



Midlands Connect's Rail Portfolio

13th March 2019

Midlands Connect

Researching, developing and recommending major transport projects from the Welsh Border to the Lincolnshire coast



Unlocking Economic Growth

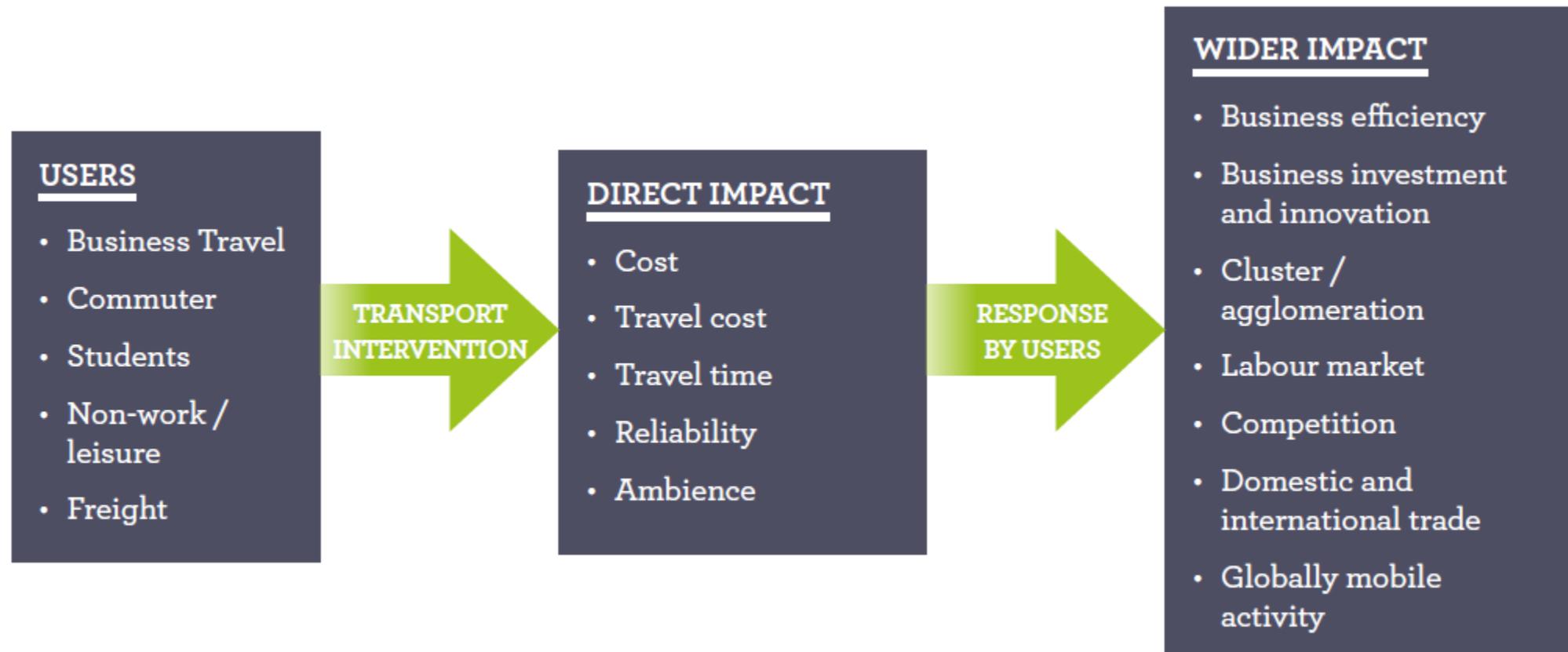


Figure 2-4 How Transport Unlocks Growth

Our Conditional Outputs



Rail Services

“Direct and fast links between our key centres, national and international destinations”

Key centres served by direct service. Journeys with end to end **speeds of 70mph** where possible



Rail Capacity

“We carry all the freight and people that we want to”

Off peak

Everyone gets a seat

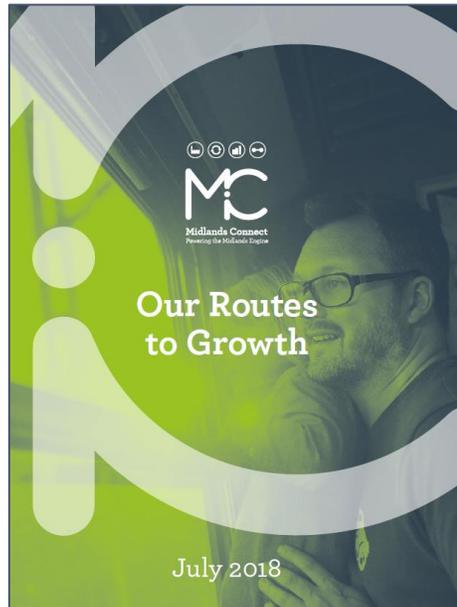
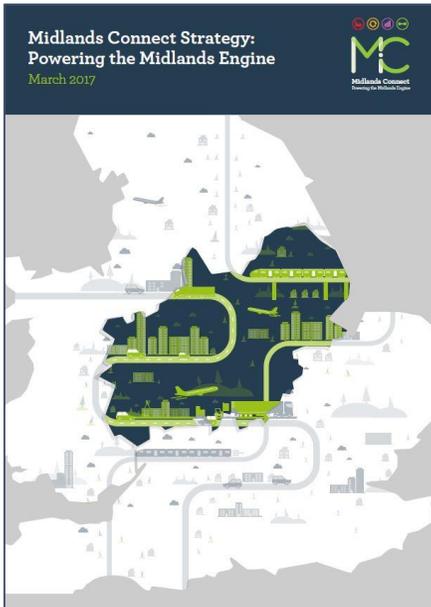
Peak

No more than 20 minutes standing

Freight

Sufficient rail freight capacity

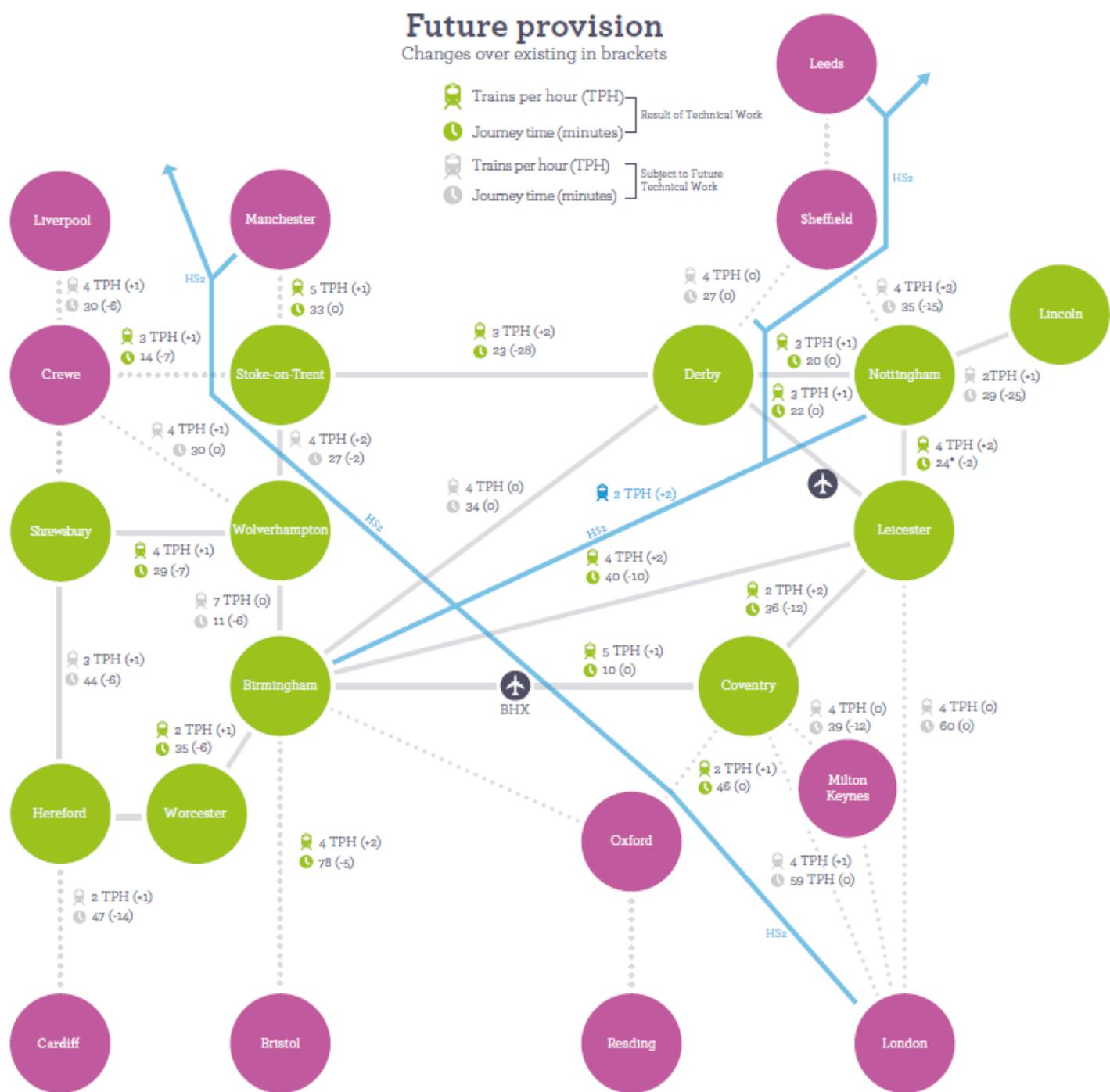
Our Strategy



Future provision

Changes over existing in brackets

- Trains per hour (TPH) } Result of Technical Work
- Journey time (minutes) } Result of Technical Work
- Trains per hour (TPH) } Subject to Future Technical Work
- Journey time (minutes) } Subject to Future Technical Work



Today's Presentation



Midlands Rail
Hub

Thames Valley
/ Airport /
Midlands

Coventry to
Leicester and
Nottingham

Leicester to
Leeds

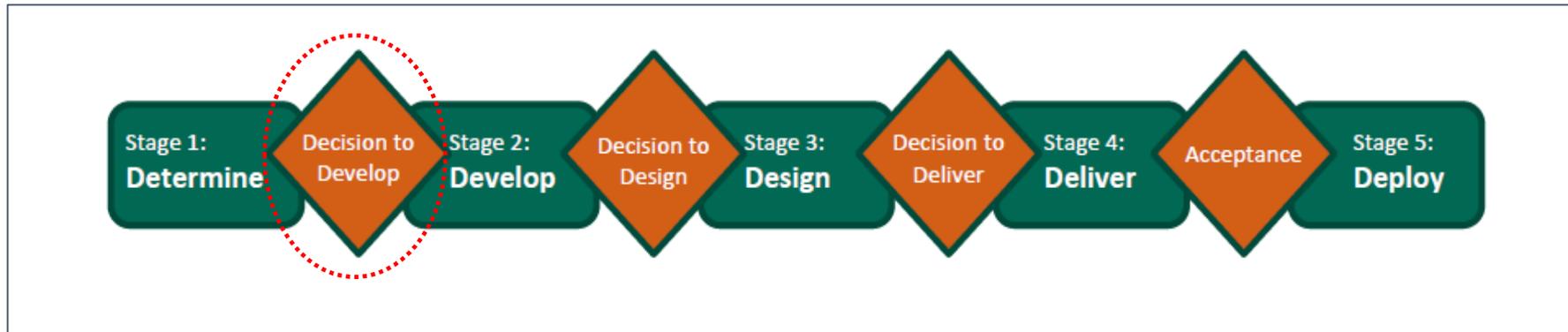
Humber Ports
/ Lincoln to
Nottingham

Programme

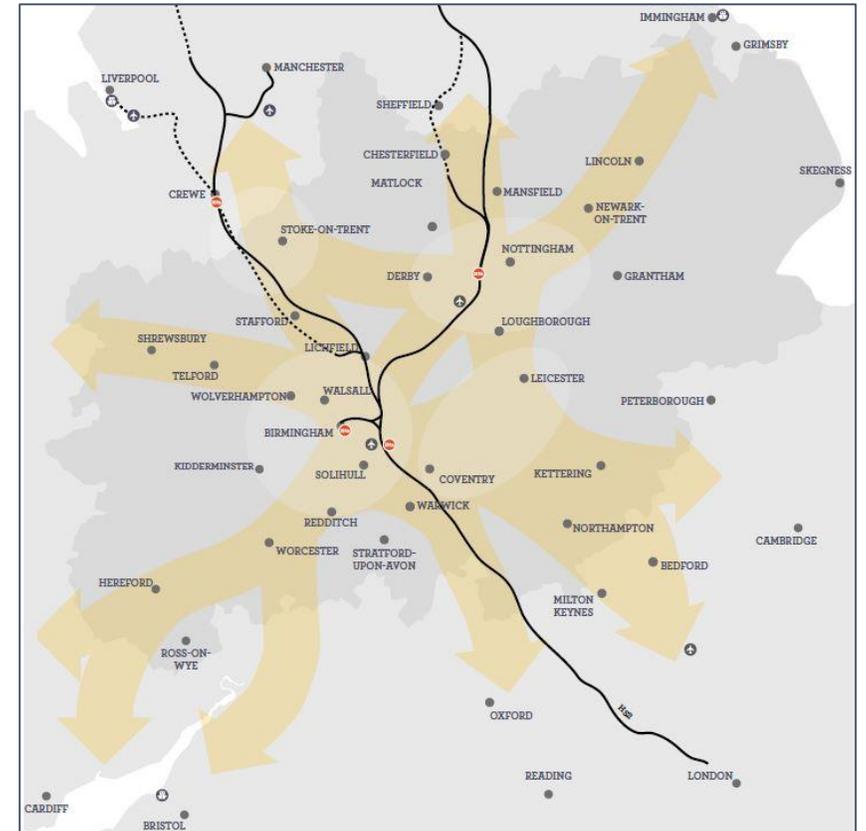
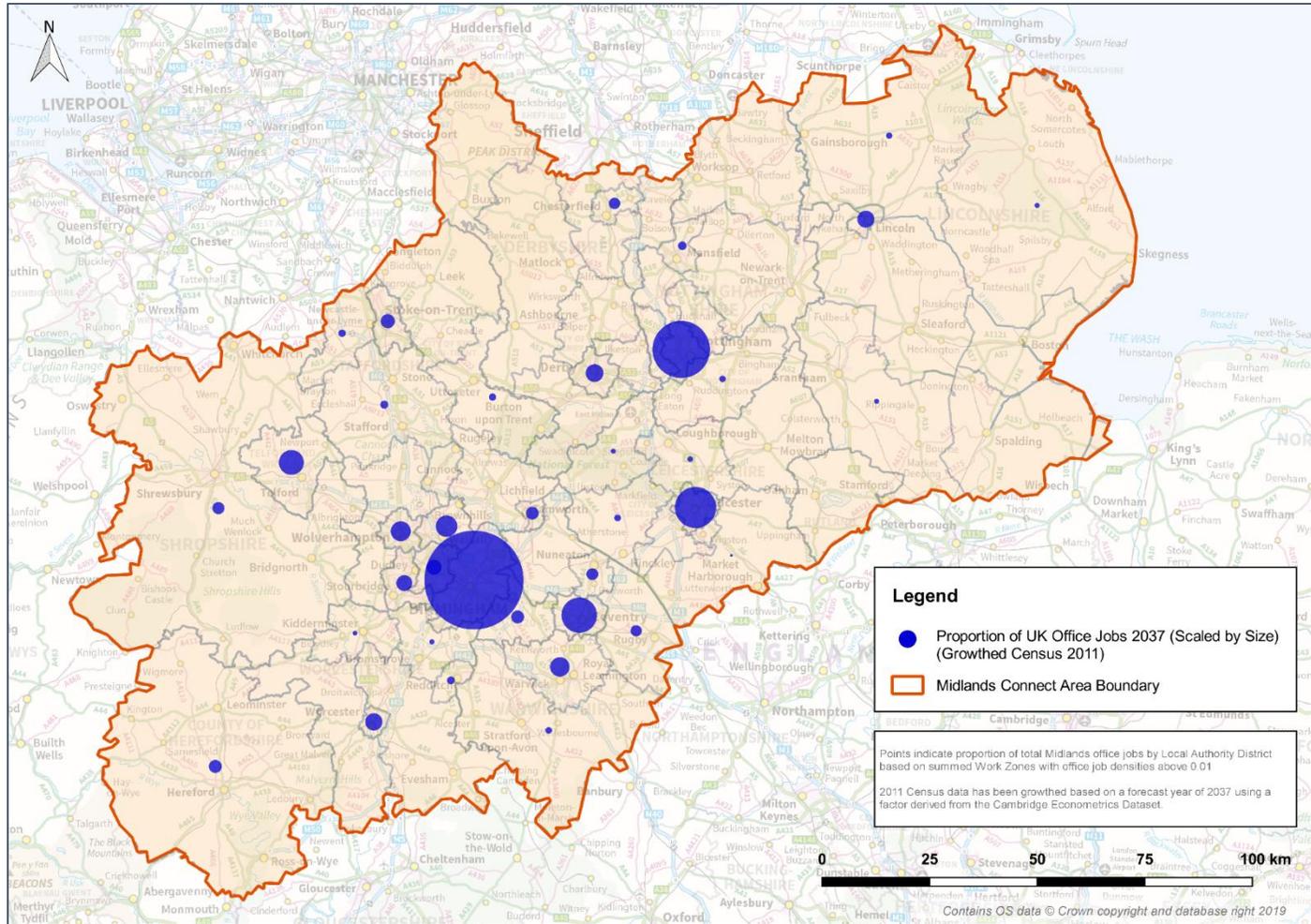
Draft SOBC
(Due March 2019)

Final SOBC
(Due June 2019)

OBC
(Starts 2019)



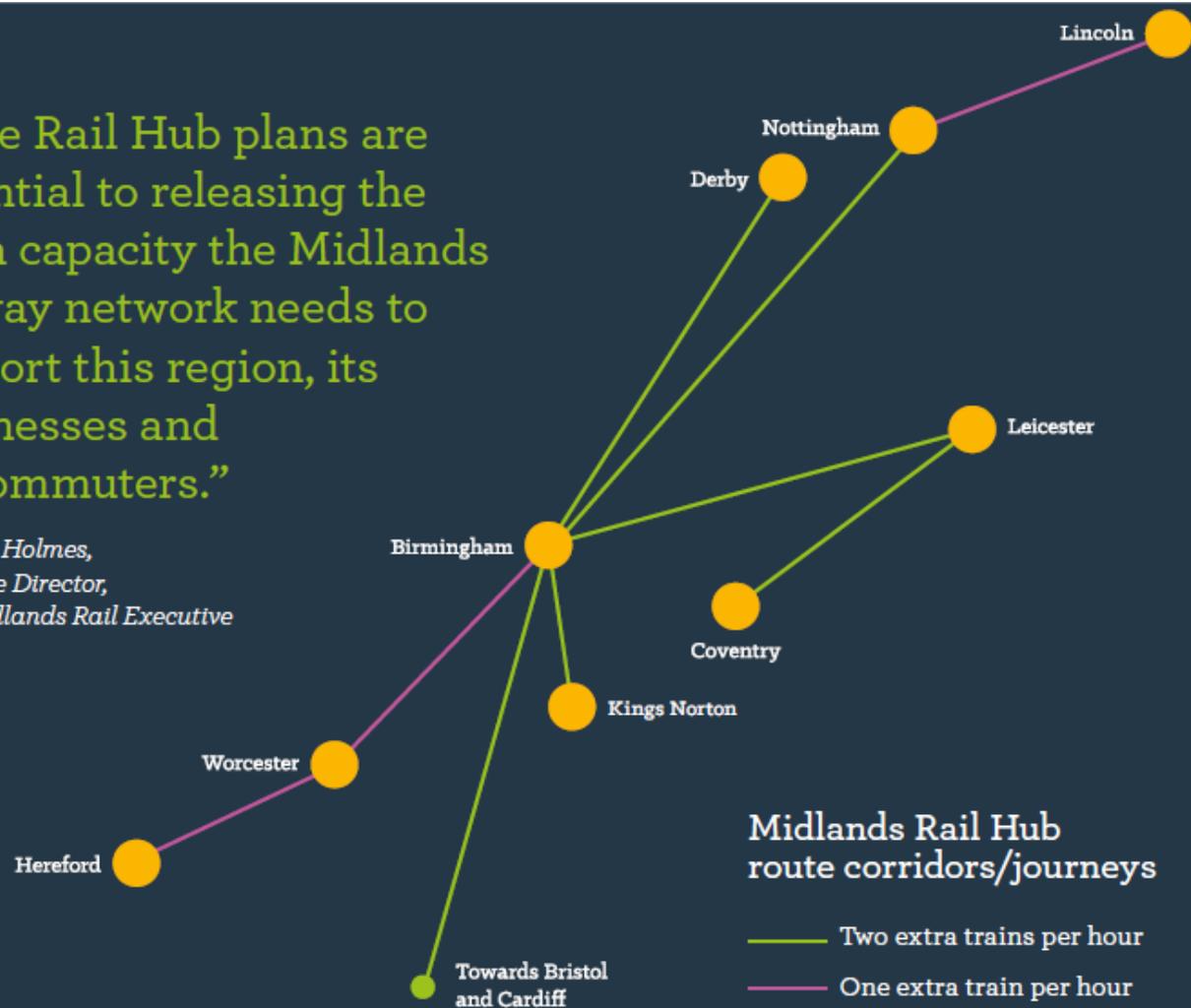
Defining the ITSS



The 'Full' ITSS

“These Rail Hub plans are essential to releasing the extra capacity the Midlands railway network needs to support this region, its businesses and its commuters.”

*Malcolm Holmes,
Executive Director,
West Midlands Rail Executive*



Midlands Rail Hub
route corridors/journeys

- Two extra trains per hour
- One extra train per hour

Headline Benefits



£649 million

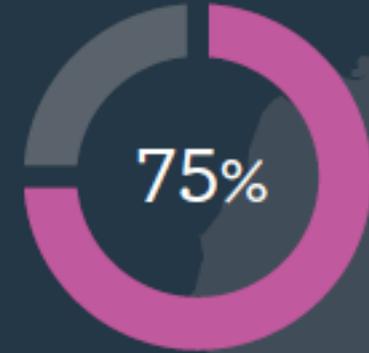
annual economic benefit to
the Midlands by 2037

69 mins

50 mins

28%

reduction in journey time from
Birmingham to Nottingham



increased passenger demand
between Derby/Nottingham
and Birmingham under
Midlands Rail Hub plans

The Economic Case

- While 'Full' ITSS comprises 10TPH, Economic Case considers several options for higher frequencies, including 4 - 10TPH variants
- Case for a west chord appears very strong. Could be used by Camp Hill services, and regional / long-distance services to Worcester, Hereford, South Wales and South-West England
- Case for an east chord is weaker than for west chord, but is work in progress. HS2 Phase 2b has a major impact on benefit generation

Potential “Quick Wins”

- Snow Hill: Platform 4 (to generate space at Moor Street)
- Kings Norton: Platform & crossover
- Barnt Green: First stage unlocks extra services through New Street
- Leicester corridor: Speed + capacity
 - *Water Orton 30mph (including freight loop)*
 - *Whitacre 35mph (including run-round for Kingsbury)*
 - *Hinckley freight loops*
 - *Wigston 40mph (including freight line)*

Potential “Quick Wins”

- Nottingham corridor: Speed + capacity
 - *Burton 50mph*
 - *Sheet Stores 10mph*
 - *Nottingham West crossover*

Links to HS2 at Curzon Street



Midlands Connect
Powering the Midlands Engine



Our Rail Portfolio



Midlands Rail
Hub

Thames Valley
/ Airport /
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Coventry to
Leicester and
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SOBC and OBC



Midlands Connect currently developing an SOBC and OBC for a scheme to improve connectivity into Coventry and UKC from the South of England and East Midlands. There are three associated deliverables:

TVAM SOBC	TVAM OBC	Solihull Corridor SOBC
Draft Due: March 2019	Draft Due: May 2019	Draft Due: March 2019

SOBC

Midlands Connect currently finalising an SOBC for submission to DfT in mid-March

Agreed this will be 'light touch' as there is only a short gap between submission of SOBC and OBC (ensures compliance with RNEP process)



Midlands Connect
Strategic Outline Business Case (SOBC)

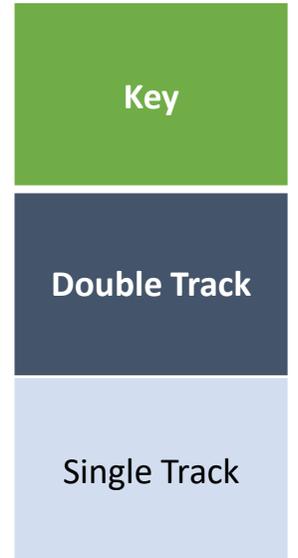
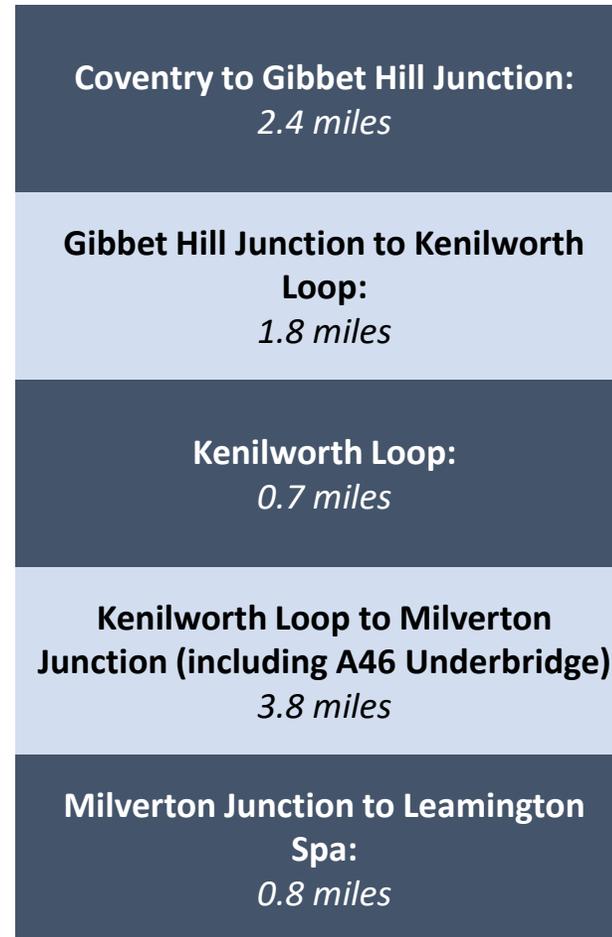
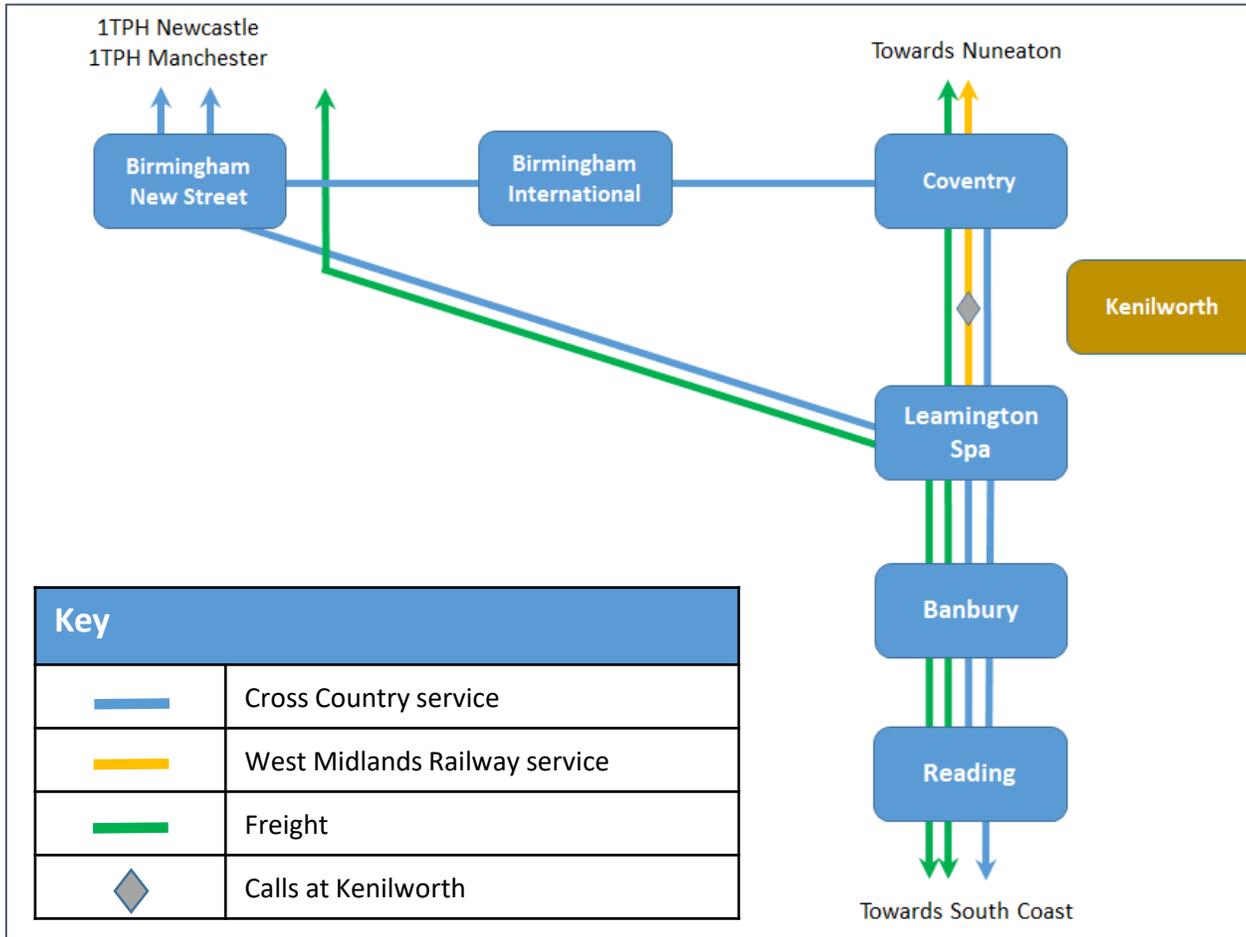
Corridor	Thames Valley to Airport & Midlands	
Date	15 March 2019	

Document History

Revision	Date	Originator
First Draft	27/04/2017	Atkins Ltd
Second Draft	15/03/2019	Midlands Connect

1

Baseline ITSS



Optioneering

Option Number	Trains per Hour (KNW Calls in Brackets)				Infrastructure Requirement		
	Cross Country (KNW calls in brackets)	West Midlands Railway (all call KNW)	Freight	Total	Double tracking: <i>Gibbet Hill Junction to Kenilworth</i>	Double tracking: <i>Kenilworth to Milverton Junction</i>	Notes (Further Details provided in Appendices)
1	2 (1)	0	1	3	✗	✗	No double tracking is assumed to be needed, but platform lengthening at Kenilworth Station would be required
2	2	1	1	4	✗	✓	Double tracking south of Kenilworth is assumed to be required in line with the West Midlands and Chilterns Route Study
3	2	2	1	5	✓	✓	For the purpose of the SOBC, full double tracking is assumed to be required for a frequency higher than 4TPH
4	2	2	2	6	✓	✓	

Appraisal Methodology



Net Transport Benefits

Calculated using the Planet Framework Model, which is a network model

Wider Economic Benefits

Calculated using the established Midlands Connect Wider Economic Benefits Model

Revenues

Calculated using the Planet Framework Model

Operating Costs

Calculated by Network Rail and taking in its discounted cashflow model

Capital Costs

Extracted from 2015 Network Rail (Pre- GRIP) costing report. Also uses Systra 2018 report

Timetable Modelling



Key highlights of the work to date:

- A 'no infrastructure' solution could not be made to work and some form of double tracking is required to achieve the 4tph service specification
- The current timetable cannot be achieved in any option due to the journey time differential; some timetable alterations will be required. Routing via Coventry adds six minutes
- Four sub-options generated for infrastructure solutions between Coventry and Leamington

Emerging Results



Early work suggests 'high' value for money for 3TPH and 4TPH options

However, results currently being validated. HS2 Ltd assumptions around Birmingham Interchange are critical to the revenue calculations

Double tracking throughout provides capacity for 5 & 6TPH on the corridor itself, but constraints would exist at both Leamington Spa and Coventry

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A Journey Today!

Coventry to Leicester: Standard Hour Off-Peak

Coventry: Depart	10:42
Nuneaton: Arrive	11:04
Interchange at Nuneaton (Minutes)	00:19
Nuneaton: Depart	11:23
Leicester: Arrive	11:50
<i>Journey Time (Minutes)</i>	01:08

Leicester to Coventry: Standard Hour Off-Peak

Leicester: Depart	10:48
Nuneaton: Arrive	11:08
Interchange at Nuneaton (Minutes)	00:06
Nuneaton: Depart	11:14
Coventry: Arrive	11:36
<i>Journey Time (Minutes)</i>	00:48

Options

Three sets of options:

- **Improved interchange:** introduces a higher frequency of service either side of Nuneaton. These options do not require grade separation at Nuneaton
- **Non-stop at Nuneaton:** introduces new non-stop services between Coventry and Leicester, passing non-stop through Nuneaton via an underpass
- **Reversal at Nuneaton:** extends Coventry to Nuneaton local services to Leicester and beyond, through a reversal at Nuneaton, which requires a new flyover

Options



Base Timetable	Improved Interchange	Non-Stop at Nuneaton	Reversal at Nuneaton
A: <ul style="list-style-type: none"> 2TPH Birmingham to Leicester (1TPH continues to Stansted Airport) 2TPH Coventry to Nuneaton 	Option 1: <ul style="list-style-type: none"> Adds 2TPH Coventry to Nuneaton (fast) Adds 2TPH Nuneaton to Nottingham 	Option 2 (Leicester): <ul style="list-style-type: none"> Adds 2TPH Coventry to Leicester (non-stop) Option 3 (Nottingham): <ul style="list-style-type: none"> Adds 2TPH Coventry to Nottingham (calls Leicester and Nottingham) 	Option 4: <ul style="list-style-type: none"> Extends base 2TPH Coventry to Nuneaton services to Nottingham
B: <ul style="list-style-type: none"> 4TPH Birmingham to Leicester (1TPH continues to Stansted Airport) 2TPH Coventry to Nuneaton 	Option 5: <ul style="list-style-type: none"> Adds 2TPH Coventry to Nuneaton (fast) Extends base 2TPH Birmingham to Leicester services to Nottingham 	Option 6: <ul style="list-style-type: none"> Adds 2TPH Coventry to Nottingham (calls Leicester and Nottingham) 	Option 7: <ul style="list-style-type: none"> Extends base 2TPH Coventry to Nuneaton services to Nottingham

Option Performance

	1: Base A, Interchange	2: Base A, Non-Stop (Leicester)	3: Base A, Non-Stop (Nottingham)	4: Base A, Reversal	5: Base B, Interchange	6: Base B, Non-Stop (Nottingham)	7: Base B, Reversal
BCR (Excluding WEBs)	Very high	Poor	Medium	High	High	Low	High
BCR (Including WEBs)	Very high	Low	High	Very high	Very high	High	High
CO – 36-Minute Journey Time (Cov to Leic)	48 minutes	38 minutes	38 minutes	48 minutes	48 minutes	38 minutes	48 minutes
CO – Direct Service	Indirect	Direct	Direct	Direct	Indirect	Direct	Direct
CO – Railfreight Capacity / Efficiency							
Key to COs	Significant gap		Some gap		Achieved		

Impacts on Freight

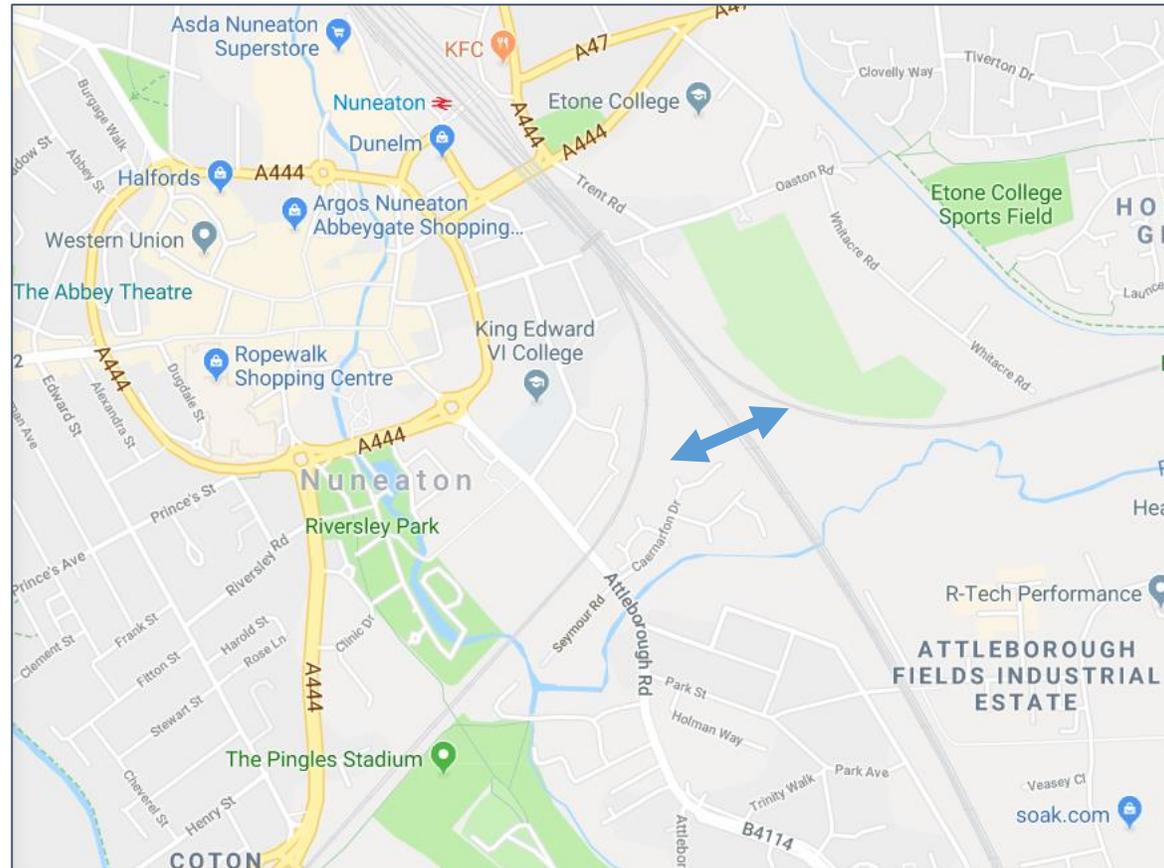


Midlands Connect
Powering the Midlands Engine

Cost Development

Proposal awaited from Network Rail for development of GRIP2 capital costs at Nuneaton for both a diveunder and flyover

Forms an interim task in advance of the OBC commencing later in 2019



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A Journey Today



A handful of direct services only – but nothing through the day

Changing at Derby or Sheffield, the journey time is in excess of two hours

However, using the eastern leg of HS2 Phase 2b, there is a clear opportunity to transform this corridor

Options

Option 1

Option 1: 1TPH London to Leeds via HS2 main line (*electric*). This is overlaid on the classic network timetable

Options 2 - 4

Option 2: Curtails a proposed London to Derby classic network service at East Midlands Hub (*bi-mode*)

Option 3: Extends service in Option 2 to Leeds via Sheffield (*bi-mode*)

Option 4: As per Option 3 and adds a Leicester to Manchester (via Sheffield service) (*bi-mode*)

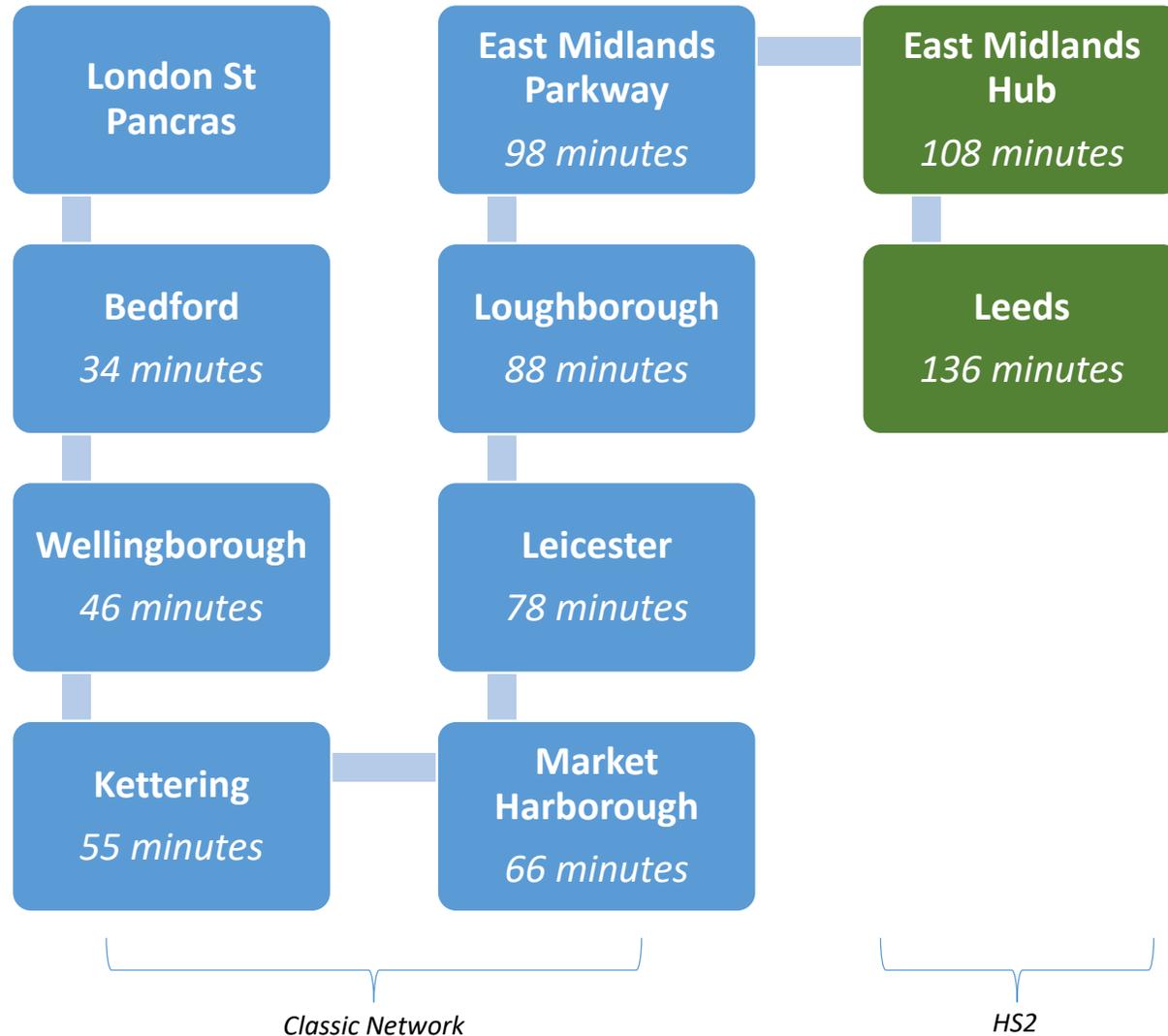
Options 5 - 7

Option 5: Curtails a proposed London to Derby classic network service at East Midlands Hub (*electric*)

Option 6: Extends service in Option 5 to Leeds via HS2 main line (*electric*)

Option 7: As per Option 3 and adds a Leicester to Manchester (via Sheffield service) (*bi-mode*)

Indicative Journey Times



SOBC

Midlands Connect currently refreshing its SOBC for direct Leicester to Leeds services

Key challenges:

- How do we accommodate capital costs of a new junction within the business case?
- What do we assume about electrification?
- Could we run bi-mode services via Sheffield?
- If building a junction, what else could use this?
- Do we strengthen the case for Phase 2b?



**Value for Money
(Excluding WEBs):
High (2.0 - 4.0)**

**Value for Money
(Including WEBs):
Very High (> 4.0)**

Accessing HS2 in the East Midlands



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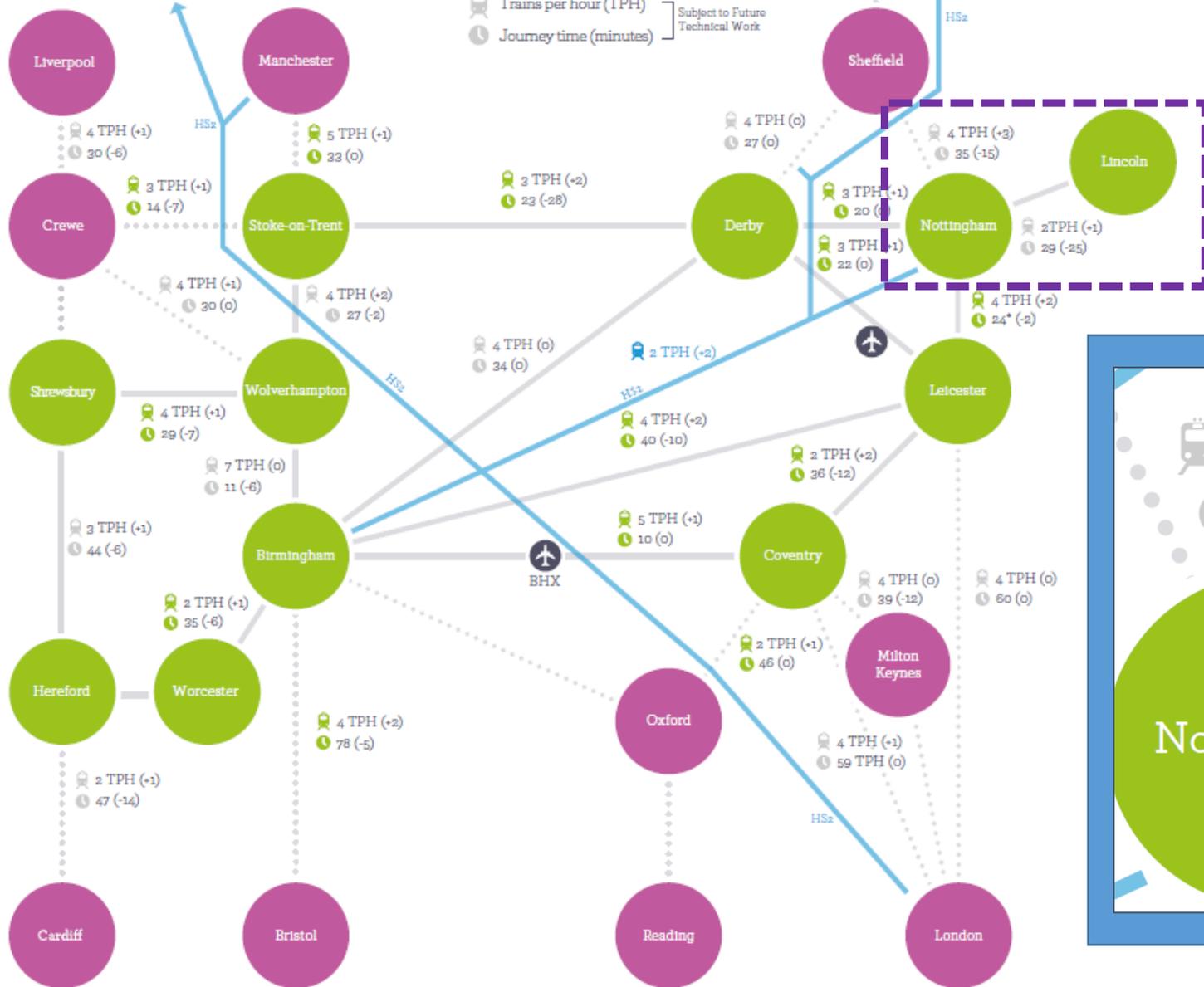
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Future provision

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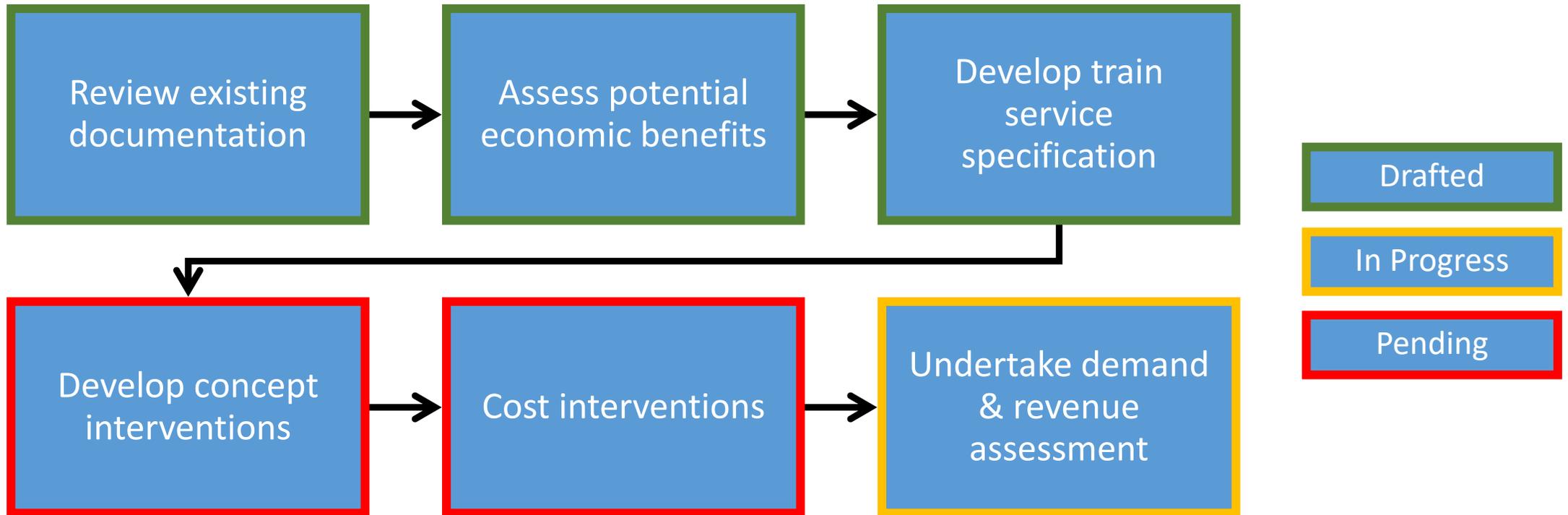


This callout box provides detailed data for two key routes:

- Nottingham to Lincoln:** 4 TPH (+3), 35 (-15) minutes
- Birmingham to Nottingham:** 2 TPH (+1), 29 (-25) minutes



The Process



Extra Tasks

Two additional activities have been added to the study:

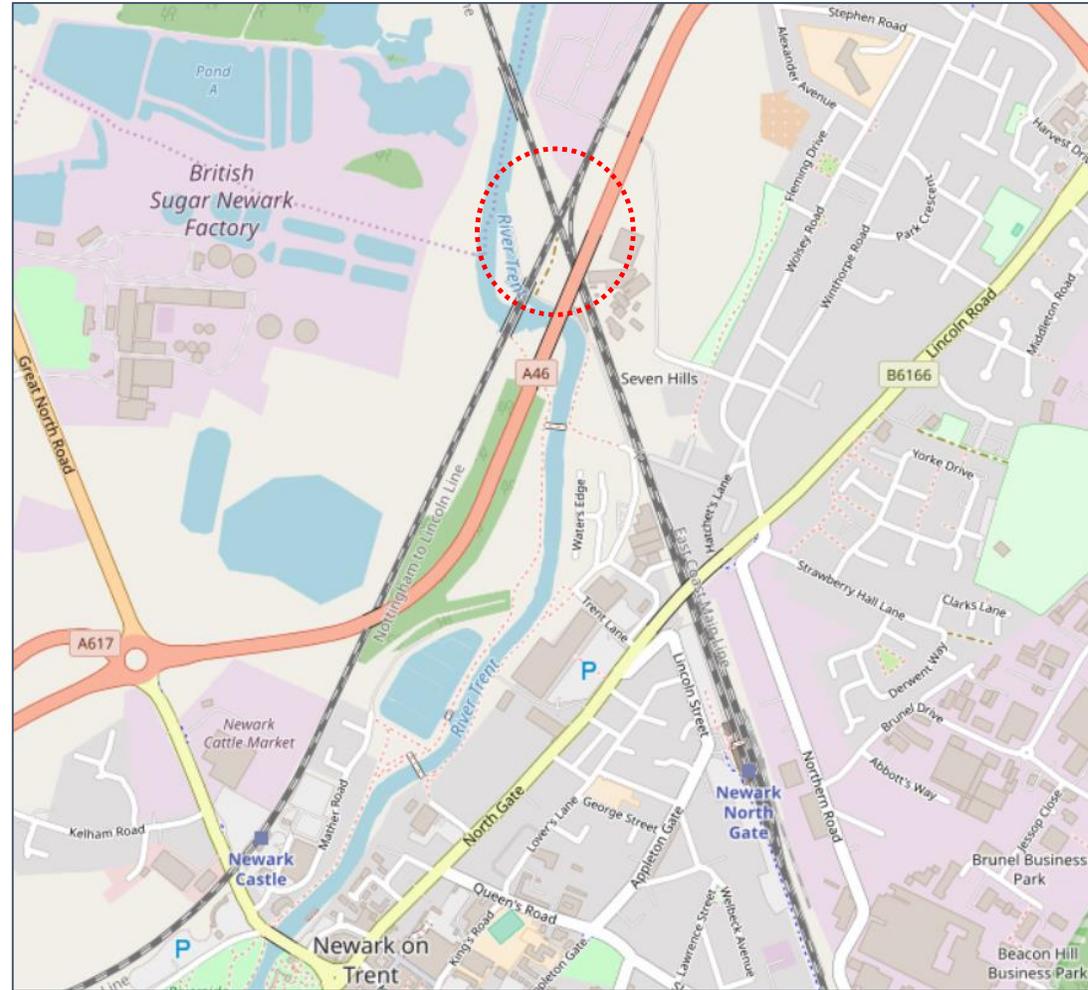
- Calculation of wider economic benefits
- Calculation of benefit cost ratios and value for money

This gives us all the inputs we need for an SOBC in the next financial year

Newark Flat Crossing

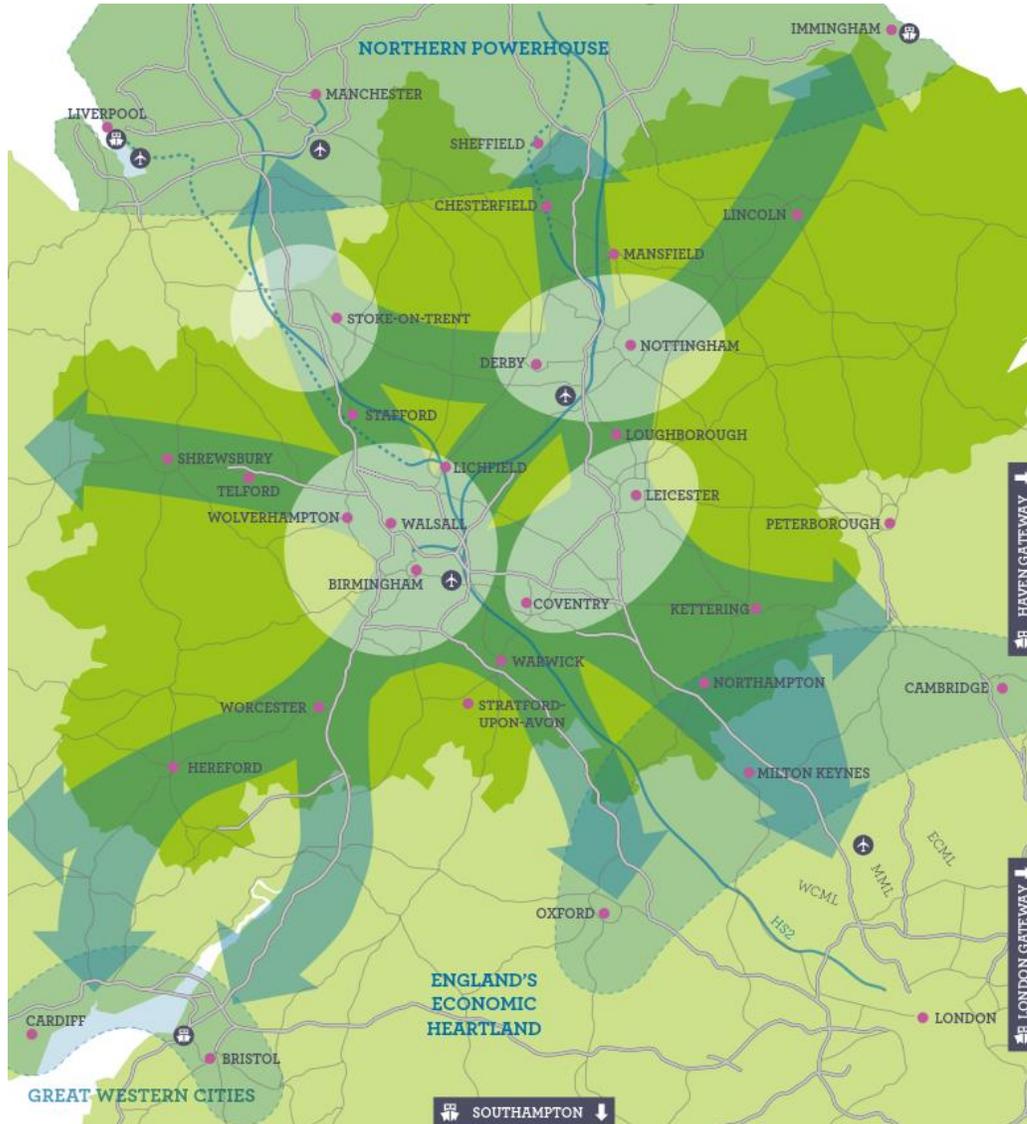
One of the *major* constraints is the flat crossing at Newark. East Coast Main Line (ECML) crosses Lincoln to Nottingham railway at-grade

Grade separations offers scope to remove 100mph speed limit on ECML. *But... is very costly, and what will be using the route post- HS2 Phase 2b?*

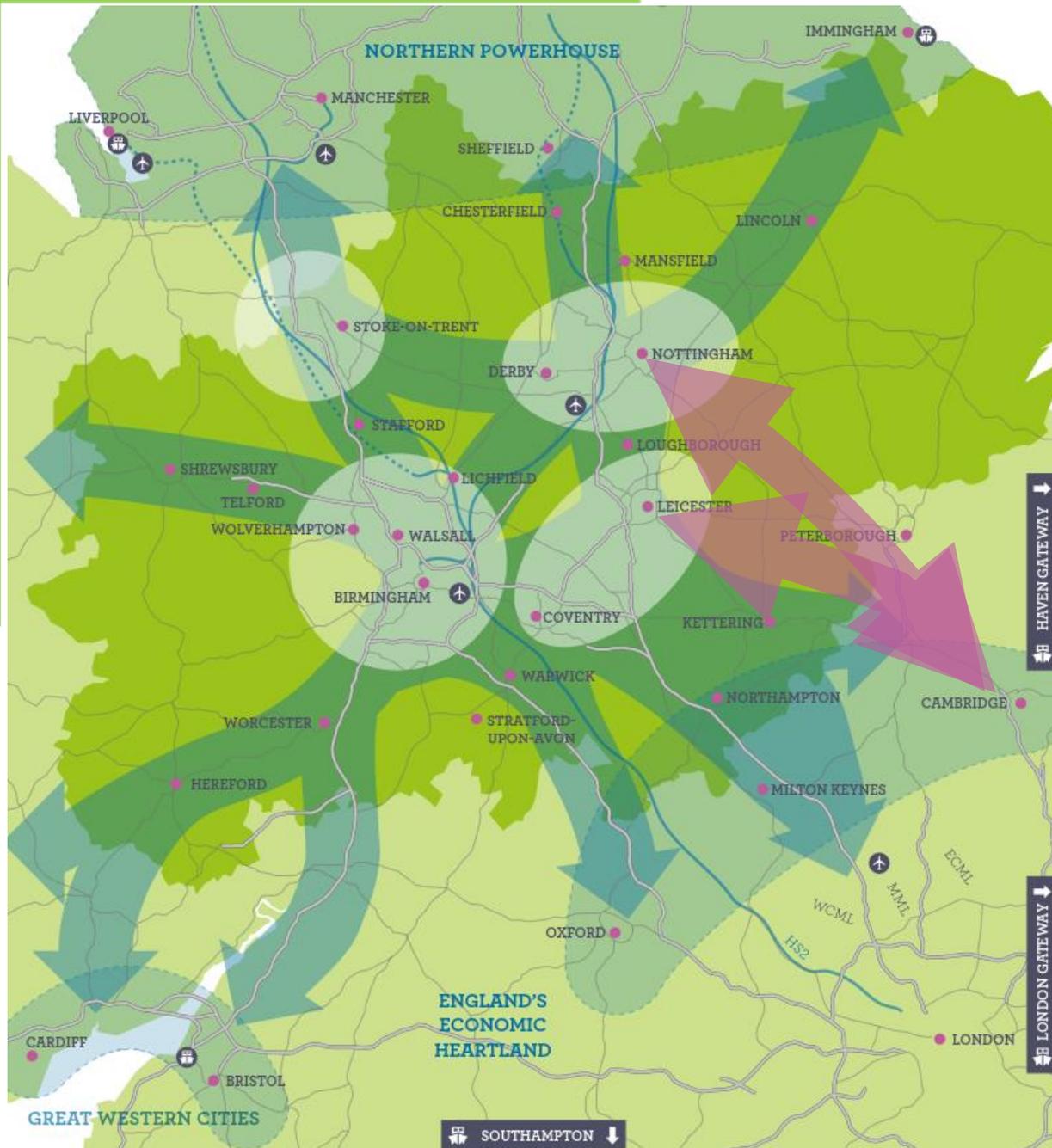


Longer term planning

Future Corridors Study

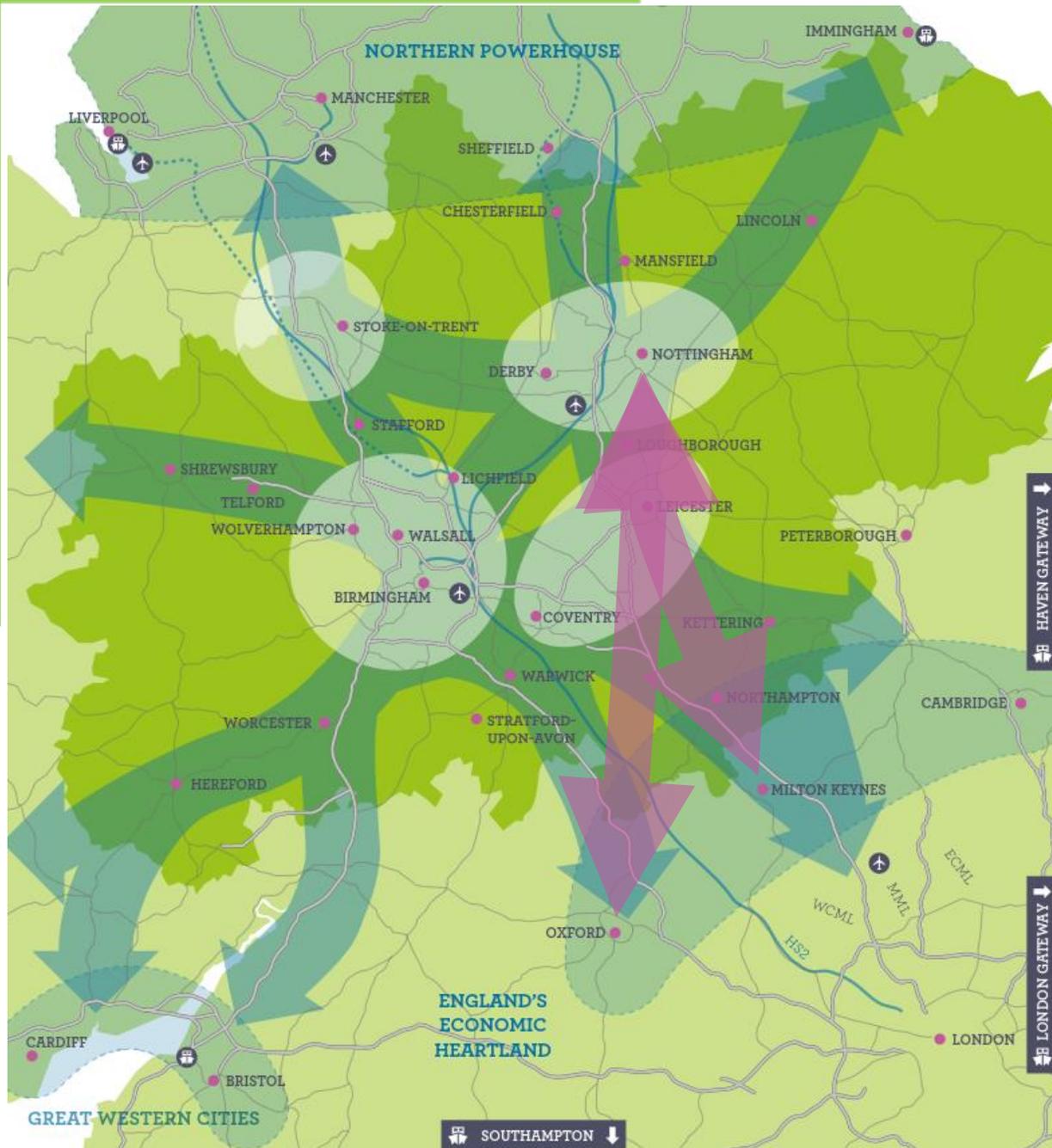


Economic Corridors Approach



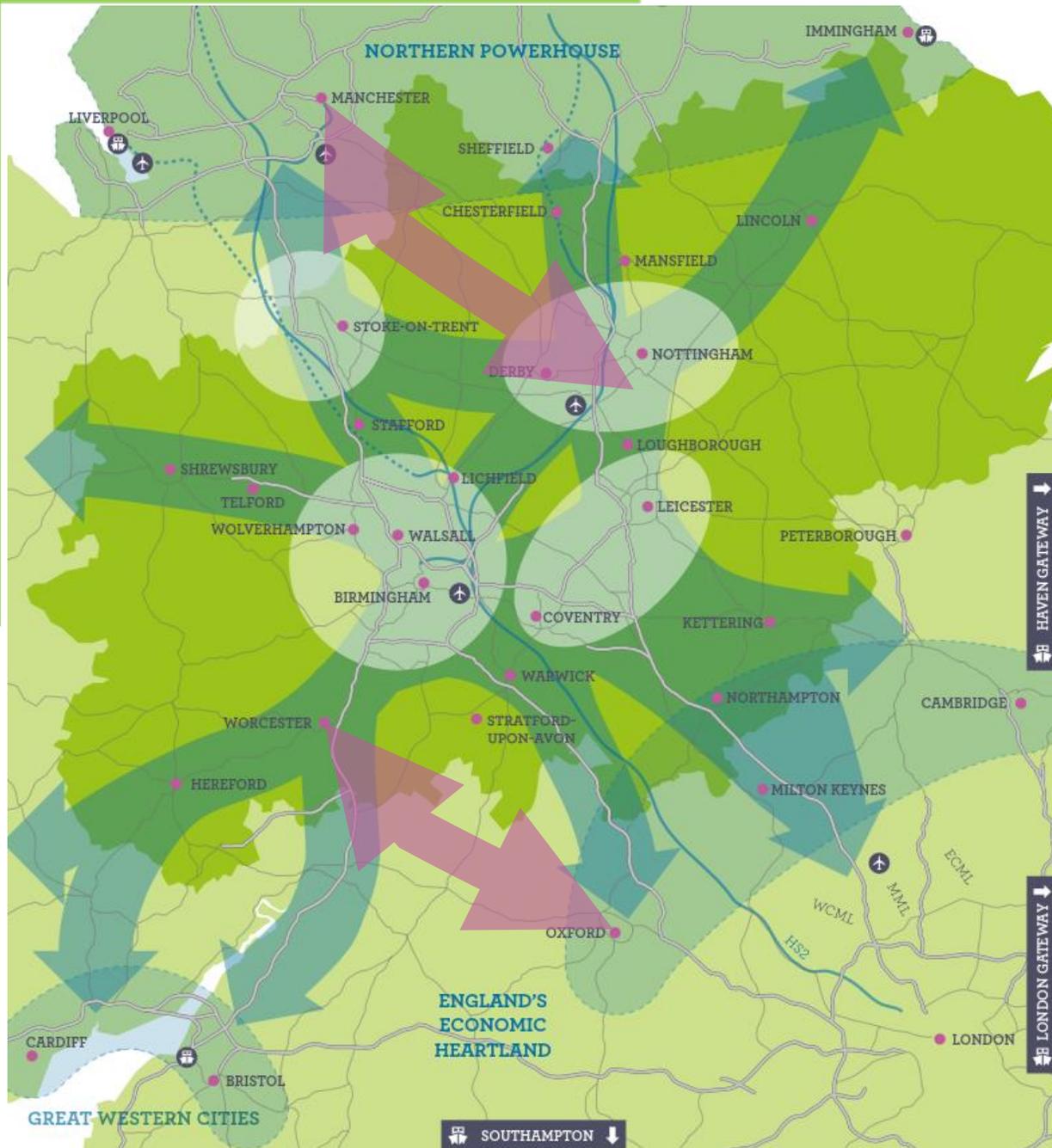
What if we improved connections?





What if we improved connections?





What if we improved connections?



Future Corridors Study



- Currently setting up the Do Minimum modelling
 - Using the PLANET model built for HS2
 - Midlands Connect current programme included in Do Minimum
- 10 model runs plus some combined scenarios
- Economic impacts calculated
 - Transport benefits
 - Wider economic benefits
- Results to inform next Midlands Connect Strategy

Thank you



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