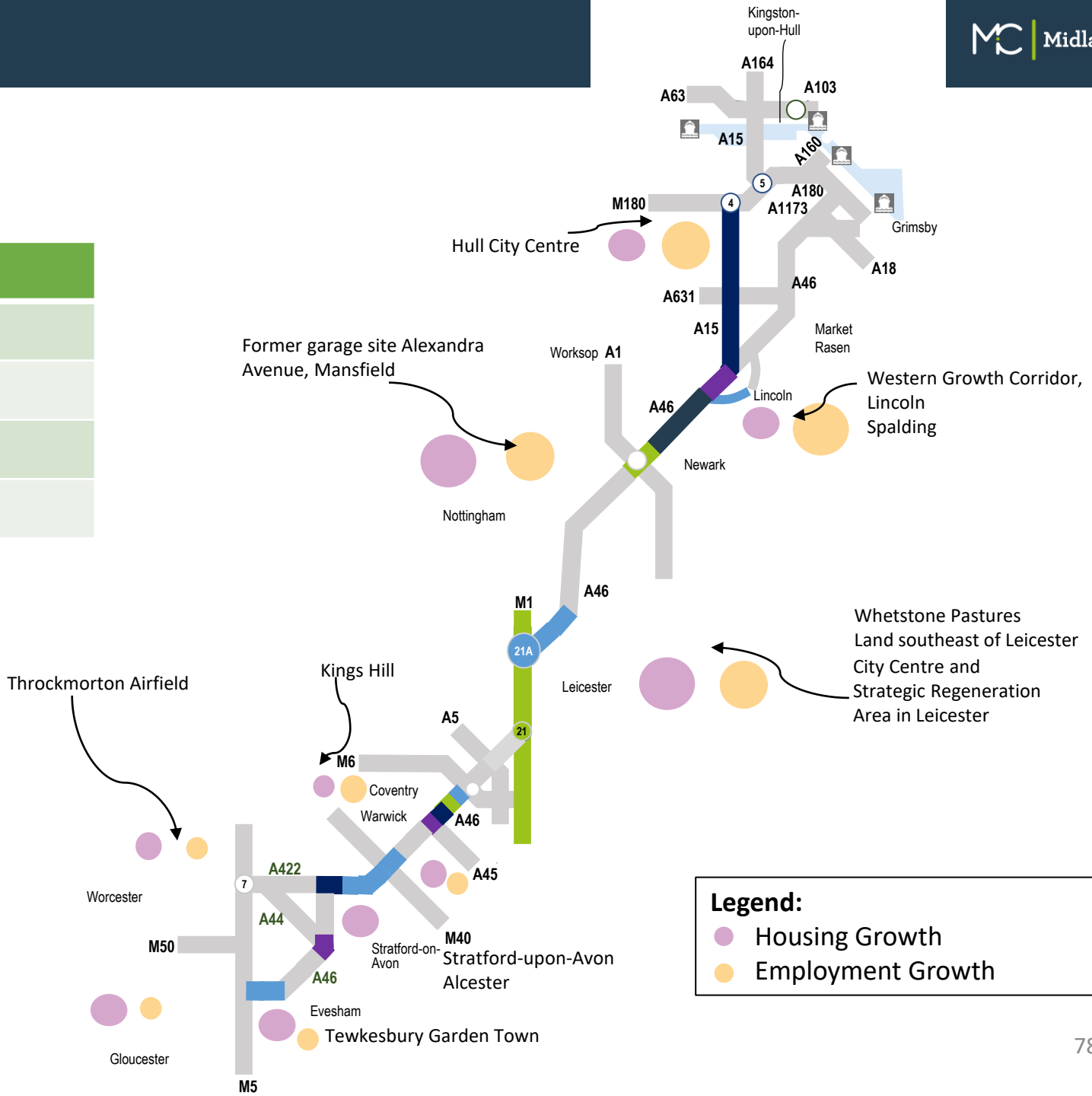
**Legend:**

- Housing Growth
- Employment Growth

# 8. Proposed timeline of need

## 2035 to 2040

Scheme Description	Investment Area
Alcester	Alcester
Stonebridge Highway	Coventry
Newark – Lincoln Upgrades	Lincoln
A15 Corridor Improvements	A15 Corridor





### Benefits of Corridor Investment Programme

The approach established in this report provides a rolling development and delivery timetable for the A46 corridor in five-year periods. The Phase 1 study undertook a corridor wide assessment of an illustrative strategy which included many of the schemes detailed in the rolling programme including Ashchurch bypass, Evesham bypass, Stratford Northern Bypass, M1 J19 –23A (within the Do Minimum) and a Newark – Lincoln Expressway.

The plots on the next page demonstrate the highway performance in the 2031 and 2041 future year scenarios. The combined investment helps to maintain the long term performance of the corridor, enabling growth but maintaining the strategic connectivity needed to improve the wider economic performance of the corridor, the Midlands and the country.

Despite this significant investment programme a series of hotspots remain in the Leicester, Coventry and Warwickshire areas in particular. Newark is also highlighted as a potential pinch point. The scheme at Newark was included in the Do Minimum. The scheme coded in the Do Minimum was not based on the current scheme plans as we do not currently have visibility of those. We do not anticipate that Newark will be a issue again in the timescale of this study once the planned scheme is implemented.

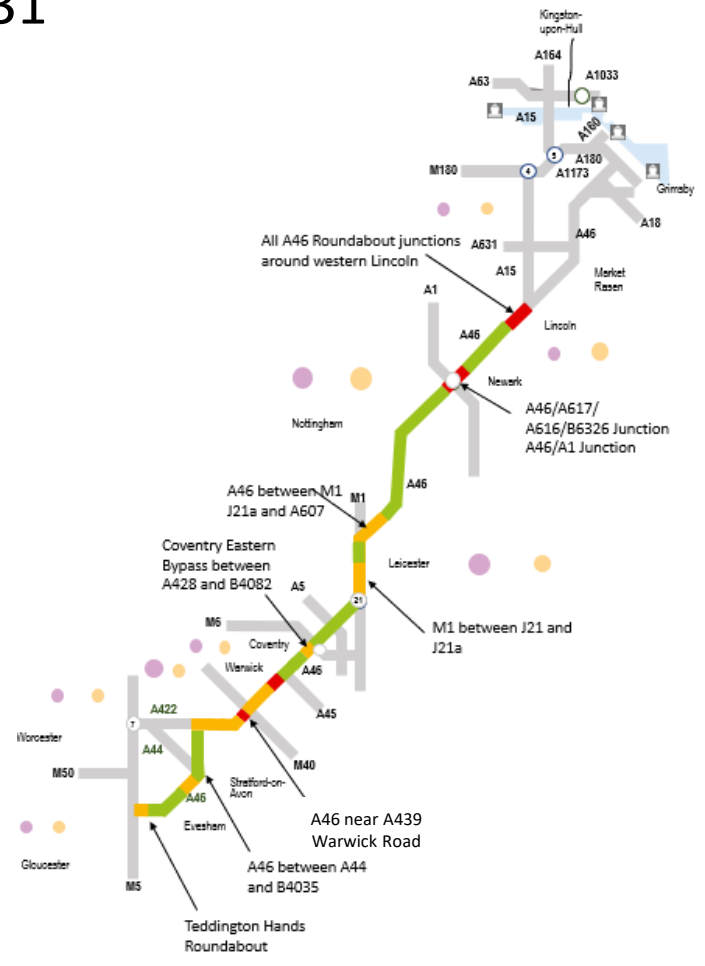
Future work will need to help optimise schemes in these locations and balance growth demands to help deliver long term strategic connectivity.

# 8. Proposed timeline of need

## Phase 1 Illustrative Strategy Highway Performance

2031

2041

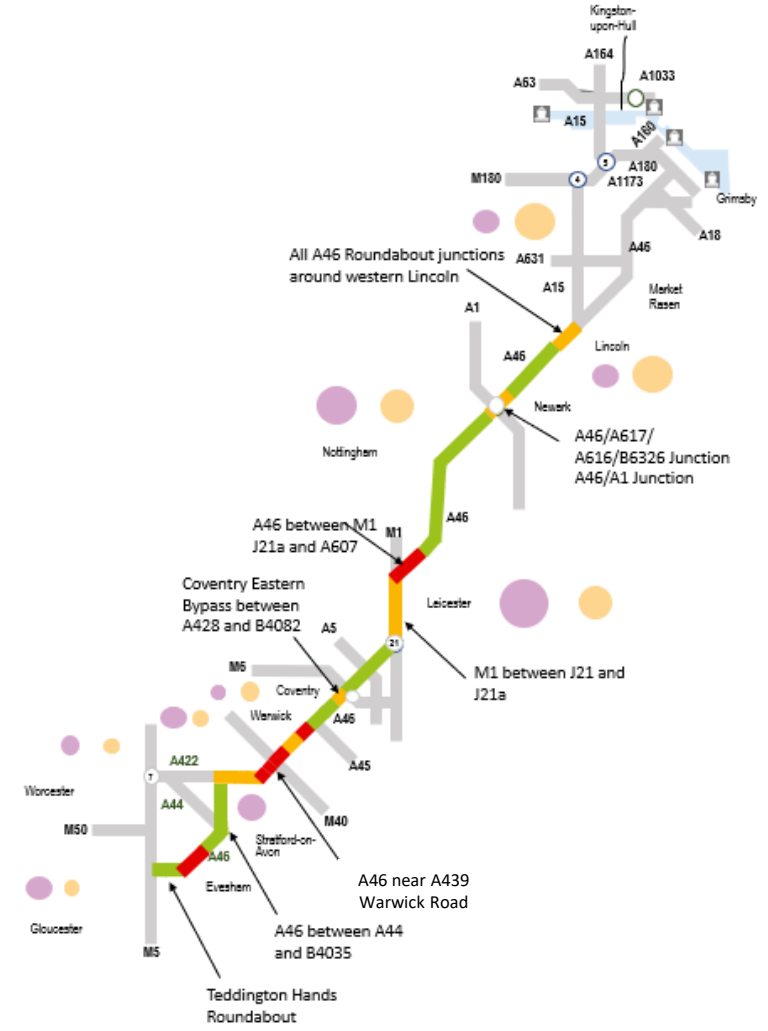


**Legend:**

- Housing Growth
- Employment Growth

**Volume / capacity ratio:**

- 0 – 50%
- 50 – 75%
- 75% +



The following table outlines the programme required if each individual scheme identified is to be designed and delivered for the time our work suggests they may be needed.

Development Area	Delivery Timeframe					
	2020 – 2025	2025 – 2030	2030 – 2035	2035 – 2040	2040 – 2045	
Ashchurch		★ Ashchurch Bypass			★ Beckford Bypass	
Evesham			★ Evesham Bypass		★ Salford Priors	
Stratford		★ Stratford Bypass		★ Alcester		
Warwick		★ Warwick Bypass & Longbridge Island				
Coventry	★ Coventry Eastern Bypass		★ Ansty Interchange	★ Stivichall Interchange	★ Stonebridge Highway	★ Tollbar Interchange
M1 Corridor	★ M1 J19-23A Smart Motorway		★ North Leicestershire Extra Capacity & Leicester Western Access			
Leicester Area			★ Leicester Western Bypass			
Syston Area		★ Hobby Horse Interchange				
Newark		★ Newark Northern Bypass			★ Syston – Newark upgrades	
Lincoln		★ North Hykeham Relief Road		★ Lincoln Relief Road	★ Newark – Lincoln upgrades	
A15					★ A15 Corridor upgrades	

	Scheme development
	Scheme delivery



The table above should not be considered a programme of when schemes may happen. This is currently an unfunded programme and availability of funding will clearly govern when things are achievable.

The purpose of the table is to highlight when our study is suggesting certain interventions may need to come forward to either facilitate growth already planned or where congestion levels have built up sufficiently to warrant more capacity.

The programme is by no means fixed. There are many variables which could alter the suggested sequence; such as new plans for housing growth being identified or existing ones being accelerated. Other things may influence when certain schemes begin development, such as: individual local authorities wishing to bring forward the schemes themselves and seek funding via means such as the Large Local Major Scheme Fund or the Housing Infrastructure Fund. We will also need to be aware of the impacts from COVID-19 and how a 'new normal' of travel choices and patterns might emerge which could impact on the current recommendations. The programme will remain fluid to these kinds of influences.

It is not expected that all schemes identified in this report will come forward using Road Investment Strategy (RIS) funding. There will need to be a cocktail of funding sought from different public and private sector pots and different parties will need to take the lead on developing options. In some cases it maybe Highways England that progresses a scheme, in others it maybe the relevant local highway and planning authorities who bring forward schemes to support their local agendas.

Midlands Connect will examine the viability for specific schemes to be funded in different ways during our Strategy Refresh work.



## Chapter 9: Decarbonising the corridor

### Can we still invest in roads in a climate crisis?

We recognise that in the light of the climate crisis any strategy which might appear to encourage more use of cars, vans and lorries could be difficult to support. We also accept the fact that investing in new road infrastructure typically increases road use.

Midlands Connect are advocates of shifting as many people as possible on to alternate modes of transport and we have plans to do so. Our Midlands Engine Rail plan has the opportunity to provide a massively improved service to millions of people looking to travel across the region.

However, even a scenario where other modes are used much more than they are today, roads will remain vitally important to our economy, our communities and how we accommodate population growth in coming years and decades. We must therefore continue to responsibly plan for our road networks to become more efficient and to facilitate opportunities for growth and prosperity.

Our modelling shows that by investing in the A46 in a similar way to the schemes described in this document there could be an 8% increase total vehicle kilometres travelled in the immediate corridor, which stand-alone will have some impact on carbon emissions. However, our modelling also suggests that there could be around 19% reduction in the time spent queueing in peak periods. This reduction in congestion will reduce carbon emissions through more efficient engine use. Both of these estimates are compared to a forecast of traffic conditions in 2041 without any further investment in the corridor.

What these early modelling results do not take account of is that by 2041 there will be a significant increase in the number of electric vehicles in use in the UK and the corridor. The Department for Transport's current standard forecast is that there could be around 34% of electric vehicles in the fleet by 2041\*. This forecast doesn't include any acceleration of the take up of electric vehicles as a result future government policy. The reduction in emissions generated by the switch to electric more than off-sets any increase in vehicle kilometres generated as a result of investing in the road.

What we set out in this report is a long-term plan for the A46. If it is implemented, it will be done incrementally over at least 15 to 20 years. Therefore any increase in vehicle use as a direct result of the new infrastructure will also be incremental. Any emissions increase therefore will be dwarfed by the gradual switch to electric vehicles over the same period.

We will be undertaking detailed impact analysis of carbon emissions as part of the next steps of our Strategy Refresh

### Other aspects to our planning for decarbonisation

Although this report only presents our work on the road infrastructure we are also looking at how other modes could be improved in the same corridor:

- Sections of the corridor mirror some of our Midlands Engine Rail plan. Our planning is looking to introduce new direct services between Coventry and Leicester, potentially cutting the current journey time from over an hour to around 30 minutes. We are also looking at ways to double the frequency and run services much faster than today between Nottingham and Lincoln.
- There will be opportunities for towns along the A46 to reallocate road space to more sustainable modes where potential bypasses are being considered as options. By shifting vehicles to more strategic routes it could allow more space to be dedicated to walking/cycling and public transport in the towns themselves. Although planning for these opportunities will be done by local authorities, Midlands Connect will work with them in the future to understand how investment in the strategic roads can benefit people and places more widely.
- Midlands Connect are beginning to investigate the potential for express, pan-regional bus/coach services in locations where there are no rail connections, and none are feasible. Such services could form a backbone of corridor-level public transport provision serving some of the larger towns and cities e.g. Stratford-upon-Avon to Coventry.

### Other aspects to our planning for decarbonisation

In addition to areas of work specific to the A46 corridor we are also investigating a number of other areas which will hopefully contribute to an acceleration of the reduction in carbon emissions from transport. Two of these include:

- We are working with our local authority partners to understand how collectively the region can accelerate the provision of electric vehicle charging infrastructure. By looking at aspects such as collective procurement, standardising hardware and payment mechanisms, electricity supply constraints and locating chargers where they are most needed, we hope that the region-wide network is such that people are attracted to taking up electric vehicles at an accelerated rate.
- We are also looking at some of the current constraints for the freight and logistics industry to switch to alternative fuels. We're hopeful that our research can help to kick-start the industry to come together to make a plan. In particular we are identifying where on our road network refuelling infrastructure would be best placed in order to be of most value to the freight and logistics industry.

As we move towards our refreshed Strategy, we will bring these and other strands of our work together into a transport decarbonisation pathway for the region.



**Midlands Connect**  
Transport | Investment | Growth

## Appendix



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A46 Phase 2 Task 1 Appendix A

Description of potential options by section

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
<b>Ashchurch Area</b>														
1	M5	<b>M5 Junction 9</b>	A46 signalised roundabout.									Highways England RIS2 Stage 0 Report identifies a range of options including: online improvements with upgrades to J9; a new single carriageway link road to the south of Ashchurch between Teddington Hands to a new junction on the M5 south of the existing J9 (Options 1 and 2); and a new link road to J10 (Option 3). Unclear if all options are still on the table to take to PCF1. GCC have also presented a range of options within a pre-SOBC submission for Large Local Major (LLM) Funding. The options include a new or extended M5 J9 and a bypass that links the motorway junction to Teddington Hands roundabout. Work on an OBC is progressing on a £250m+ scheme with delivery commencing in 2024/25.  An expressway between Ashchurch and Evesham was included within the Phase 1 Illustrative Package, including a new junction south of M5 J9.	2025 – 2030	Work with HE and GCC to identify preferred option which provides a long-term solution, a high standard route and junction options which reflect the location of proposed growth sites (i.e. 10,000 new homes and 120ha of employment land nr M5 J9 as part of successful Ashchurch Garden Town bid). The development is currently scheduled in four phases from 2031.  Lobby for GCC's LLM bid including the dualling of the proposed single-carriageway link road to a new motorway junction.
	A46	<b>Ashchurch</b>	Single carriageway with local accesses											
		<b>TEDDINGTON HANDS (A435/B4077)</b>	At-grade roundabout									HE options do not include improvements to Teddington Hands. GCC options include a Grade Separated Junction and a bypass of the roundabout with slips accessing the A46 and A435.  An expressway between Ashchurch and Evesham was included within the Phase 1 Illustrative Package.	2025 – 2030	Examine the potential for jobs and housing growth, and improvements elsewhere in the corridor to increase traffic at this junction and make the case for investment.
<b>Ashchurch - Evesham</b>														
2	A46	Beckford	Single carriageway with local accesses									Highways England has concluded that there is no case for improvements in the Beckford area at this time. An expressway between Ashchurch and Evesham was included within the Phase 1 Illustrative Package.	2040 – 2045	In the long term consider the case for dualling this section to provide a consistent standard across the whole of the A46 in the area. Programme could be brought forward depending on delivery of other improvements elsewhere in the corridor.
<b>Evesham Area</b>														
3		<b>SOUTHERN END OF EVESHAM BYPASS (A4184)</b>	At-grade roundabout									Proposed Eastern Bypass would mitigate need to improve this junction as it would no longer carry through-traffic.	2040 – 2045	Growth aspirations to be monitored. Should the Evesham bypass go ahead, longer term growth may influence the need for further option development at this junction.
	A46	Evesham / Evesham bypass	Wide single carriageway									WSP believes there is a 'fairly strong' business case for a new eastern (outer) bypass of Evesham. The option	2030 – 2035	It is recommended that this scheme and Ashchurch are delivered by 2035 to

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
			with at-grade roundabouts									tested has new junctions to north and south of Evesham, but with no intermediate junctions. Worcestershire have applied for HE's Growth and Housing Fund for roundabout upgrades on the existing alignment.		improve the performance and reliability of the southern section of the A46, however delivery should be sequenced based on an appreciation of the levels of planned growth at Ashchurch and Evesham and the funding available.
		<b>NORTHERN END OF EVESHAM BYPASS (A4184 (A44))</b>	At-grade roundabout									This junction would be re-built as part of the proposed eastern bypass.	2030 – 2035	<p>Midlands Connect should undertake further work to understand the interaction between the two areas of interest to better understand their mutual impact and influence.</p> <p>Work could also be undertaken to examine the case for additional junctions on the eastern bypass where it crosses the A44 (Broadway Road) and potentially also the B4510 and B4035.</p> <p>Plans to deliver 1,200 jobs at Vale Park at Evesham by 2030. Permission required from HE to deliver expansion plans. Midlands Connect to support Worcestershire and District Councils in plans for growth</p>
<b>Alcester Area</b>														
4	A46	Salford Priors	Dual (2-lane) carriageway with a single at-grade roundabout at Salford Priors (B439)									This section has not been examined by HE or MC/WSP. Upgrades to the roundabout was included within the Phase 1 Illustrative Package.	2040 – 2045	Examine the potential for jobs and housing growth, and improvements elsewhere in the corridor to increase traffic at this junction and make the case for investment (e.g. beyond 2031). May need to be reviewed following progress with Ashchurch and Evesham.
		<b>ALCESTER (A435)</b>	At-grade roundabout									This section has not been examined by HE or MC/WSP. An expressway between Alcester and Warwick was included within the Phase 1 Illustrative Package.	2035 - 2040	Examine whether this roundabout has sufficient capacity for future demand; and if not, consider alternatives. May need to be reviewed following progress with Ashchurch and Evesham. Post 2040 plans for additional housing at Alcester (c. 2000 homes) should also be considered.
<b>Stratford Area</b>														
5	A46	Alcester Road	Single carriageway with local accesses									New roundabout proposed close to Wildmoor Roundabout as part of development (not included in WSP modelling). Highways England <u>may</u> be examining this section (but unclear).	2025 - 2035	Scheme could be needed to deliver wider regional connectivity sooner. Should be reviewed following progress with Ashchurch, Evesham and Stratford bypass.

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
												An expressway between Alcester and Warwick was included within the Phase 1 Illustrative Package.		
		<b>WILDMOOR ROUNDABOUT (A422)</b>	At-grade roundabout									New arm proposed linking into a proposed Stratford Western Relief Road (but no improvements to roundabout related to this). HE PCFO study in 2018 identified at-grade and grade-separated options for improvement but considered them to be poor value for money. The WSP preferred option is to grade-separate Wildmoor Roundabout.	2025 -2035	Examine relationship between improvements at Wildmoor and Bishopton Roundabouts (due to their proximity). Examine opportunities for significant at-grade roundabout improvements to provide short-term benefits.  Consider the additional development planned in the area including 10-12k houses at Long Marston Airfield and the dependencies with plans for the Stratford Western Relief Road (SWRR).
6	A46	Stratford bypass	Single carriageway all-purpose road with local accesses and at-grade roundabouts at Bishopton (A3400) and Marraway (A439)									HE PCFO study in 2018 identified at-grade and grade-separated options for improvements to Bishopton and Marraway Roundabouts but considered them to be poor value for money. The WSP preferred option is online dualling of this section including grade-separating Bishopton Roundabout (A3400) and Marraway Roundabout (A439). Due to the proximity with Wildmoor Roundabout, all three junctions would need to be considered in tandem.	2025-2035	Develop case for full Wildmoor-M40 WSP concept based on expected growth potential around Stratford and wider corridor. Based on the outputs from the MCHM Alternative Growth Scenario this section experiences a reduction in highway performance by 2031 given the focus of development in the corridor.  The interaction and deliverability of improvement schemes at both Warwick and Stratford would also need to be considered. Currently the evidence suggests Warwick should be sequenced first.
<b>Warwick Area</b>														
7		<b>'10P ROUNDABOUT' ADJACENT TO LONGBRIDGE ISLAND (M40 JUNCTION 15 / A429)</b>	Signalised at-grade roundabout with link to M40. Free-flow movement over M40									The WSP preferred solution is for grade-separation of the '10p roundabout' with freeflow link A46 eastbound to M40 northbound, and new link roads and roundabout to Longbridge Island.	2025-2030	It is recommended that improvements in the Warwick and Stratford areas are delivered by 2035 to improve the performance and reliability of this section, however delivery should be sequenced based on an appreciation of the levels of planned growth at Warwick and Stratford and any interaction with improvements in the Coventry area.
8	A46	Warwick bypass	Dual carriageway with grade-separated									The WSP preferred option includes a lane gain southbound from Warwick Parkway junction (Birmingham Road), providing 3 lanes; lanes 2 and	2025-2030	Examine benefits of additional widening of the A46 from 2 to 3 lanes between the M40 and Leek Wootton (A429) to provide 3 lanes from M40 to Stivichall.

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
			junctions and local accesses. D2 M40-Leek Wootton (A429), D3 Leek Wootton-Stivichall									3signposted ahead to A46 and lanes 1 and 2 signposted to M40 approaching Longbridge Island.		The interaction and deliverability of improvement schemes at both Warwick and Stratford would also need to be considered. Currently the evidence suggests Warwick should be sequenced first.
<b>Coventry Area</b>														
		<b>STIVICHALL INTERCHANGE (A45 / A444)</b>	At-grade junction for A46-A45 movement (signalised eastbound, free-flow westbound)									Flyover providing a free flow link between the A46 and A45 was included within the Phase 1 Illustrative Package.	2030-2035	Consider the additional development planned in the area including 4k houses at Kings Hill and jobs growth at Whitley on the A444. The impact of the A46 Link Road scheme on the junction also needs to be established. Demand generated or mitigated from other proposed improvements in the corridor will therefore influence the case for accelerated development work and the timescale for improvements.
9	A45	Stonebridge Highway	Dual carriageway (2-lane) with grade-separated junctions. Speed restriction									This section has not been examined by HE or MC/WSP.	2035 – 2040	Performance of link to be monitored and impact of schemes in adjacent areas and growth to be reviewed as schemes are developed.
		<b>TOLLBAR INTERCHANGE (A46)</b>	Grade-separated junction									This section has not been examined by HE or MC/WSP.	2040 – 2045	Performance of junction to be monitored and impact of schemes in adjacent areas and growth to be reviewed as schemes are developed.
10	A46	Coventry Eastern Bypass	Dual carriageway (2-lane) with at-grade signalised roundabouts at Binley (A428) and Walsgrave (B4082)									Highways England commenced delivery of Coventry Eastern Bypass Package (Binley Grade Separated Junction and Walsgrave preferred option to be confirmed) in Spring 2020 with delivery scheduled for Spring 2022 during RIS2.	2020 – 2025	Support Highways England in the delivery of Coventry Eastern Bypass Package in RIS2.  Examine impacts of long term and alternative growth scenarios on the Warwick-M6 section in general including jobs expansion at Whitley and Ansty Park.
		<b>ANSTY INTERCHANGE (M6 JUNCTION)</b>	Signalised roundabout for movements to/from M6.									On-line widening to Dual 3 on approach to M6 J2 was included within Illustrative Strategy for Enhanced Strategic Case. Further improvements to M6 J2 were	2025 -2030	Case for improvement will be dependent on impact of Coventry Eastern Bypass Package. Improved traffic flow at Binley (A428) and Walsgrave (B4082) could

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
		<b>2 / M69 / A4600 / B4065)</b>	Free-flow movements to/from M69									assumed to take place as part of wider M6 improvement works).		influence junction performance at M6 interchange. Additional growth at Ansty Park will also need to be considered.
<b>M69 Corridor</b>														
11	M69		3-lane motorway with grade-separated junction (J1 Hinckley south)									This section has not been examined by HE or MC/WSP.	2030 – 2035	To be reviewed to understand interactions with growth sites on the A5 including growth at Magna Park and Hinckley and a potential SRFI site south of Narborough.
		<b>M69 JUNCTION 2 (Hinckley East)</b>	Grade-separated junction.									This junction has not been examined by HE or MC/WSP. South facing slips may be added to the junction as part of the potential SRFI site south of Narborough.	2030 - 2035	To be reviewed to understand interactions potential SRFI site south of Narborough.
12	M69		3-lane motorway									This section has not been examined by HE or MC/WSP.	2040 – 2045	Consider interaction with SE bypass options including M69/M1 link – detailed below.
<b>M1 Corridor</b>														
		<b>M1 JUNCTION 21 (Leicester)</b>	Signalised roundabout for all movements except M69 eb to M1 nb.									Both WSP preferred options (Options 10 and 11) include upgrade to M1 J21 (free flow links from M69 northbound to M1 northbound and M1 southbound to M69 southbound).	2020 – 2025	Scheme to be progressed as a priority. Growth also set to intensify close to junction with over 16,000 homes to be delivered at Lubbethorpe over the next 20 years.
13	M1	M1 J21 (Leicester) – M1 J21A (A46)	4-lane motorway (includes Leicester Forest East Services)									Smart Motorway Improvements were scheduled for M1 J19 – 23A during RIS2 and assumed within the Do Minimum within Phase 2 analysis. RIS 2 announcement placed Leicester Western Access and M1 North Leicestershire Extra capacity (focused on M1 J21 -23A) in RIS3 pipeline.	2020 – 2025	Continued support and lobbying for schemes to be developed during RIS 2 for delivery in RIS3 under the Leicester Western Access and M1 North Leicestershire Extra capacity initiatives.
		<b>M1 JUNCTION 21A</b>	Free-flow merge/diverge. South-facing slips only.									Smart Motorway Improvements scheduled for M1 J19 – 23A during RIS2 and assumed within the Do Minimum within Phase 2 analysis. RIS 2 announcement placed Leicester Western Access and M1 North Leicestershire Extra capacity (focused on M1 J21 -23A) in RIS3 pipeline.	2020 – 2025	
<b>Leicester Area – current alignment</b>														
14	A46	Leicester Western Bypass	Dual carriageway (2-lane) with grade-separated junctions.									WSP preferred option (1/2) (Option 10) includes online improvements to this section (an additional lane in each direction).	2025 - 2030	Develop plans for sequenced investment on Leicester Western bypass by 2025 – 2030 to strengthen the performance of the A46 corridor at Leicester. Scheme development will need to appreciate the interaction with M1 Smart Motorway improvements and Hobby Horse interchange.



Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
														Growth is focused on the Leicester Western Bypass in the short term including the completion of 3,000 homes at Ashton Green SUE by 2025. Longer term capacity for growth to the north of Leicester becomes a challenge.
		<b>HOBBY HORSE ROUNDABOUT (A607)</b>	At-grade signalised roundabout for all movements except A46 eb to A46 northbound.									Highways England undertook a PCF0 SOBC study which reported in October 2018. Option 1 (grade-separated junction) generated the biggest benefits. This option was used in the WSP work for one of two preferred options (Option 10).	2025 - 2030	Consider tactics for making the case for both the Hobby Horse interchange (to resolve shorter-term issues) and longer-term infrastructure needed to support growth in the Leicester and Leicestershire area. Growth is focused to the north of Leicester in the short term including the completion of 3,000 homes at Ashton Green SUE by 2025. The interaction with the SE bypass proposal and the impact of potential growth sites to the south and east of Leicester will influence long term design requirements for Hobby Horse.
<b>Leicester Area – south eastern bypass proposal</b>														
		<b>M69 JUNCTION 2 (Hinckley East) (as above)</b>	Grade-separated junction.									South facing slips may be added to the junction as part of the potential SRFI site south of Narborough.  Freeflow slips from M69 northbound to M69 to M1 link road eastbound, and M69 to M1 link road westbound to M69 southbound were included within Option 11 of Phase 2 tasks, alongside a connection from the link road to the existing M69 J2.	2030 - 2035	To be reviewed to understand interactions potential SRFI site south of Narborough, and impacts on local roads.
A	N/A	<i>M69 to M1 link (proposed)</i>	Dual carriageway / expressway standard									WSP preferred option (2/2) (Option 11) includes this link.	2030 -2035	Planning authorities to determine the exact requirements for infrastructure to support the Strategic Growth Plan. Technical work has recommended the minimum road infrastructure is built to facilitate the growth sites to the south and east of Leicester. Planned development at Whetstone Pastures (3,500 houses minimum and 4,000 jobs) linked to M1 access and/or new M69/M1 Link.
		<b>M1 JUNCTION 21A (as above)</b>	Proposed new grade-separated junction (potentially free-flow all movements)									Smart Motorway Improvements scheduled for M1 J19 – 23A during RIS2 and assumed within the Do Minimum within Phase 2 analysis. RIS 2 announcement placed Leicester Western Access and M1 North Leicestershire Extra capacity (focused on M1 J21 -23A) in RIS3 pipeline.	2030-2035	Continued support and lobbying for schemes to be developed during RIS 2 for delivery in RIS3 under the Leicester Western Access and M1 North Leicestershire Extra capacity initiatives.

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
B	N/A	<i>Leicester Southern / Eastern Bypass (proposed)</i>	Dual carriageway / expressway standard. Junctions with key arterial routes to/from Leicester.									WSP preferred option (2/2) (Option 11) includes expressway standard Leicester Southern / Eastern Bypass with junctions at M69 J2, M1 J20a, A5199, A6, A47, A607 and A46 North of Ratcliffe-on-the Wreake.	2035 - 2045	New spur roads to the north and south of the Leicester area were assessed as well as a complete bypass to the south east of Leicester. Whilst these options allowed traffic from strategic growth sites to enter the wider network, they provided a limited strategic function for longer range journeys. In fact, the assessment of the full bypass demonstrated that trips passing Leicester, experienced a journey up to 36% longer than the A46 and hence this does not provide a long-term strategic alternative to upgrading the A46 corridor.
		<b>HOBBY HORSE ROUNDABOUT (A607) (as above)</b>	At-grade signalised roundabout for all movements except A46 eastbound to A46 northbound.									Highways England undertook a PCF0 SOBC study which reported in October 2018. Option 1 (grade-separated junction) generated the biggest benefits. This option was used in the WSP work for one of two preferred options (Option 10).  Initial work undertaken as part Phase 1 A46 corridor study to understand potential tie in of SE Bypass to the north of Hobby Horse.	2035 - 2045	Consider tactics for making the case for both the Hobby Horse interchange (to resolve shorter-term issues) and longer-term infrastructure needed to support growth in the Leicester and Leicestershire area.  Growth is focused to the north of Leicester in the short term including the completion of 3,000 homes at Ashton Green SUE by 2025. The interaction with the SE bypass proposal and the impact of potential growth sites to the south and east of Leicester will influence long term design requirements for Hobby Horse.
<b>Syston - Newark</b>														
15	A46		Dual carriageway (2-lane) with grade-separated junctions (and some local accesses between (Leicester-Widmerpool).									Upgrade delivered in 2012, no further enhancements considered.	2040 - 2045	Performance of link to be monitored. Any long-term upgrade would be dependent on the impact of delivered schemes to the north and south of this section.
		<b>SAXONDALE ROUNDABOUT (A52)</b>	Grade-separated junction.									This junction has not been examined by HE or MC/WSP.	2040 - 2045	Performance of interchange to be monitored. Any long-term upgrade would be dependent on the impact of delivered schemes to the north and south of this section and developments to the east of Nottingham on the A52.

Section no.	Road	Key junctions / locations	Current standard	Highway Performance			Housing & Employment Growth Intensity					Options considered and status	Deadline for scheme delivery	Midlands Connect approach
				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045			
<b>Newark Area</b>														
16	A46	Saxondale (A46/A52) – Newark (A46/A1)	Dual carriageway (2-lane) with grade-separated junctions.									New at-grade roundabout to be built south of Farndon Road by March 2020 as part of Phase III of the Newark Southern Link Road. Could be replaced by a grade-separated junction at Hawton Lane depending on HE scheme.	2020 – 2025	Over 3,000 homes to be delivered in the Newark area by 2031. Investment in A46 to complement delivery of Southern Link Road.
		<b>FARNDON ROAD ROUNDABOUT (B6166)</b>	At-grade roundabout.									Currently being examined by HE as a RIS2 scheme. All current options (A-C) assume grade-separation.	2020 – 2025	Support HE in identifying best option to support MC objectives; and in making rapid progress through RIS process for delivery commencing by the end of RIS2.
17	A46	Newark Northern Bypass	Single carriageway all-purpose road with at-grade roundabouts									Currently being examined by HE as a RIS2 scheme. Options include dualling of bypass; and improvements to the Cattle Market Roundabout (A616) – at-grade or grade-separated.	2020 – 2025	Support HE in identifying best option to support MC objectives; and in making rapid progress through RIS process for delivery commencing by the end of RIS2.
		<b>WINTHORPE INTERCHANGE (A1 / A17 / B6166)</b>	‘Dumbbell’ junction with roundabout with at-grade signalised roundabouts either side of the A1 (Brownhills Roundabout to west, Friendly Farmer Roundabout to east)									Currently being examined by HE as a RIS2 scheme. Options include new free-flow link over A1 with new A1/A46 junction to north of Brownhills Roundabout. 2014 Option 4a was for replacement of the two roundabouts with a single gyratory layout.	2020 – 2025	Support HE in identifying best option to support MC objectives; and in making rapid progress through RIS process for delivery before 2025.  Ensure co-ordination with the outputs from A1 study to ensure consistent approach to investment requirements.
<b>Newark - Lincoln</b>														
18	A46		Dual carriageway (2-lane) with mix of grade-separated and at-grade roundabouts and local accesses.									Swinderby – Lincoln SOBC developed by Highways England in 2014.	2035 - 2040	Case for improvement will be dependent on impact of North Hykeham Relief Road and Newark upgrade. Improved traffic flow from Lincoln and Newark could influence junction performance in this section. Growth in Lincoln and Newark will also need to be considered.
<b>Lincoln Area</b>														
		<b>HYKEHAM ROUNDABOUT (A4134)</b>	At-grade roundabout									Upgrade to roundabout assumed as part of North Hykeham Relief Road proposal.	2025 - 2030	North Hykeham Relief Road bid for £148m submitted to Government as part of Large Local Major Bid from Midlands Connect. Scheme scheduled for delivery in 2026.



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				2015	2031	2041	2020-2025	2025-2030	2030-2035	2035-2040	2040-2045				
															Circa 2000 homes due to be delivered at the South West Quadrant site by 2030.
19	A46	Lincoln Relief Road	Single carriageway all-purpose road with at-grade junctions (including A57 Carholme Roundabout) and local accesses.									On-line dualling and Grade Separated Junctions assumed between Hykeham roundabout (A46/A1434) and A15 for Illustrative Strategy.  Swinderby – Lincoln SOBC developed by Highways England in 2014. In this section the SOBC identified that further work was needed to make improvements to A46/Carholme junction (signalisation/ enlarging), A46/Skellingthorpe junction (signalisation/ enlarging) and the upgrading of single standard sections of the Lincoln bypass to dual standard	2030 – 2035	This scheme would follow the Hykeham Northern Relief Road. Midlands Connect need to better understand the impact of the relief road on the A46 and the strategic link to ports.  Further expansion of the Lincoln SUE will drive the case for further investment at Lincoln.  Road safety issues will also need to be considered as part of the case for future investment.	
		<b>RISELHOLME ROUNDABOUT (A15 / B1266)</b>	At-grade roundabout												
<b>A15 Corridor</b>															
20	A15	Lincoln north (A46/A15) – M180 J4	Single carriageway all-purpose road with at-grade junctions and local accesses.									WSP has identified two options for further consideration: Option 5 (D2AP with regular roundabout and local left in/out junctions) and Option 6 (D2AP offline with single junction between A46 and M180).	2035 – 2040	Options identified for improving the A15 in the short term to enhance local access and facilitate additional growth in the corridor. Any further upgrades to deliver a consistent corridor standard with the A46 would need to follow upgrades to the south of A15.	
		<b>M180 JUNCTION 4</b>	Grade-separated junction (A15 accesses at-grade)												