



# **HIGH SPEED UK**

## **..connecting the Midlands**

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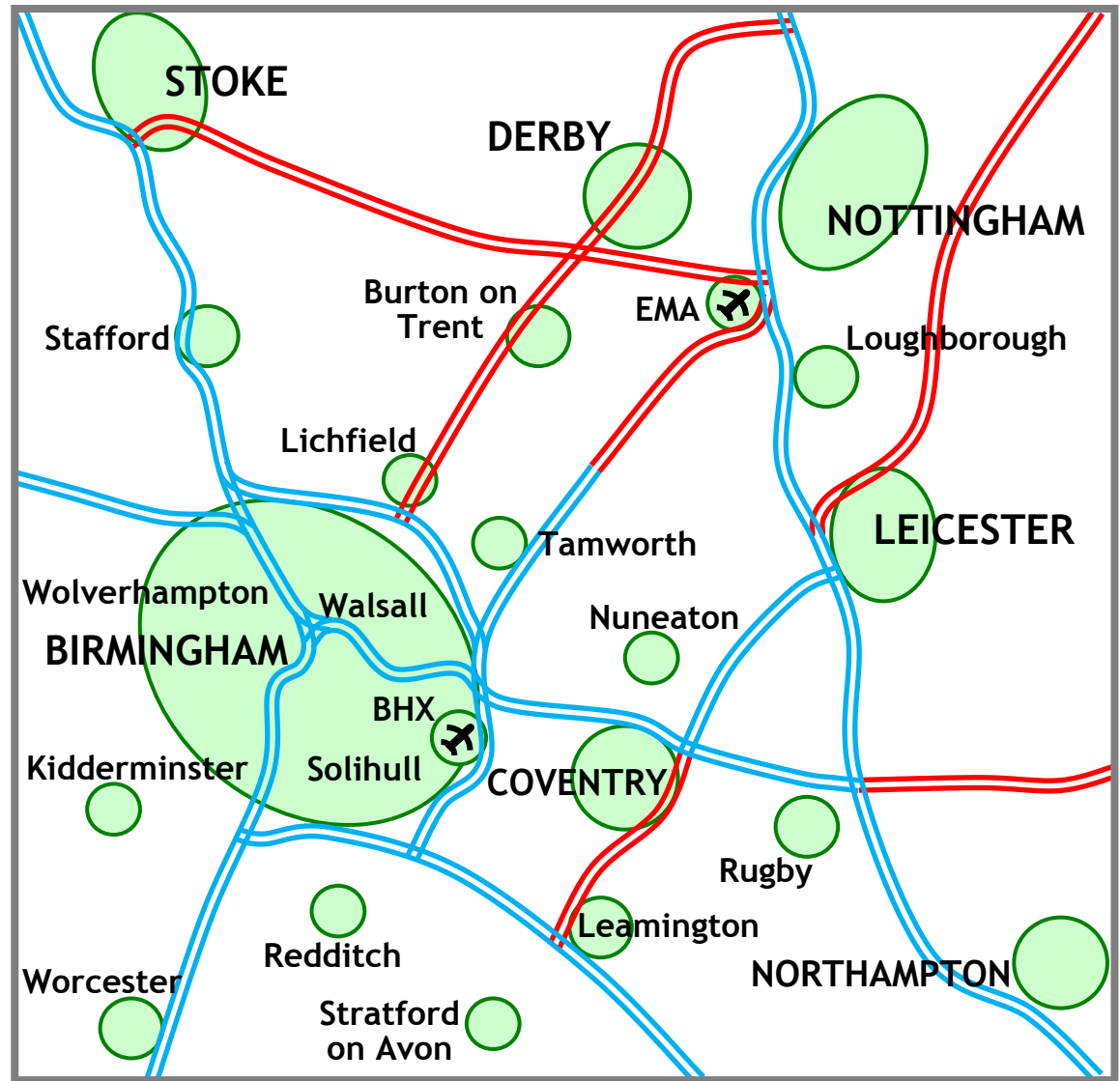
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[www.highspeeduk.co.uk](http://www.highspeeduk.co.uk)

# Transport For Most Midlanders

By motorway  
& trunk road



# HIGH SPEED 2 : ORIGINAL CONCEPT

- The HS2 'Y'
- Fast links to London & Birmingham
- Greater capacity
- Heathrow spur
- Link to HS1

BUT...

- No Transpennine link



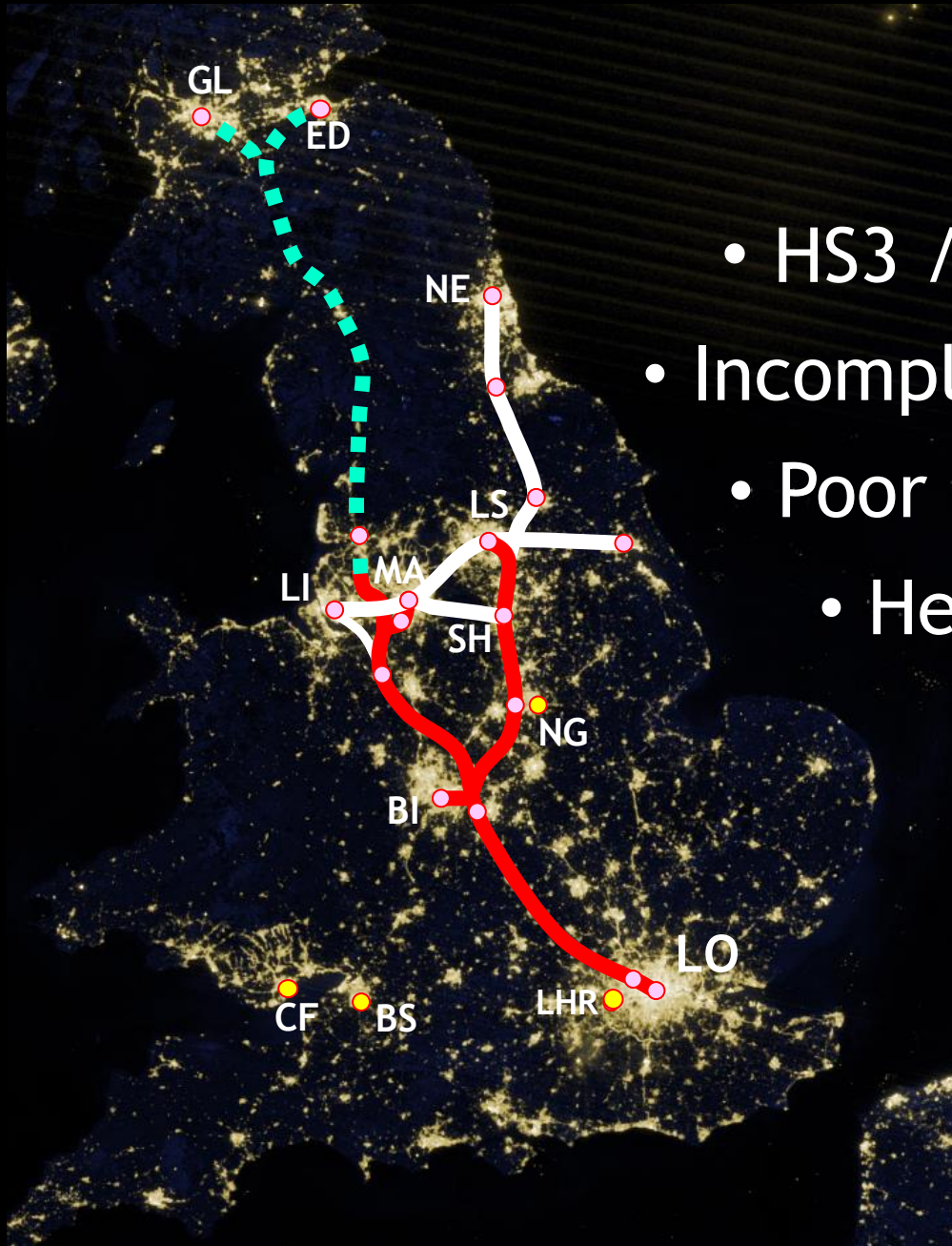
*Diagram taken from HS2 Ltd presentation 2013*

# HS2 2010/12



- Stations remote/  
disconnected
- No integration strategy
  - No CO<sub>2</sub> reductions
- Only 2 tracks in stem
- Huge environmental  
issues in Chilterns AONB  
& other sensitive areas

# HS2 2015



- HS3 / Northern Powerhouse
- Incomplete interregional links
  - Poor BCR @ 2.3 - *or lower??*
- Heathrow spur cancelled
  - HS1 link 'deferred'
- 'No economic case' for link to Scotland

# HIGH SPEED 2

- Doesn't deliver what it promised



*Diagram taken from HS2 Ltd presentation 2013*

# REVIEW OF HS2 REMIT

## SUMMARY OF THE REMIT AND OBJECTIVES OF HIGH SPEED TWO

On 15 January 2009 the Secretary of State for Transport announced in 'Britain's Transport Infrastructure: High Speed Two', the setting up of a new company to look at a possible new railway line between London and the West Midlands.

HS2 was set up shortly after as a private company limited by guarantee. It is chaired by Sir David Rowlands and Alison Munro was seconded from the Department of Transport as Chief Executive. The rest of the HS2 team comprises further secondees from the DfT and from Network Rail

HS2's remit is to develop proposals for a new railway line from London to the West Midlands taking account of environmental, social and economic assessments. It will also provide advice to Ministers on the potential development of a high speed line beyond the West Midlands at the level of 'broad corridors, considering in particular the potential to extend to Greater Manchester, West Yorkshire, the North East, and Scotland.

HS2 will make recommendations on options for a terminus station or stations serving London and possible options for an intermediate parkway station between London and the West Midlands. It will also provide a proposal for an interchange station between HS2, the Great Western Main Line and Crossrail with convenient access to Heathrow airport. HS2 will also provide suggested means of linking to HS1 and the existing rail network.

HS2 will produce a confidential report to Ministers by the end of 2009 that should be sufficiently developed to form the basis for public consultation in 2010 should Ministers decide to take this project forward. The advice will also include financing and construction proposals as well as a proposition for how best to move through the planning process within an indicative outline timetable

**1 Make proposals for a high speed line from London to the West Midlands**

**2 Advise on development of HSL to 'Greater Manchester, West Yorkshire, the North East & Scotland'**

**3 Select a London terminal**

**4 Consider intermediate parkway between London and West Midlands**

**5 Build an interchange with GWML / Heathrow / CrossRail services**

**6 Connect to HS1 and the existing network**

# HS2+HS3 : Not a Network!!

London																	
M.Keynes																	
Birmingham																	
Leicester																	
Nottingham																	
Derby																	
Stoke																	
Sheffield																	
Manchester																	
Liverpool																	
Leeds																	
Darlington																	
Newcastle																	
Edinburgh																	
Glasgow																	
Heathrow																	
	LN	MK	BI	LE	NG	DE	ST	SH	MA	LI	LS	DL	NE	EH	GL	LHR	

Enhanced direct intercity or airport link created by intervention of HS2/3

Other links not categorised

**HS2 and HS3**  
*offer improved direct journeys for only 34 of 119 possible connections*

Source data : HS2 predicted services, Table 23, pp91/92 KPMG Report;  
 HS3 links as per Northern Powerhouse report;

Note: Toton not accepted as HS station for Nottingham or Derby

# HS2+HS3 : Degraded Network

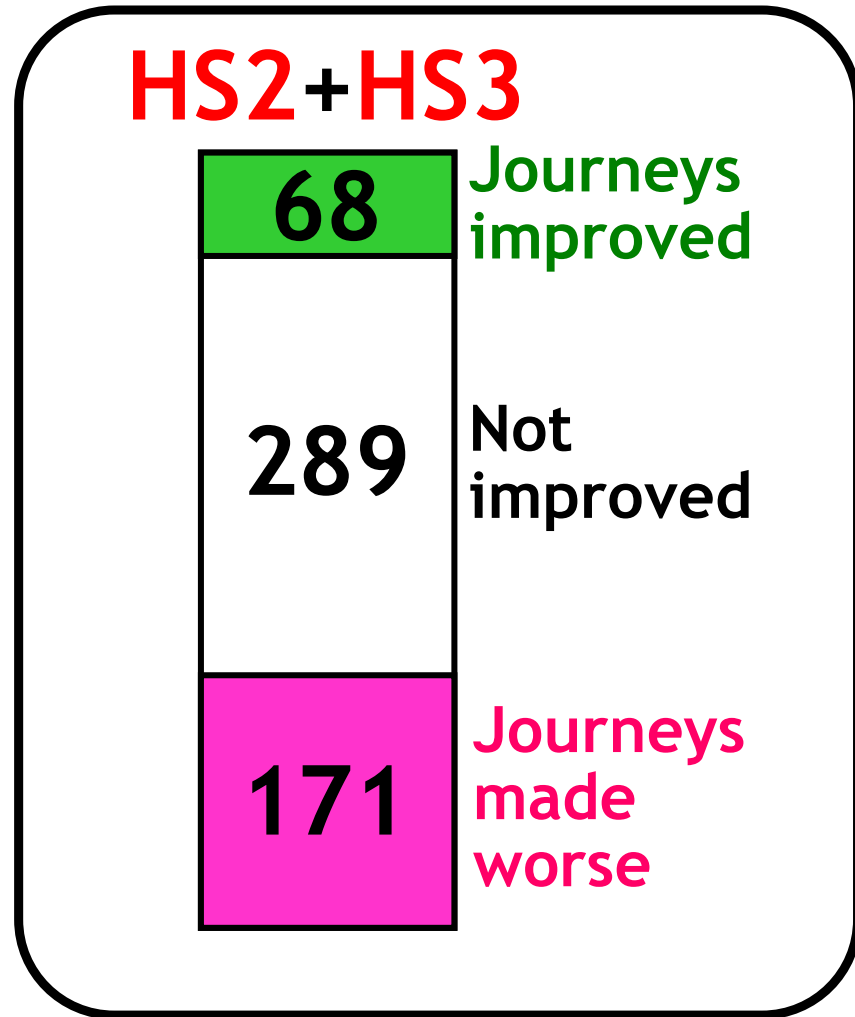
Considering

**528**

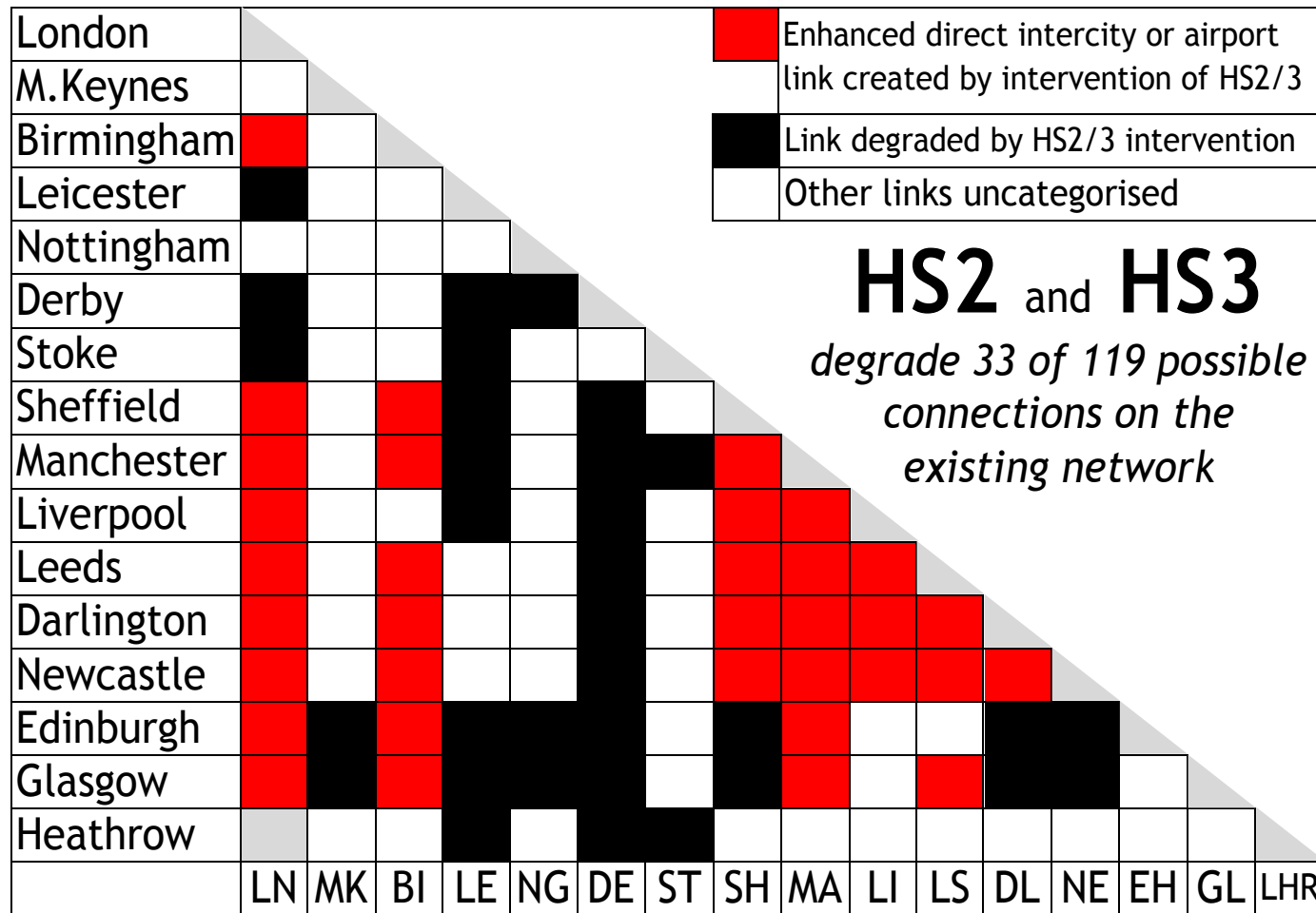
possible  
journeys  
between

**33**

major UK  
centres...



# HS2+HS3 : Degraded Network



Source data : HS2 predicted services, Table 23, pp91/92 KPMG Report;  
 HS3 links as per Northern Powerhouse report;  
 Classic network services, Table 23, pp91/92 KPMG Report

# HIGH SPEED 2

- Doesn't deliver what it promised
- Doesn't work efficiently as a UK intercity railway



*Diagram taken from HS2 Ltd presentation 2013*

# Questions for HS2 Ltd

1. How do you reconcile HS2's carbon-neutral performance with the 80% CO<sub>2</sub> reduction target of the 2008 Climate Change Act?
2. What railway engineering assessment was made of the M1 corridor & why was Chiltern route & 'Y-network' chosen?
3. Why has no timetable been developed to show how HS2/HS3 and the existing network will work in harmony?
4. Why have HS2 & HS3 not been designed as an integrated national high speed network?

# THE HS2 CONTRADICTION

- HS2 has been specified & designed as a stand-alone high speed line
- But everyone expects it to perform as an integrated network



*Diagram taken from HS2 Ltd presentation 2013*

*The £60bn question....*

How do we design  
high speed rail to  
form an integrated  
national network??



**High Speed UK**

*(formerly known as High Speed North)*

# HSUK Design Principles



1. Perform optimally as intercity network, interlinking all primary cities

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2. Connect with local networks

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4. **Coordinate with railfreight strategy**

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2. Connect with local networks
3. Connect with HS1 & airports
4. Coordinate with railfreight strategy
5. Offer optimum connectivity, capacity, journey time, resilience etc

# HSUK Design Principles



1. Perform optimally as intercity network, interlinking all primary cities
2. Connect with local networks
3. Connect with HS1 & airports
4. Coordinate with railfreight strategy
5. Offer optimum connectivity, capacity, journey time, resilience etc
6. **Comply with all relevant public policy**



# HIGH SPEED UK **HSUK**

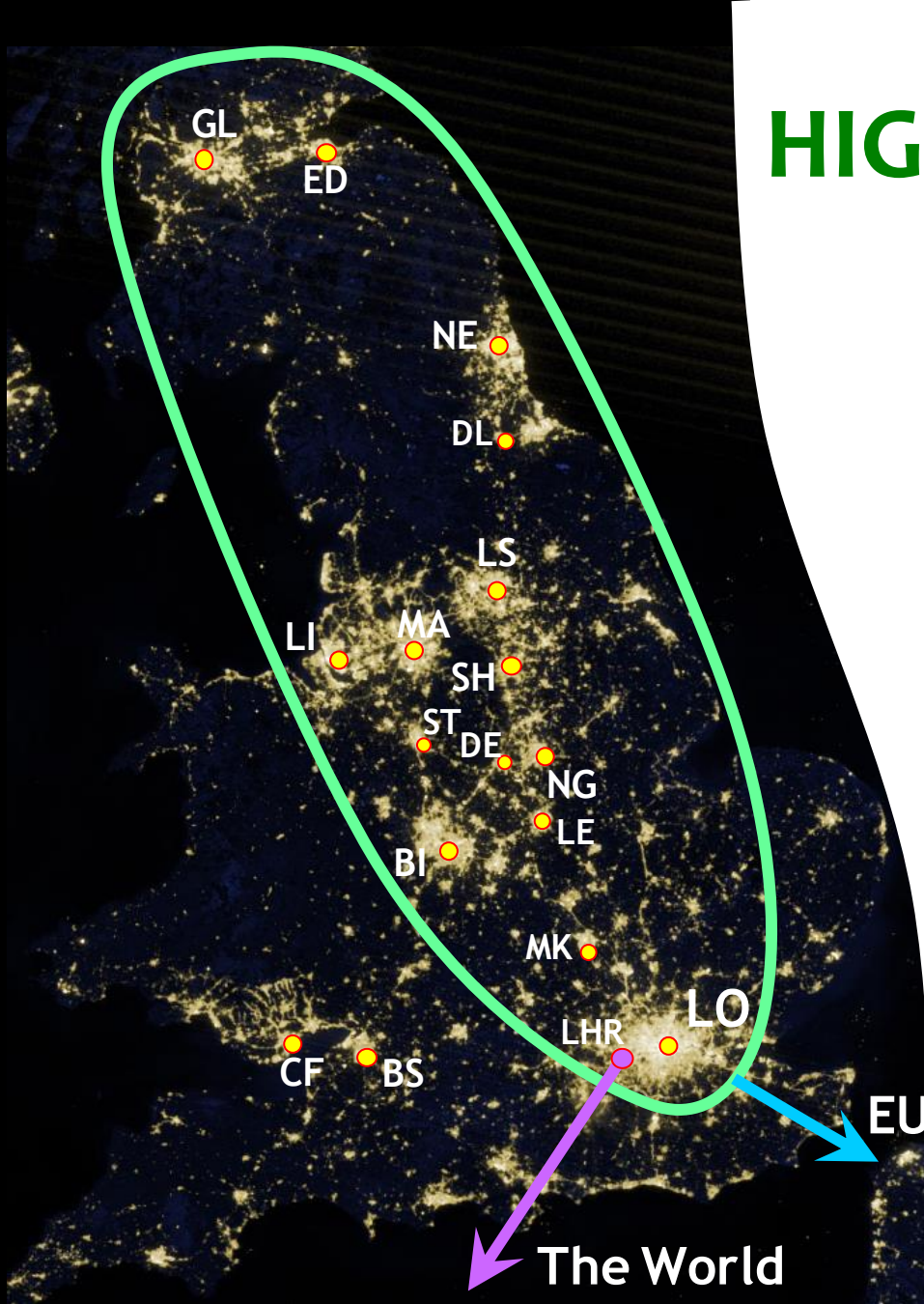
## Principal hubs of UK high speed rail network?

- 12 primary cities
- 1 hub airport

# HIGH SPEED UK HSUK

High speed line  
running north  
from London?

- 15 primary cities
- 1 hub airport LHR
- BHX, MAN, EDI?
- Link to Europe



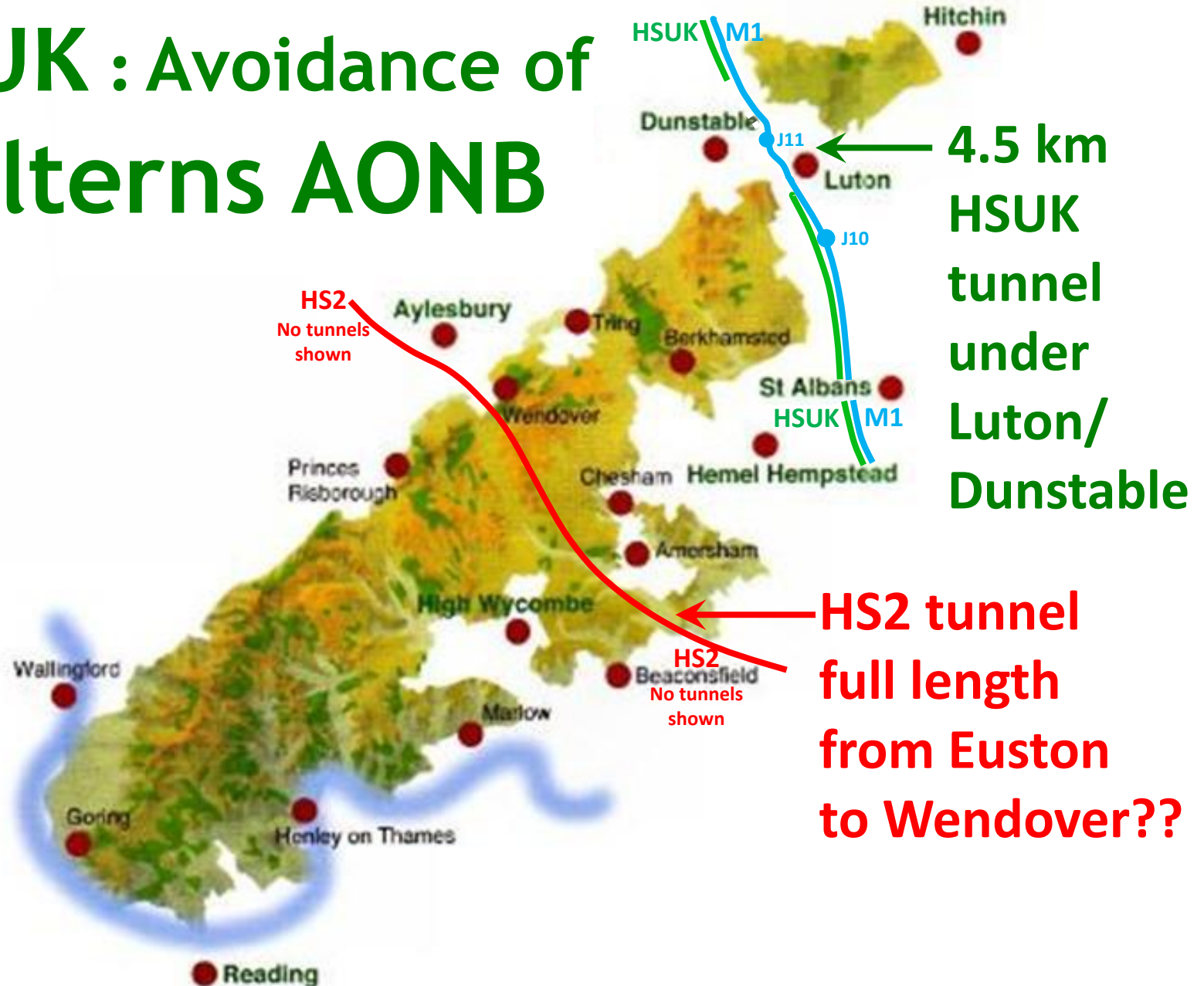
# HIGH SPEED UK **HSUK**

## HSUK primary routes:

- London-Glasgow high speed spine
- Avoids Chilterns AONB
  - 4 tracks to Sheffield
- Transpennine spur to Manchester/Liverpool
  - Link to Heathrow
  - Link to HS1



# HSUK : Avoidance of Chilterns AONB



# HIGH SPEED UK **HSUK**

## Major upgrades in West & East Mids:

- Coventry - International  
- B'ham New St 4-track
  - Soho-Tame Bridge link
  - Derby-New St 4-track
  - Potteries main line  
4-track through Stoke
- Top 16 fully linked!**



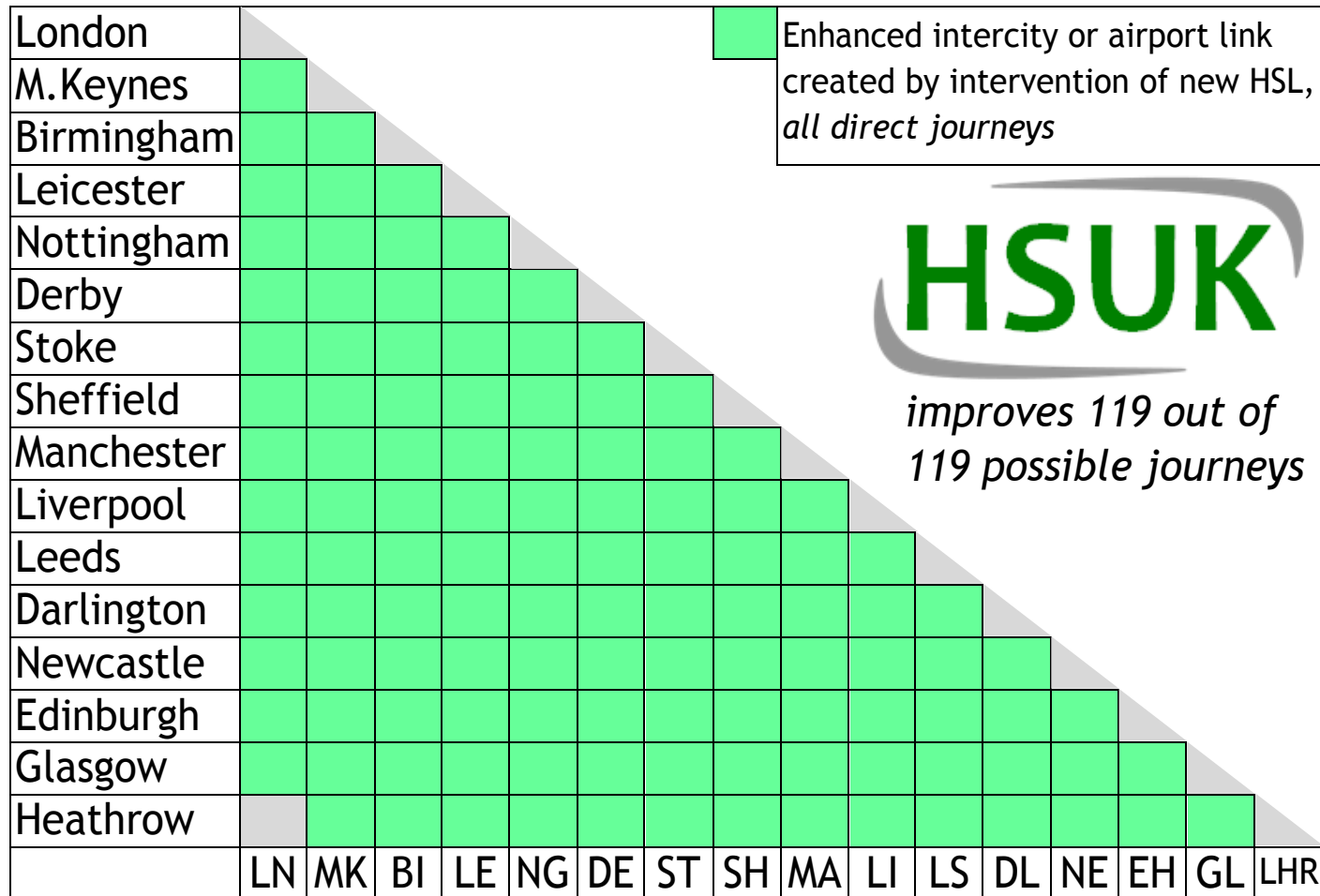


# HIGH SPEED UK **HSUK**

Full integration with existing network:

- >50 links between HSUK & existing network
  - HSUK accesses city centre stations in all UK primary cities
  - HSUK accesses LHR + BHX, MAN, EDI & LTN
  - HSUK Gatwick link??

# HSUK : Fully interlinked network



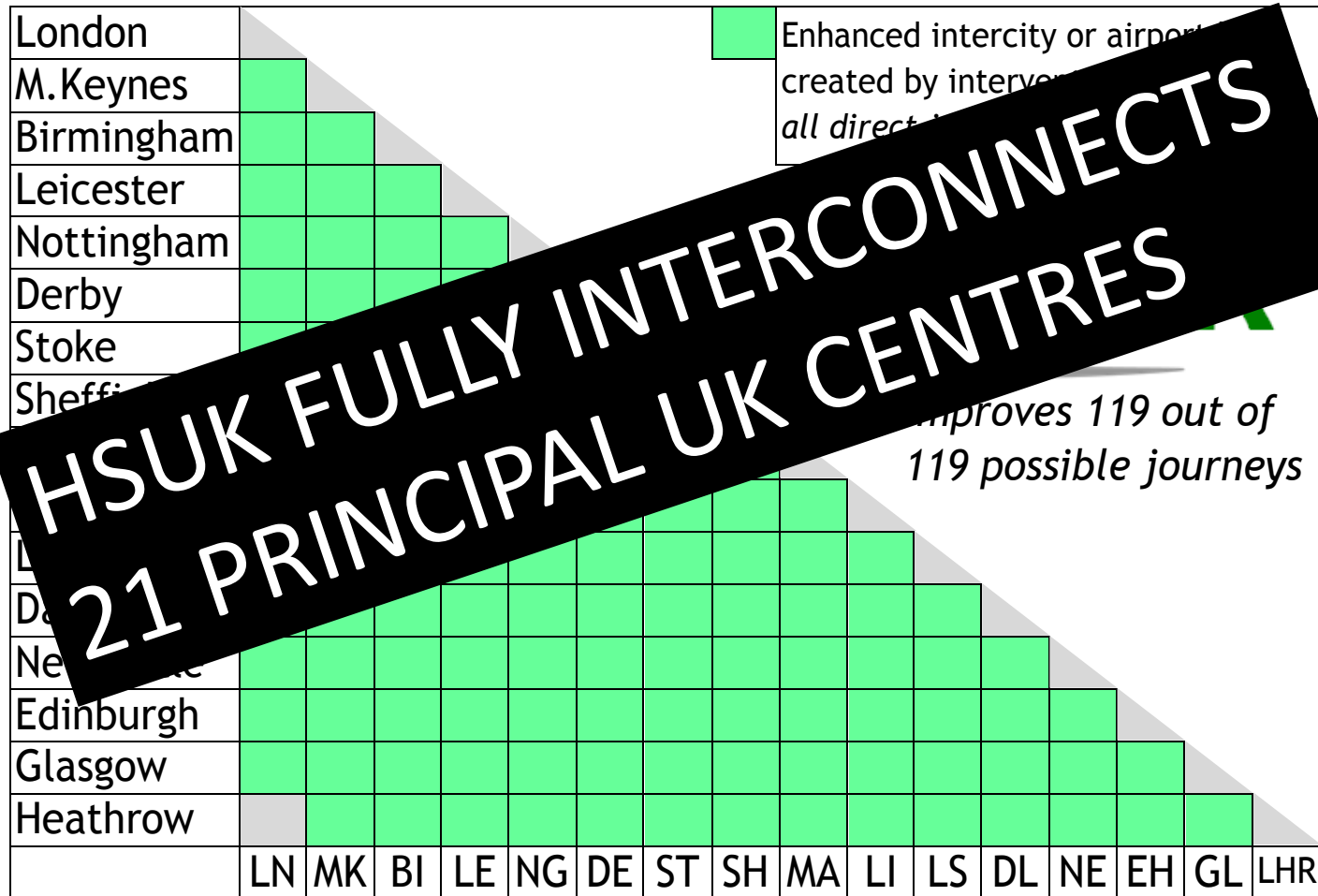
Source data : HSUK timetable based on HSUK route mapping

# HSUK : Fully interlinked network

**STOP PRESS:**  
LATEST DEVELOPMENT OF HSUK  
TIMETABLE NOW SHOWS YORK,  
STOCKPORT, WOLVERHAMPTON,  
NORTHAMPTON & OXFORD ALSO  
FULLY INTERCONNECTED

Source data : HSUK timetable based on HSUK route mapping

# HSUK : Fully interlinked network



Source data : HSUK timetable based on HSUK route mapping

# HIGH SPEED UK HSUK

33 centres examined in  
HSUK timetable

- 10 primary cities

GL,ED,NE,LS,LI,MA,SH,NG,BI,LO

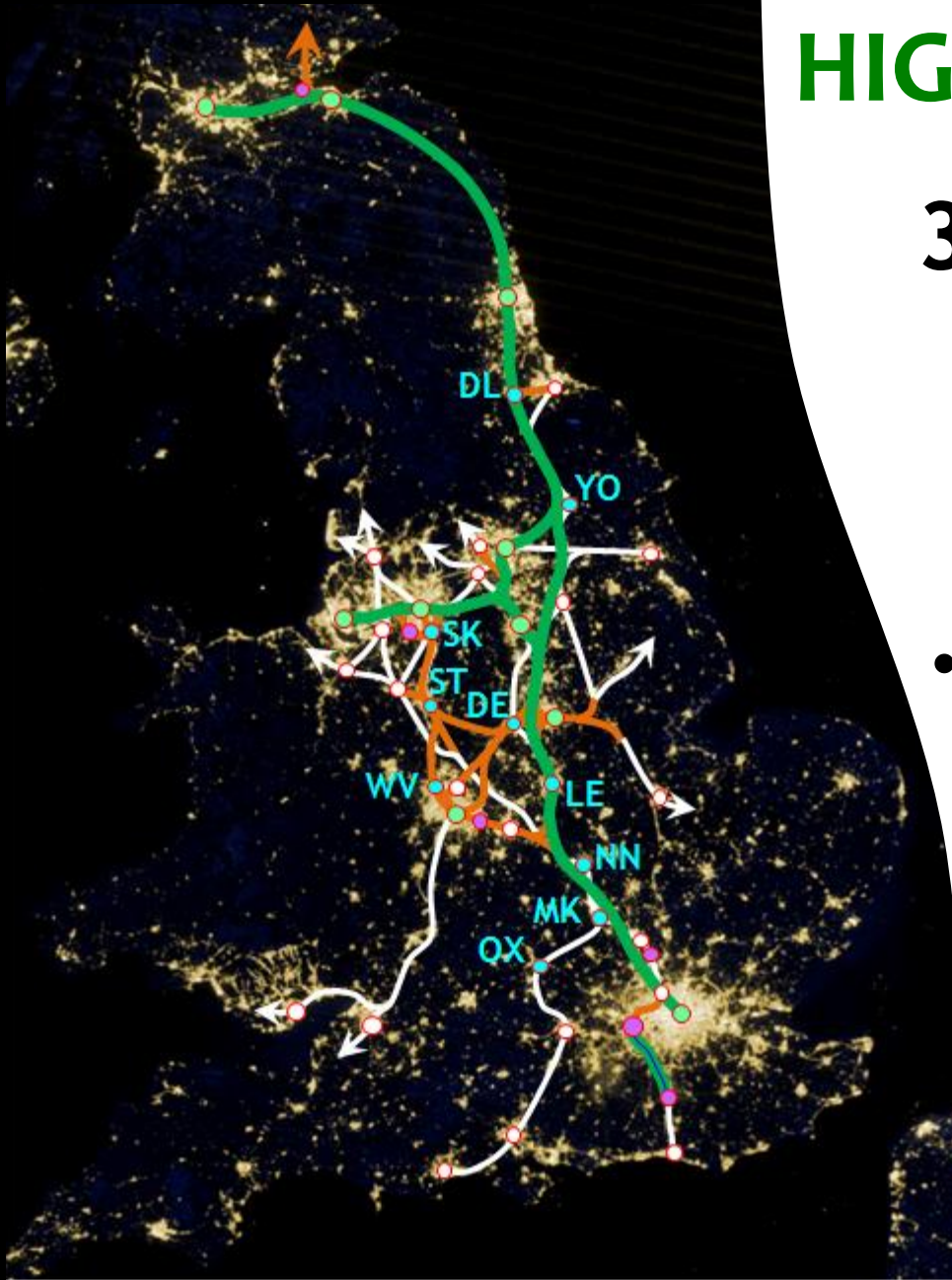
- Heathrow Airport (LHR)



# HIGH SPEED UK **HSUK**

**33 centres examined in  
HSUK timetable**

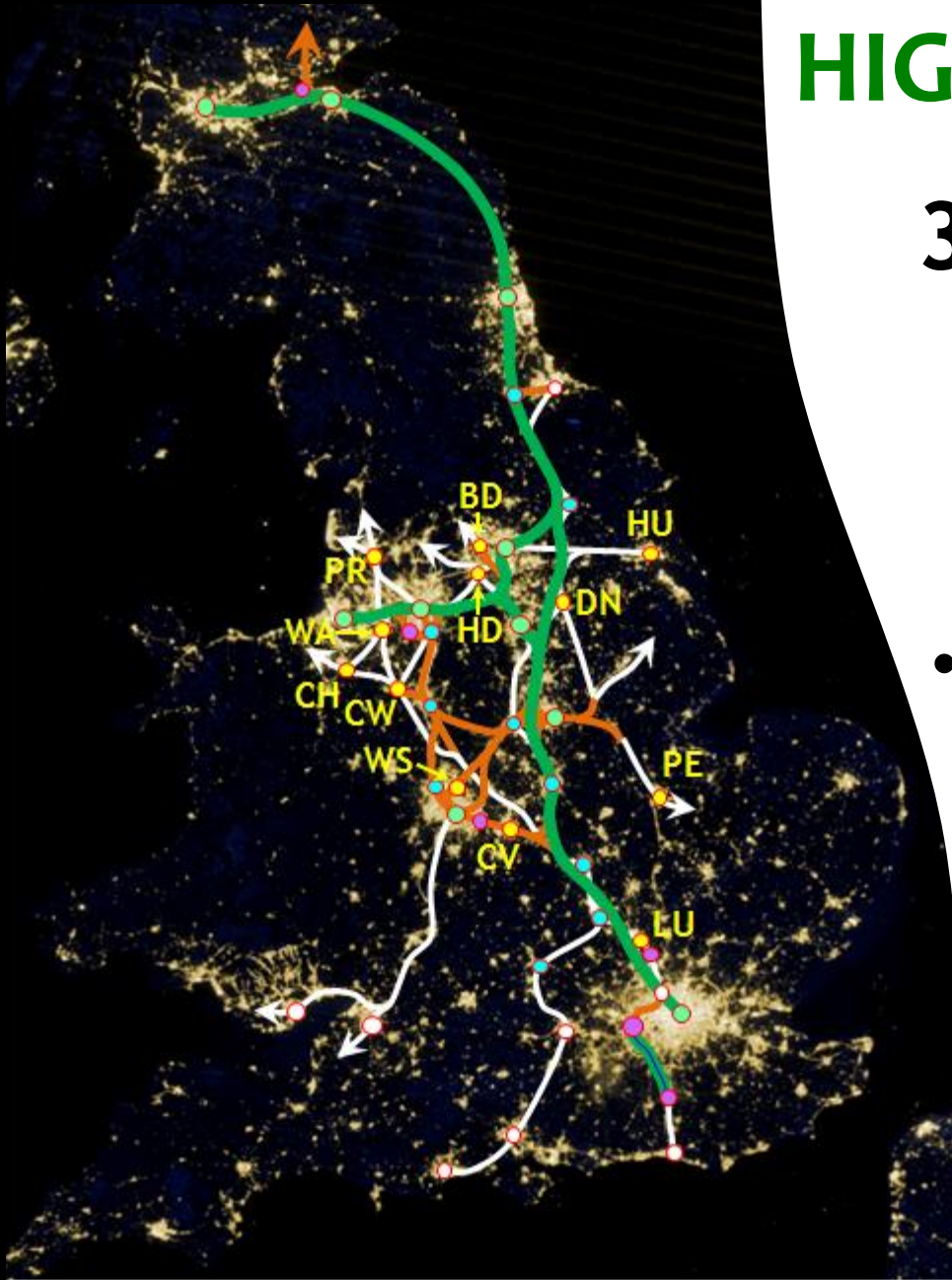
- **10 primary cities**  
GL,ED,NE,LS,LI,MA,SH,NG,BI
- **Heathrow Airport (LHR)**
- **10 second tier cities**  
**fully interlinked**  
DL,YO,SK,ST,WV,DE,LE,NN,MK,OX



# HIGH SPEED UK **HSUK**

**33 centres examined in  
HSUK timetable**

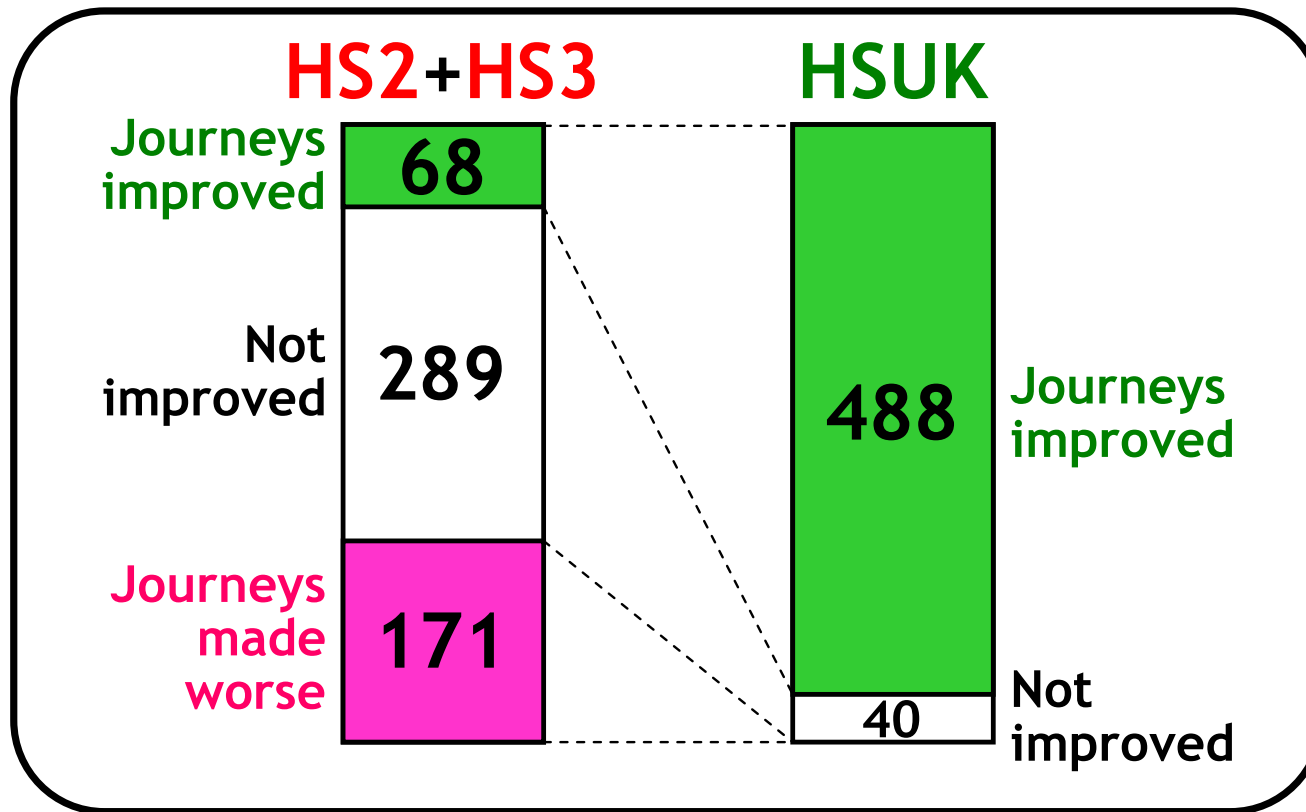
- **10 primary cities**  
GL, ED, NE, LS, LI, MA, SH, NG, BI
- **Heathrow Airport (LHR)**
- **10 second tier cities**  
**fully interlinked**  
DL, YO, SK, ST, WV, DE, LE, NN, MK, OX
- **12 other cities**  
HU, DN, BD, HD, PR, WA,  
CH, CW, WS, CV, LU, PE



# Enhanced National Network

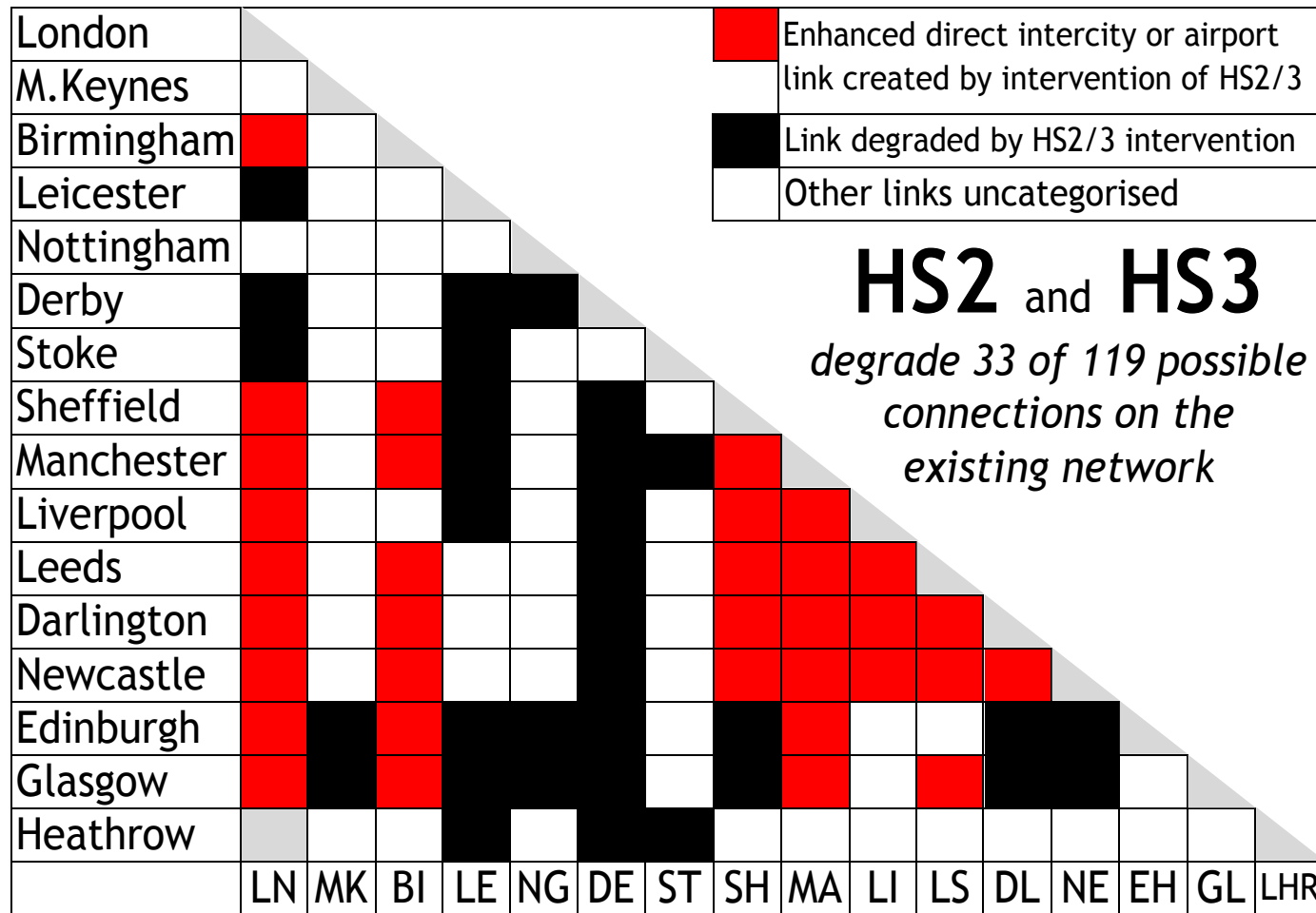


Considering 528 possible journeys  
between 33 major UK centres...



No journeys made worse with HSUK

# HS2+HS3 : Degraded Network



Source data : HS2 predicted services, Table 23, pp91/92 KPMG Report;  
 HS3 links as per Northern Powerhouse report;  
 Classic network services, Table 23, pp91/92 KPMG Report

# HSUK : Fully interlinked network

London																
M.Keynes	2															
Birmingham	4	2														
Leicester	4	3	2													
Nottingham	2	1	2	3												
Derby	2	1	3	3	2											
Stoke	3	1	2	1	1	1										
Sheffield	4	2	2	3	2	4	1									
Manchester	3	1	2	1	1	1	4	3								
Liverpool	2	1	2	1	2	1	2	2	5							
Leeds	3	1	2	3	1	3	1	4	3	2						
Darlington	3	1	2	3	2	1	1	2	2	1	4					
Newcastle	3	1	2	3	2	1	1	2	2	1	4	4				
Edinburgh	3	1	1	2	1	1	1	2	2	1	4	5	5			
Glasgow	3	1	1	2	1	1	1	2	1	1	3	4	4	5		
Heathrow		1	1	1	1	1	1	1	1	1	1	1	1	1	1	
	LN	MK	BI	LE	NG	DE	ST	SH	MA	LI	LS	DL	NE	EH	GL	LHR

4

Enhanced intercity or airport link created by intervention of new HSL, showing number of trains per hour

**HSUK**

*improves 119 out of 119 possible journeys*

Source data : HSUK timetable based on HSUK route mapping

# HSUK : Cost-effective solution

HSUK's more efficient network configuration requires 195km fewer kilometres of new-build high speed line than HS2.

*HSUK's routes along existing transport corridors are located in easier, more accessible and less sensitive topography.*

HSUK's superior routeing strategy requires 109km less tunnel than HS2.

# HSUK : Cost-effective solution

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*HSUK's routes along existing transport corridors are located in easier, more accessible and less sensitive topography.*

HSUK's superior routeing strategy requires 109km less tunnel than HS2.

*This is why HSUK will be* **£20** *billion cheaper to build than HS2*

# Journey Time Savings



High Speed UK's scheme for new high speed lines at the core of a *fully integrated* UK high speed rail *network* will enable

**>45%** journey time savings  
across the national intercity network.

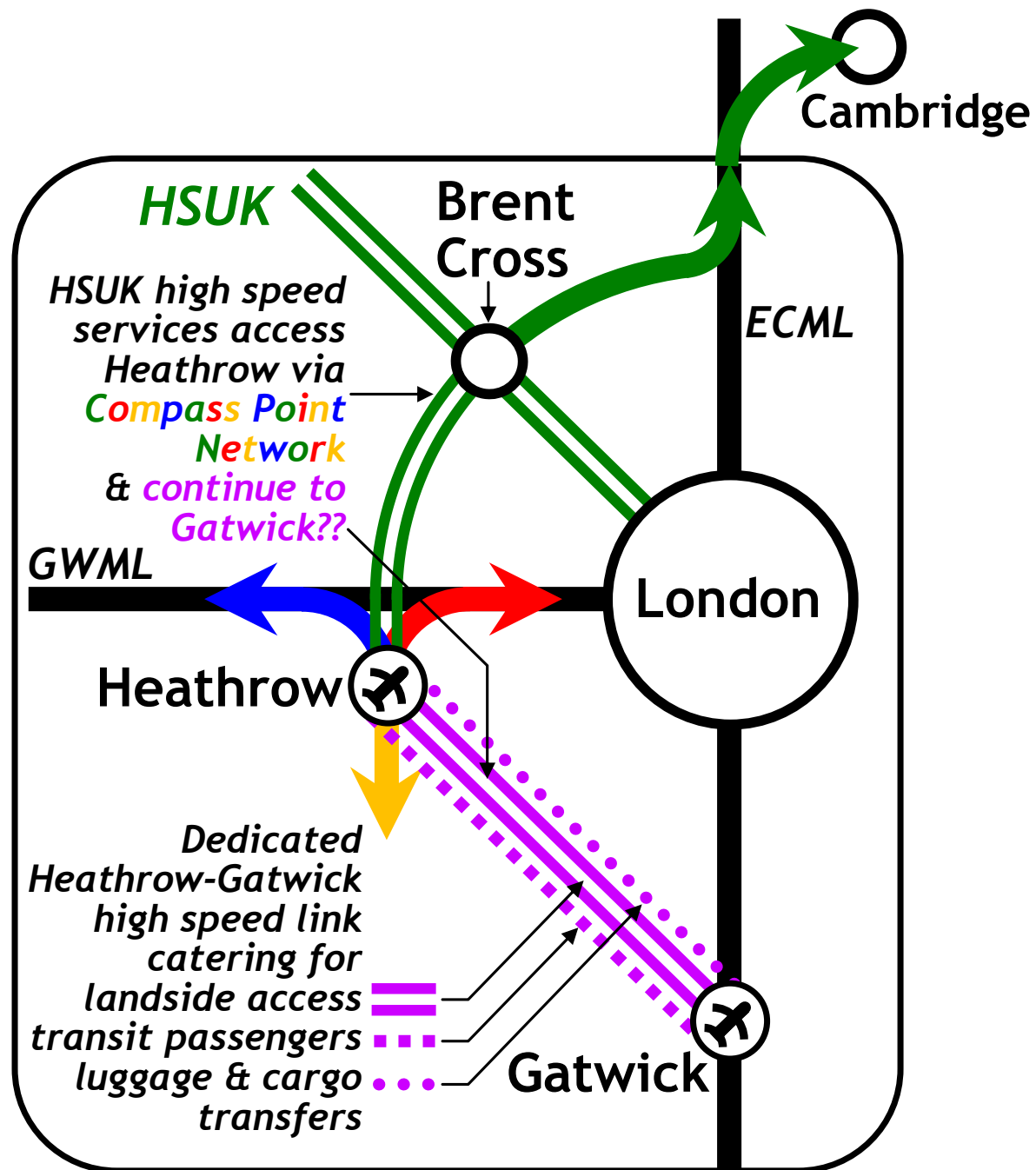
*This is proved by the timetable  
that we have developed.*

# **Eurogauge UK freight network**

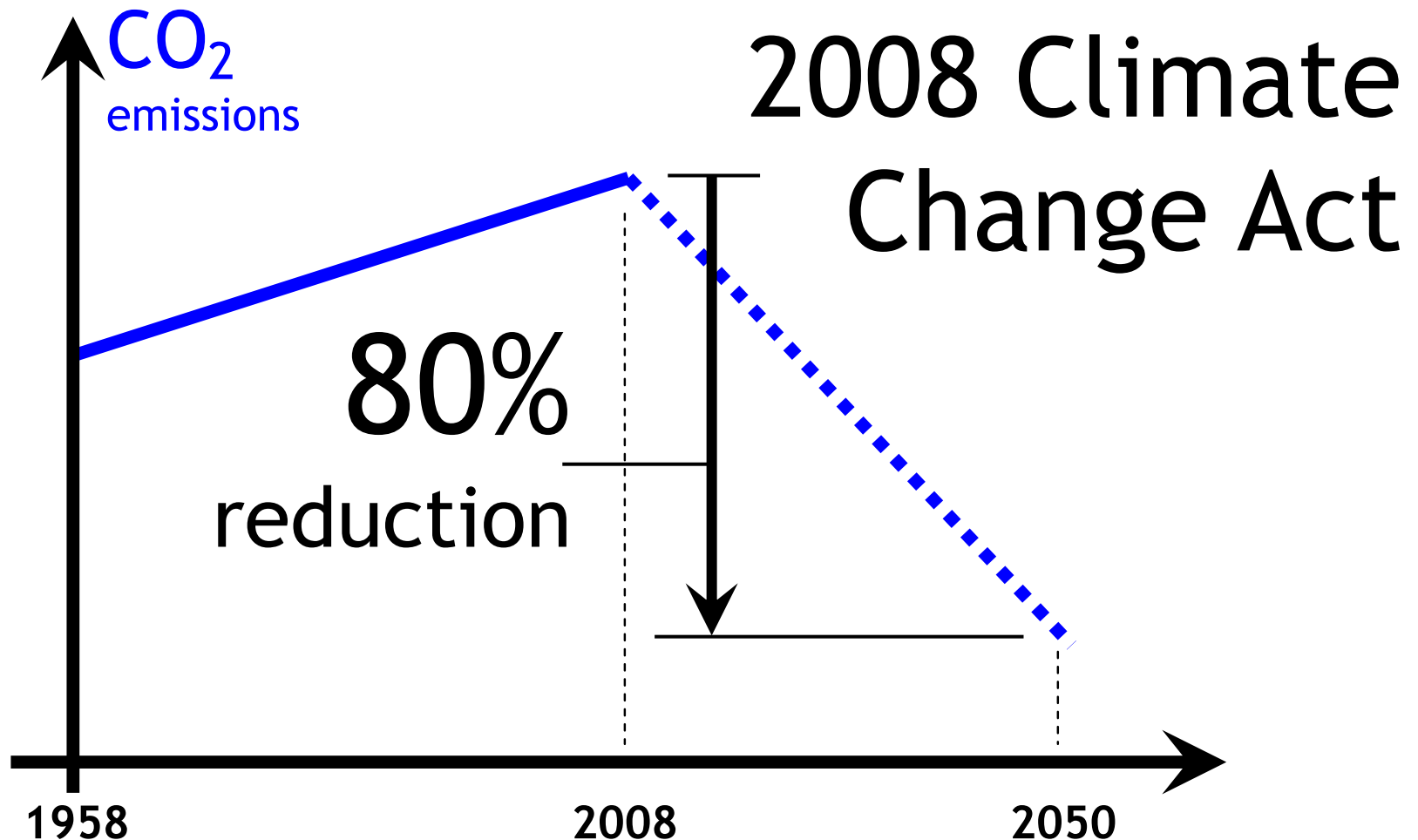
- Eurogauge UK - ‘Prime User’ freight network along existing routes, parallel to HSUK
- High speed passenger traffic diverted to high speed line & other routes
- Extends to same conurbations as HSUK
- Lines upgraded to UIC-C Continental Gauge
- Continental wagons via Channel Tunnel?
- ‘Piggyback’ operation ie 45-foot 3-axle articulated semi-trailers on rail wagons?
- Transpennine lorry shuttles via Woodhead

# HSUK : Alternative London airport strategy

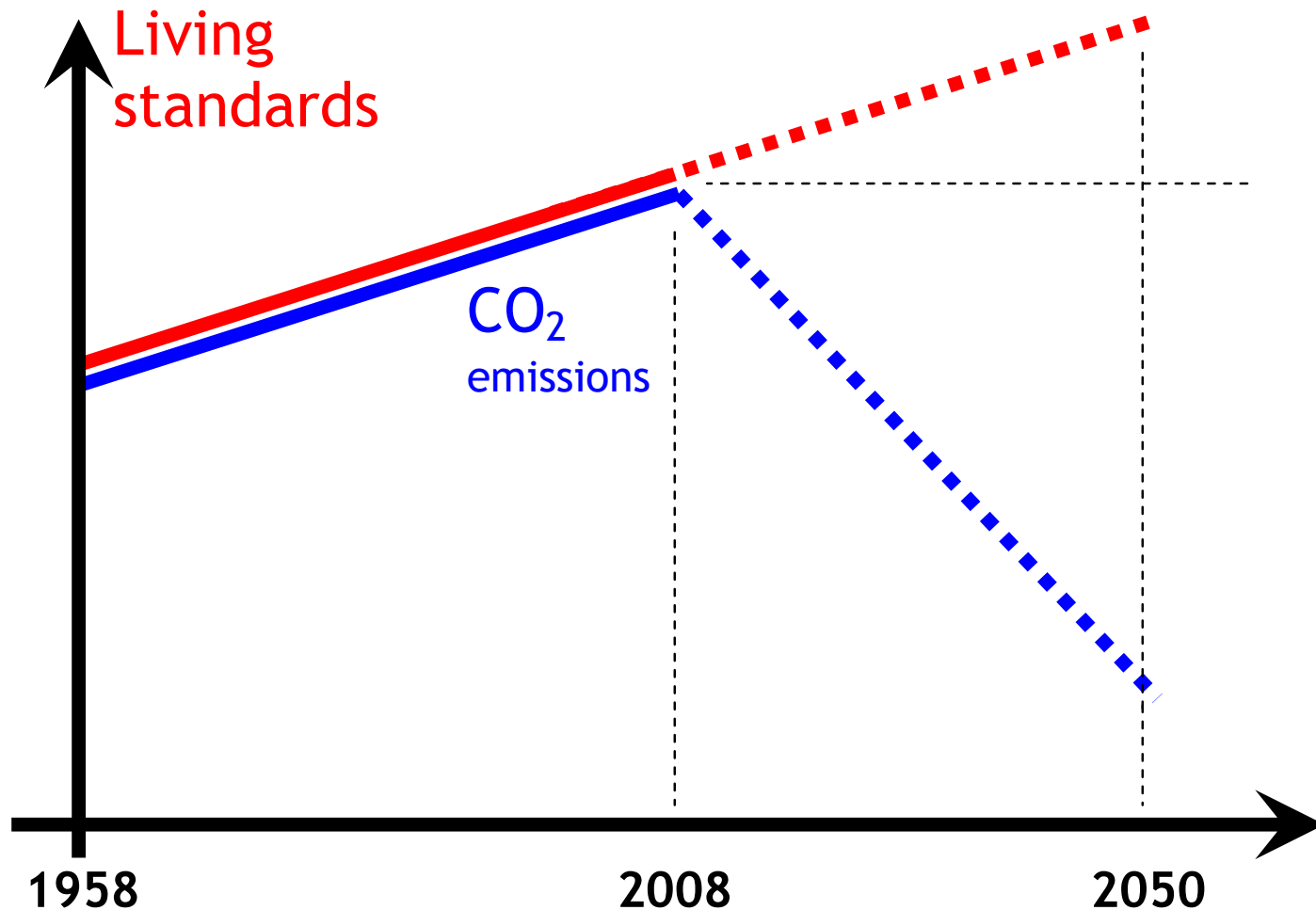
*London's  
hub airport  
is the UK's  
hub airport*



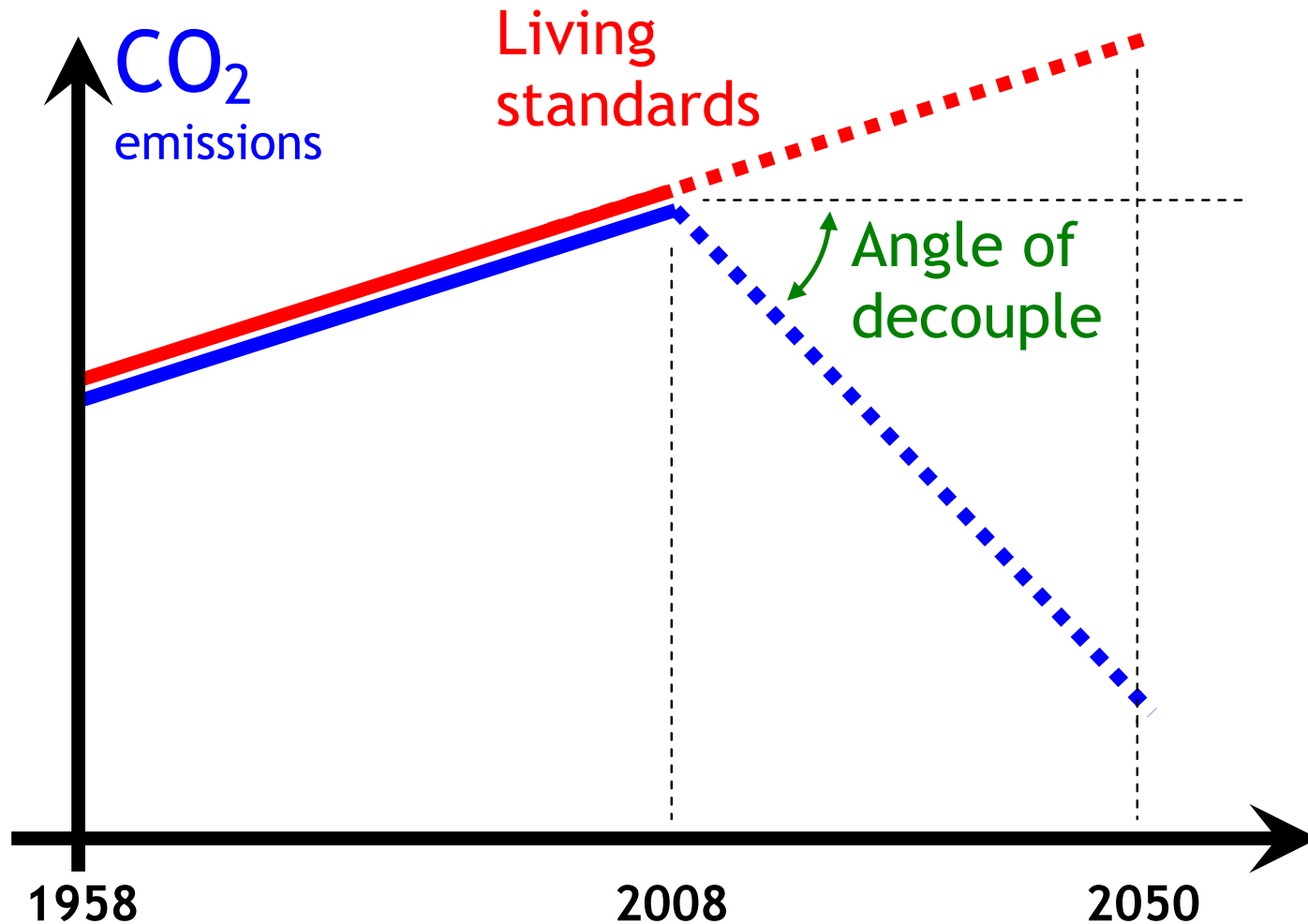
# The CO<sub>2</sub> Challenge



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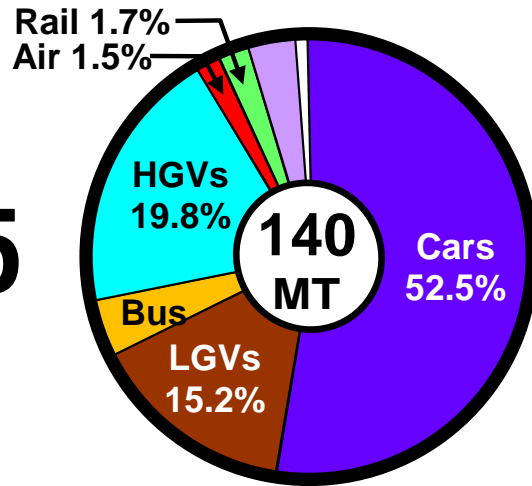
# The CO<sub>2</sub> Challenge



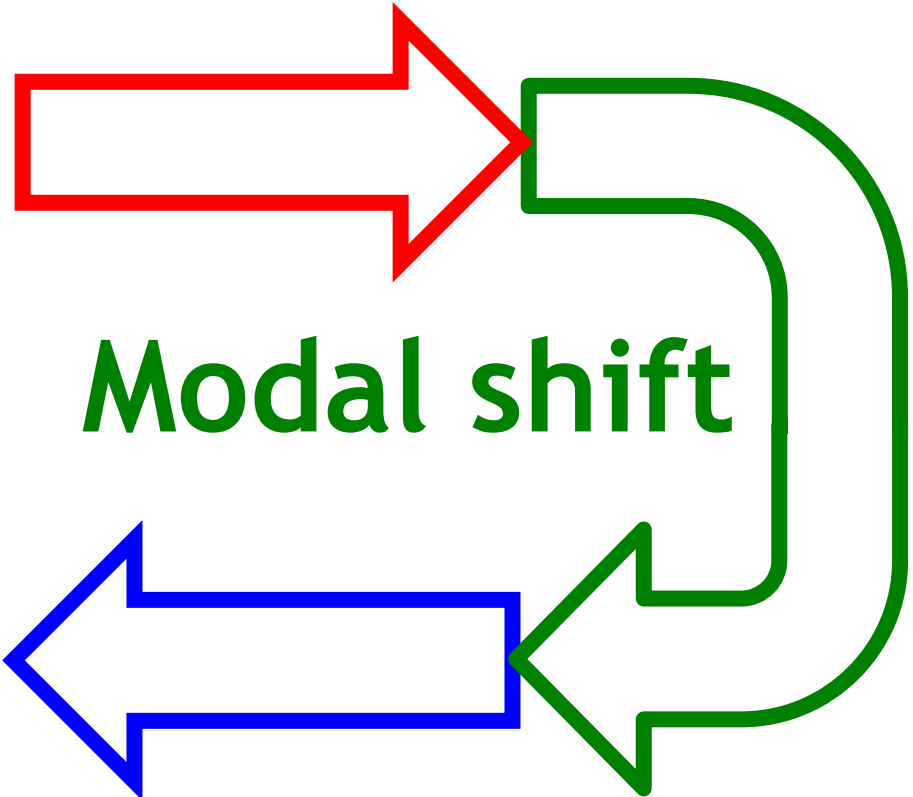
# UK Emissions Reductions Roadmap to 2050??

HSUK

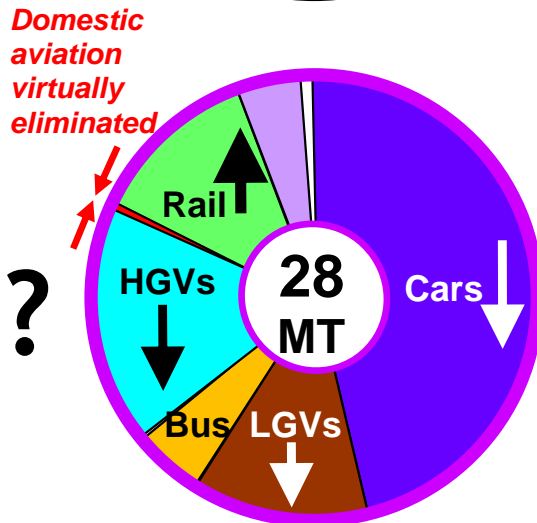
2015



Behavioural shift



2050?



Technological shift

# UK Emissions Reductions Roadmap to 2050??



## Essential prerequisites for a railway solution:

- Step change capacity increase
- Step change connectivity increase
- Full integration / follow existing corridors
- National transport strategy

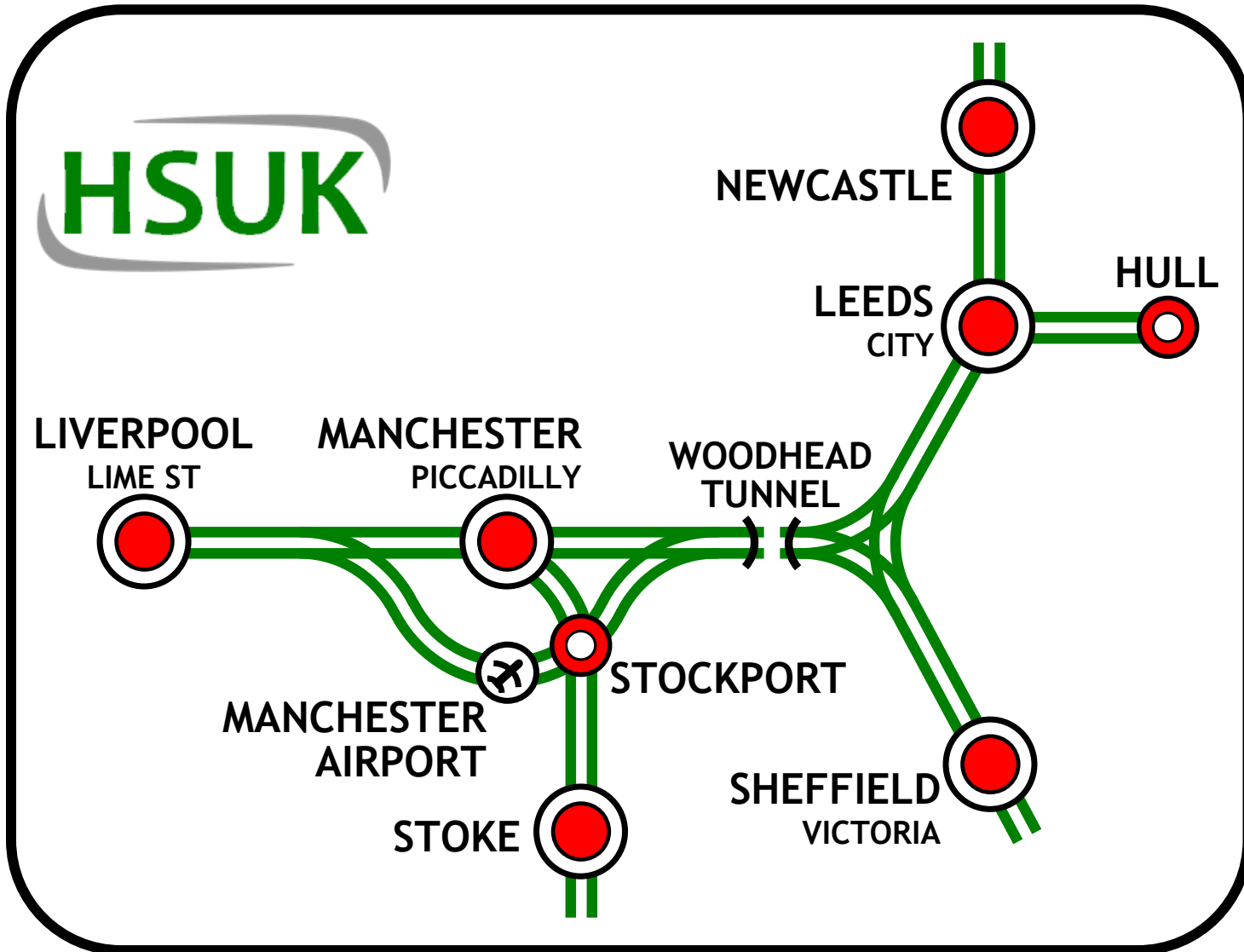
# Step-change CO<sub>2</sub> reductions



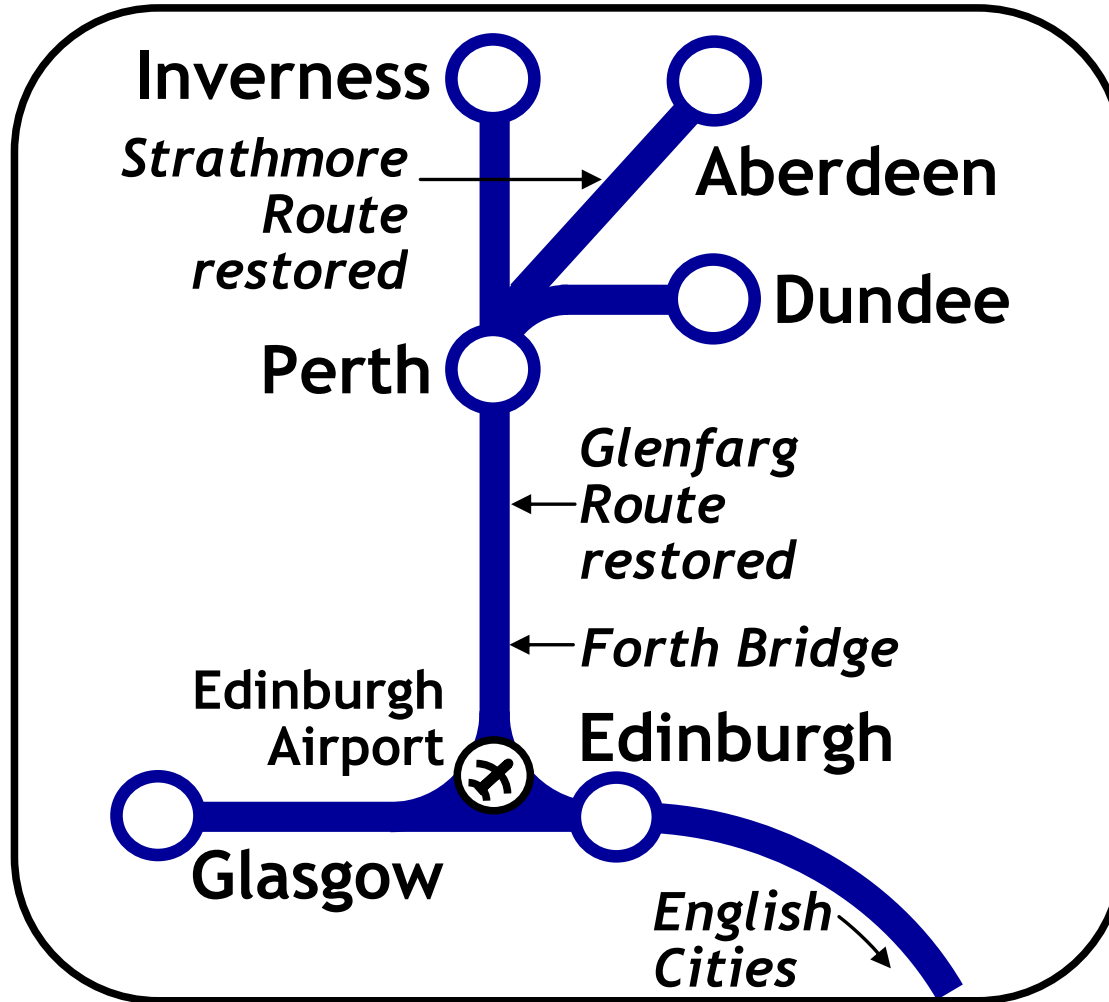
- HSUK will transform most UK intercity journeys
- HSUK will increase average interregional intercity speeds from 70kph to 140kph
- HSUK will enhance local service capacity in Leeds, Birmingham, Manchester & other cities
- HSUK's freight strategies will transfer HGV flows to rail on most long-distance routes
- *HSUK will deliver step-change modal shift*
- This is why we predict that HSUK will cut CO<sub>2</sub> emissions by >500 million tonnes over 40 years

# HSUK Northern Powerhouse

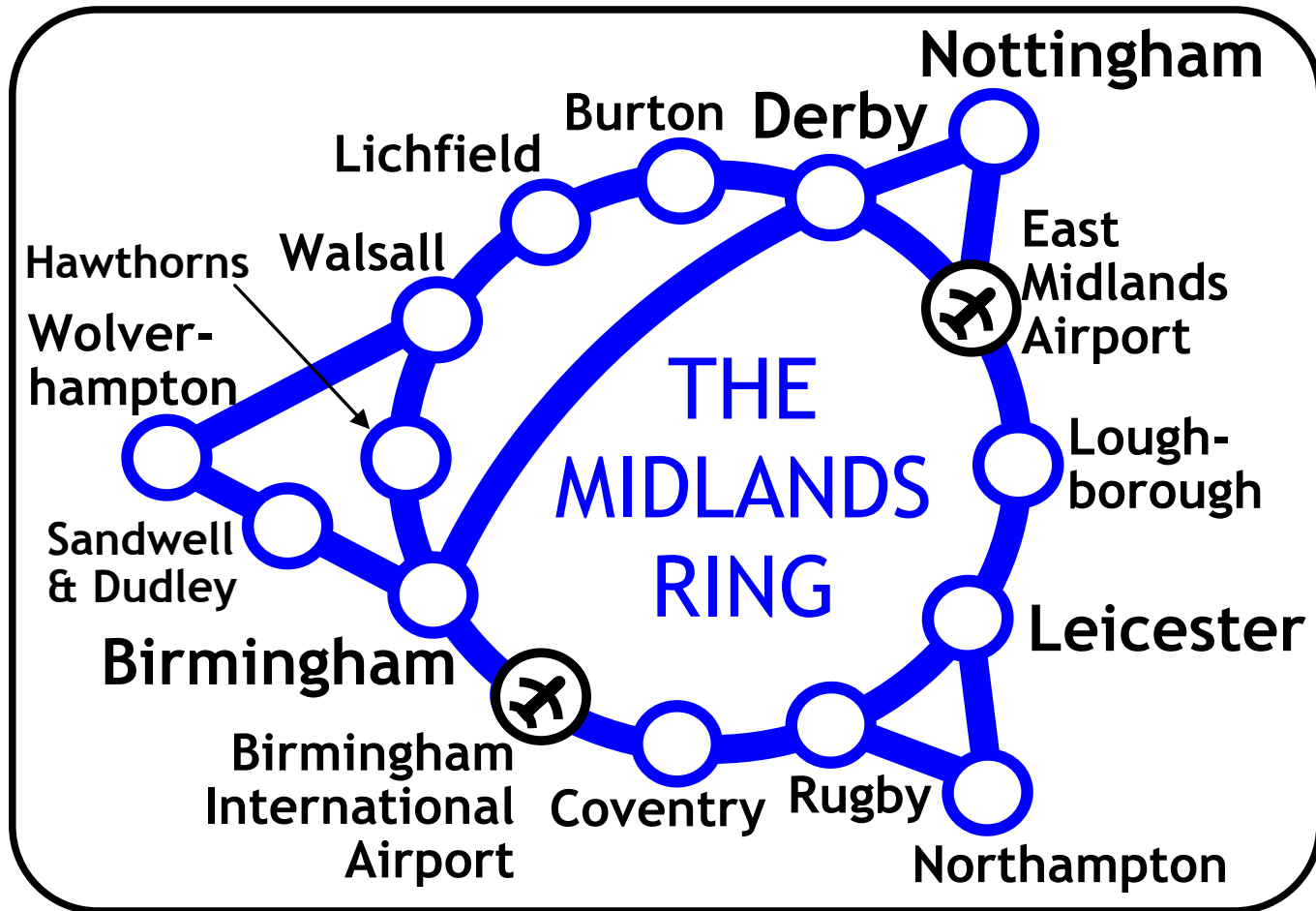
HSUK



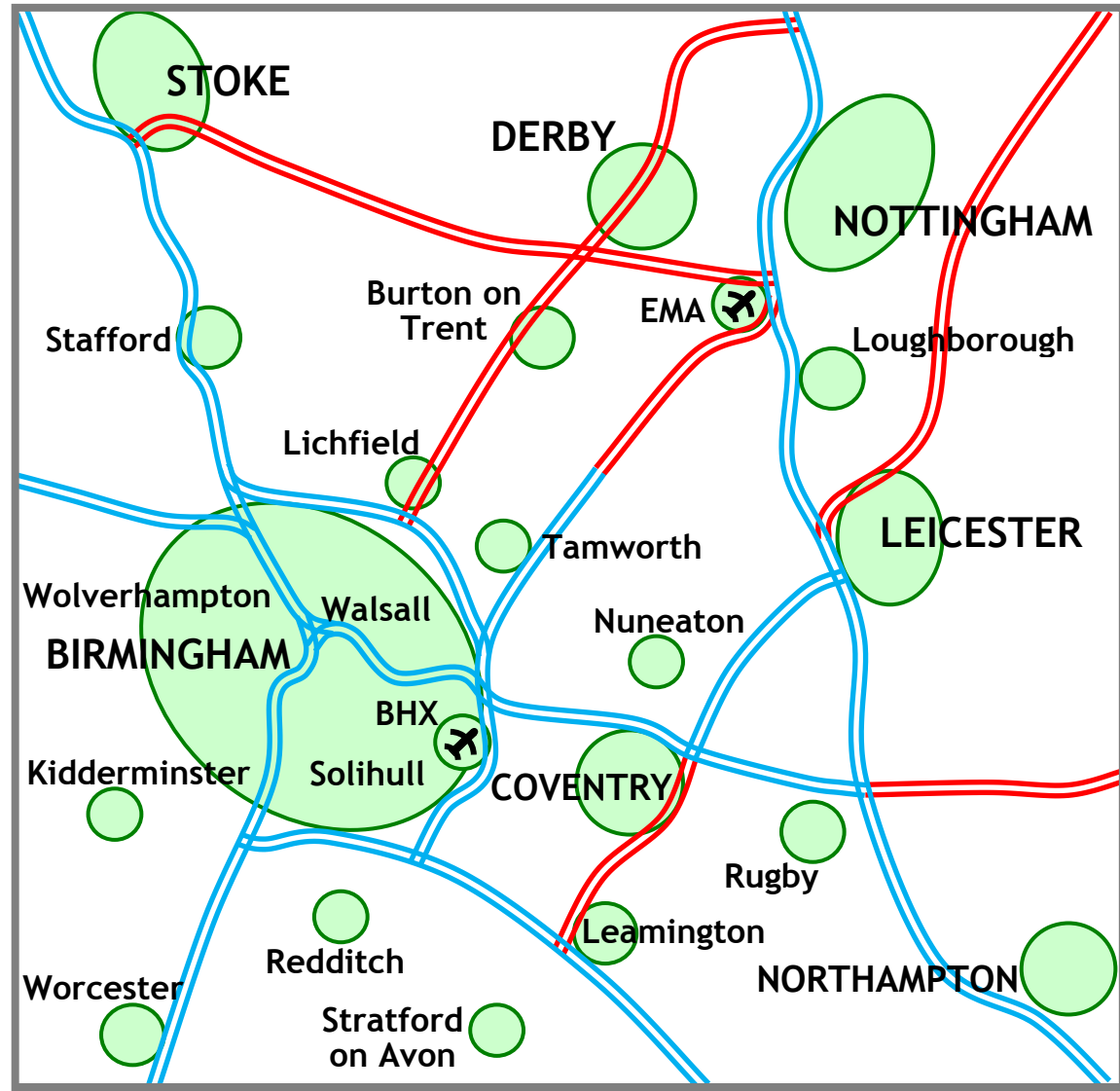
# HSUK Scottish Powerhouse



# HSUK Midlands Powerhouse



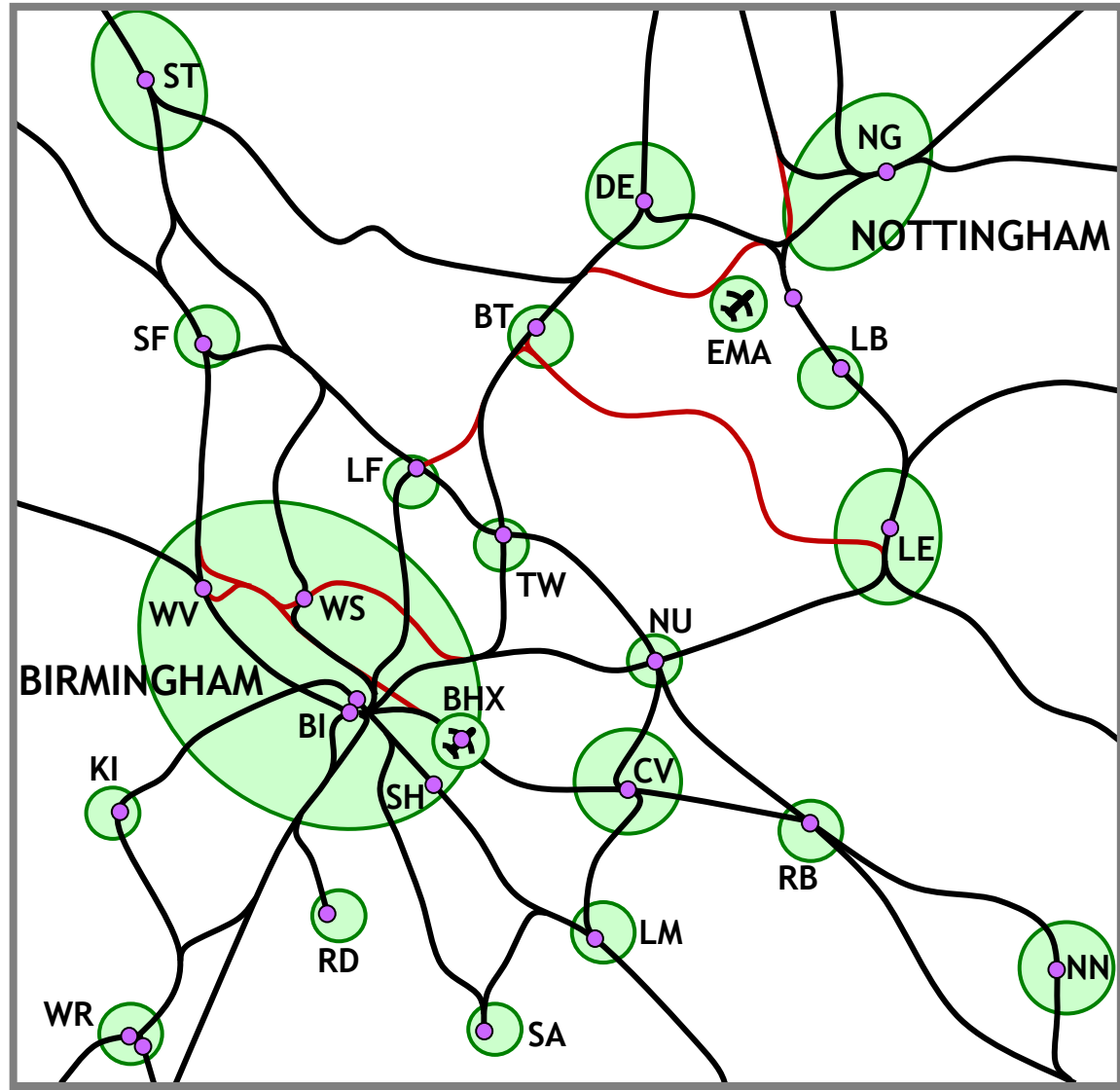
# Midlands Road Network



# Midlands Rail Network

Passenger

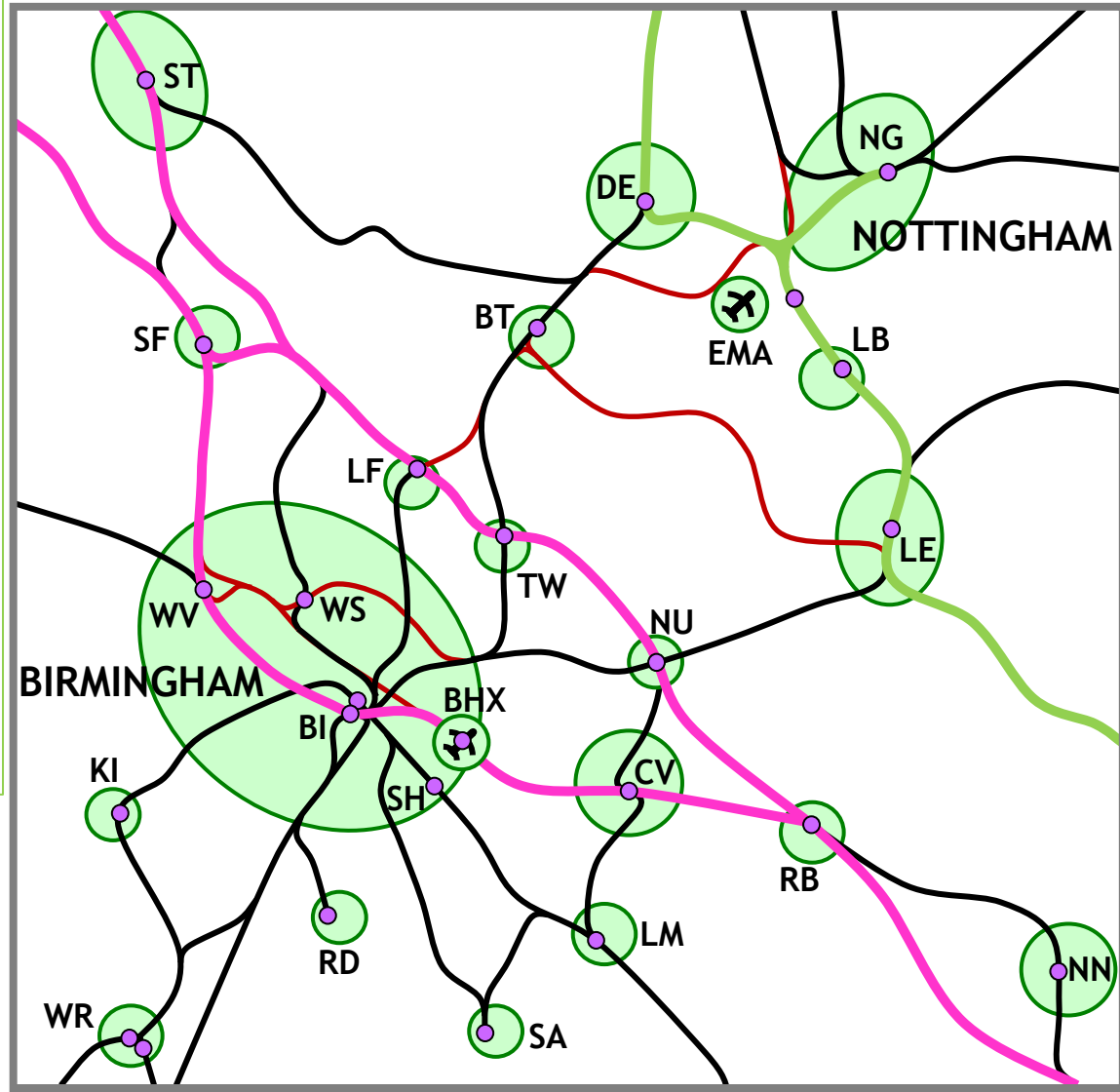
Freight only



# Midlands Rail Network

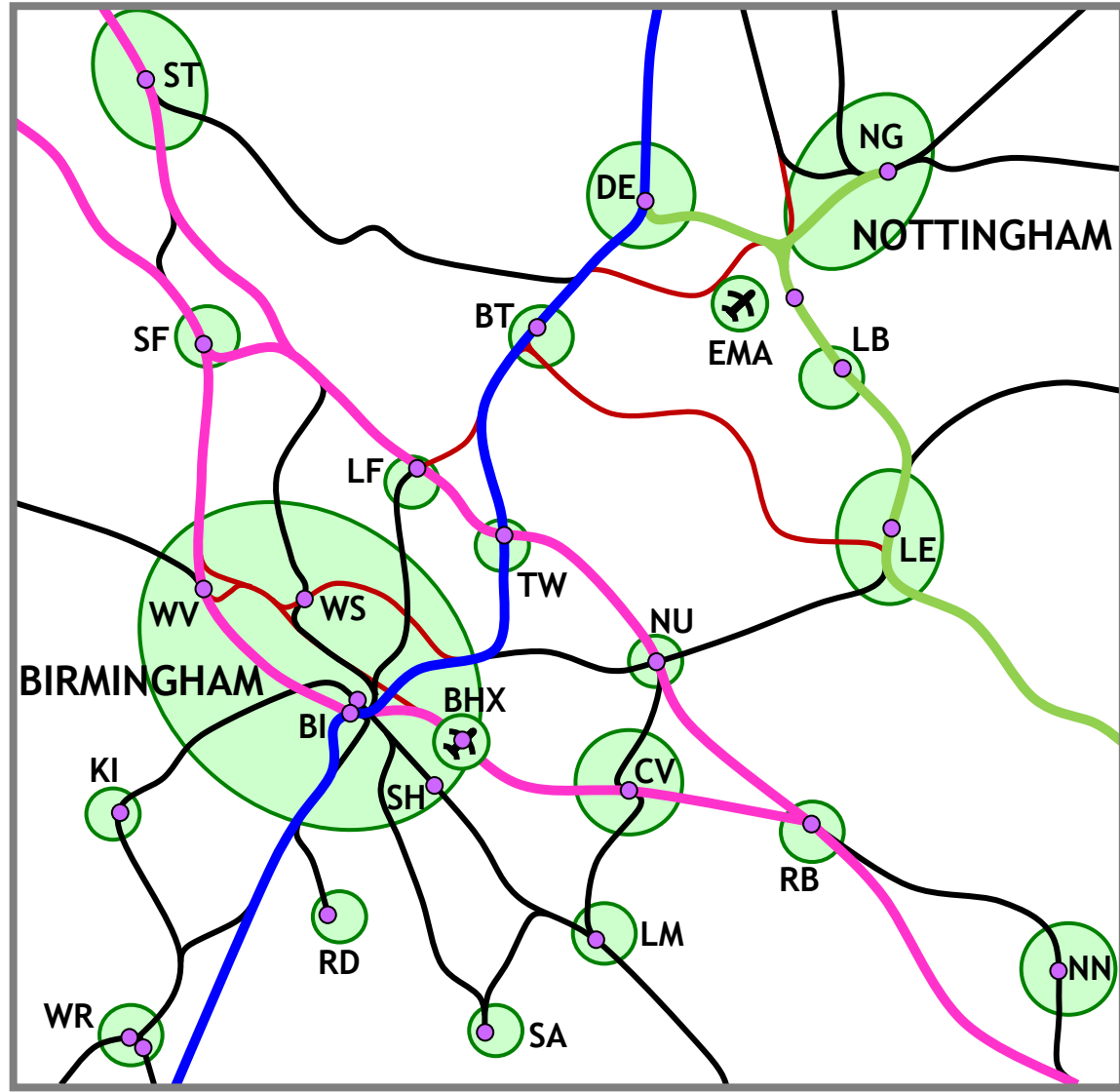
WCML

MML



# Midlands Rail Network

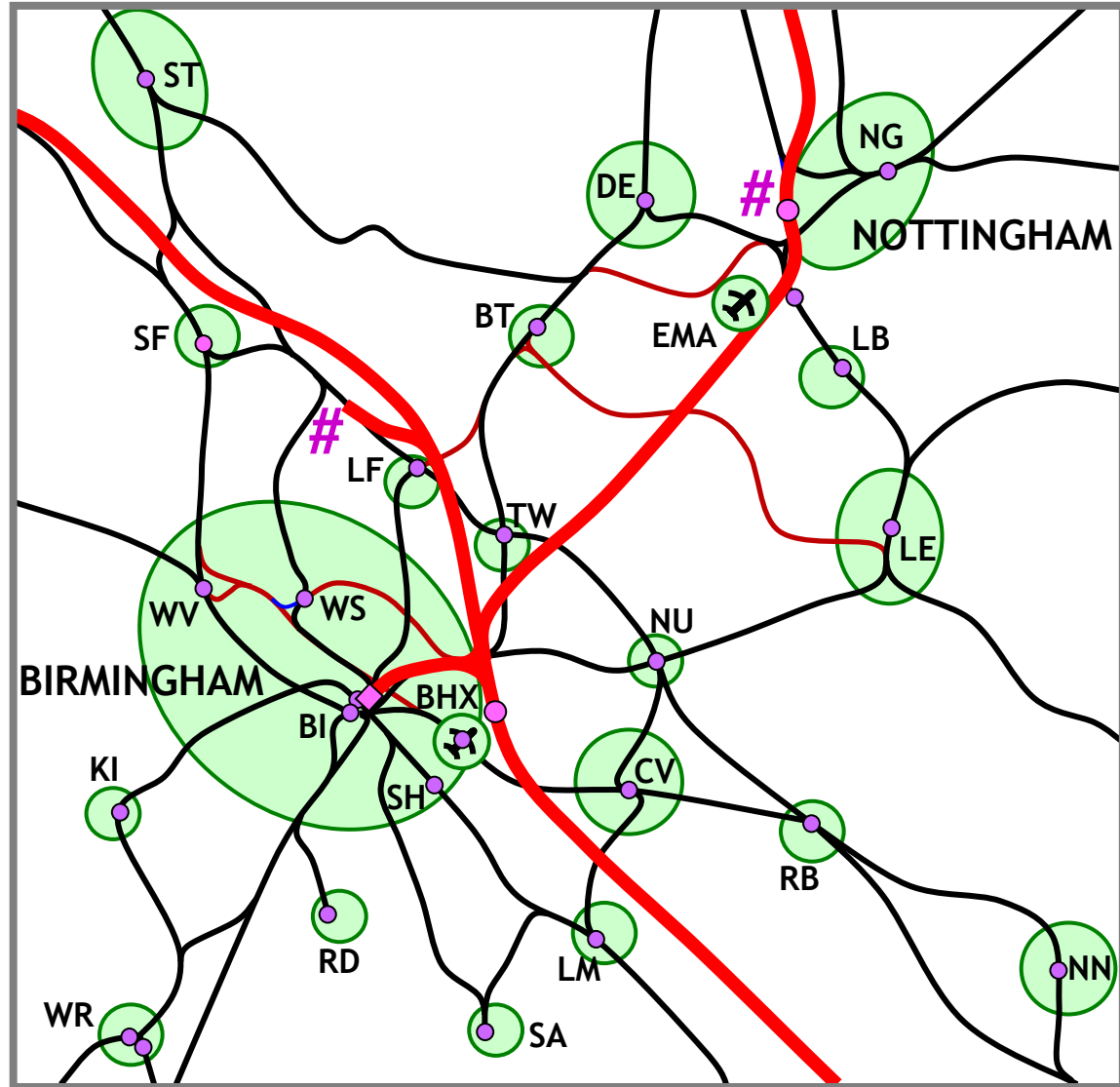
## Xcountry



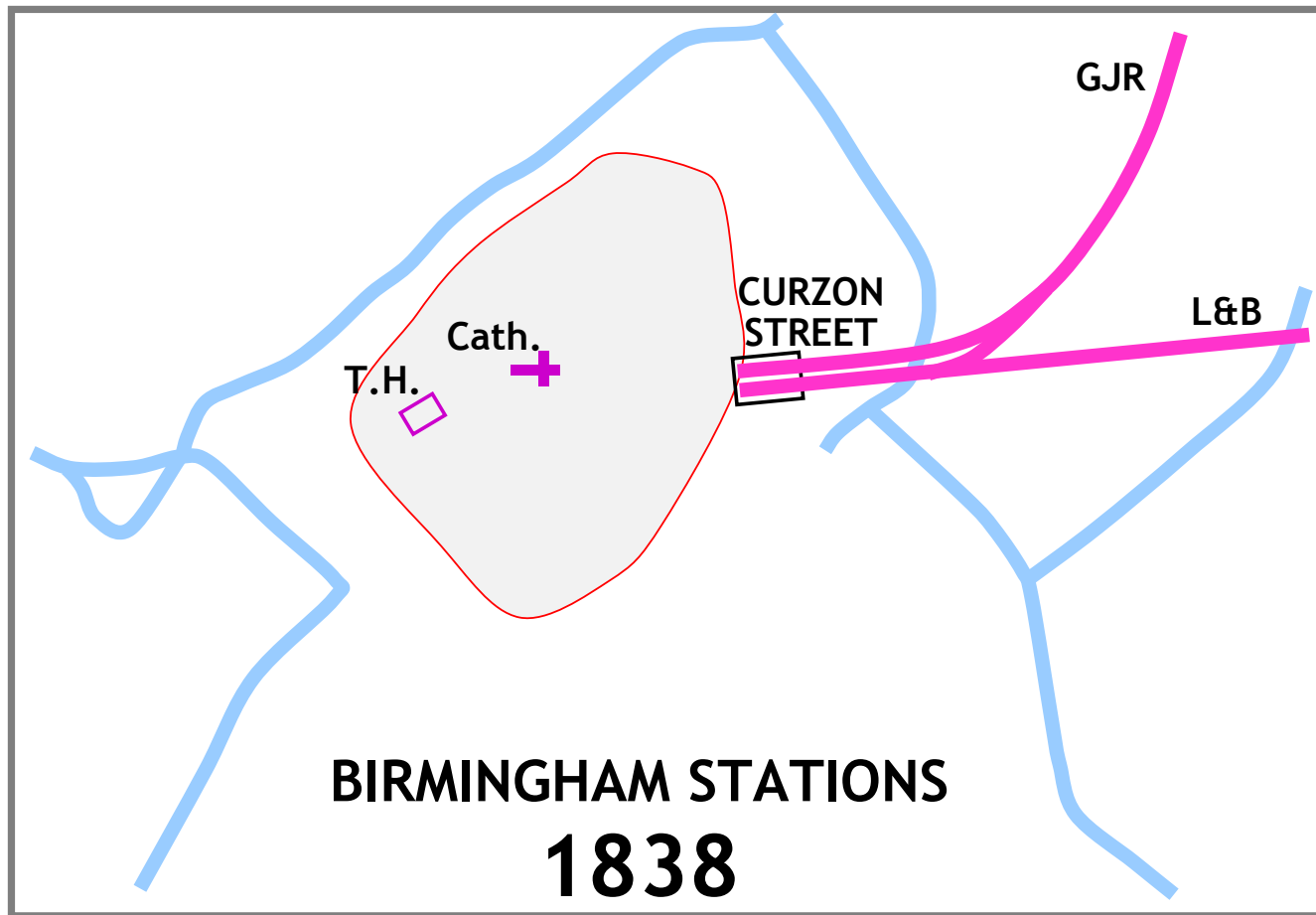
# Midlands Rail Network

HS2

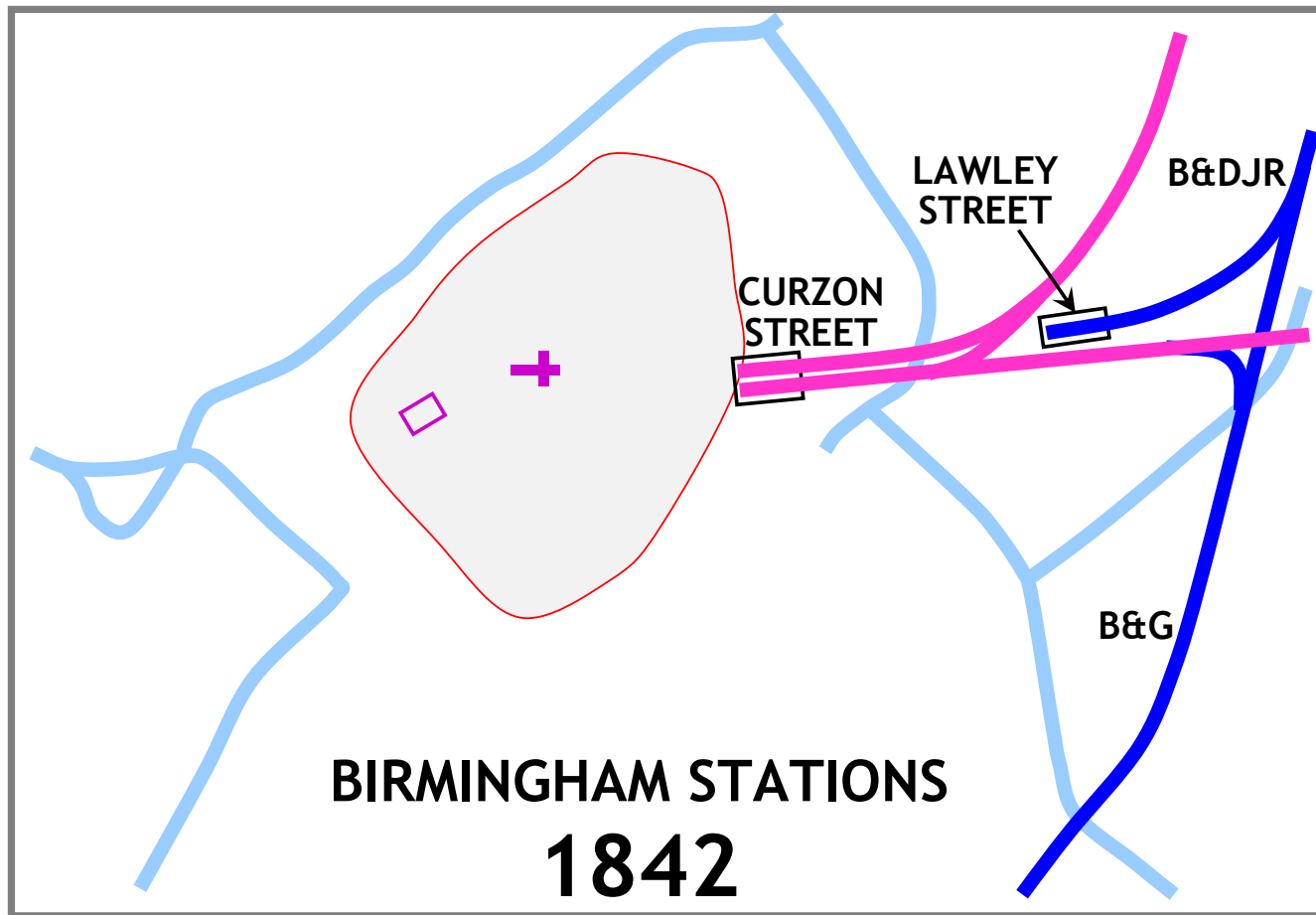
# - link to  
ex<sup>g</sup> network



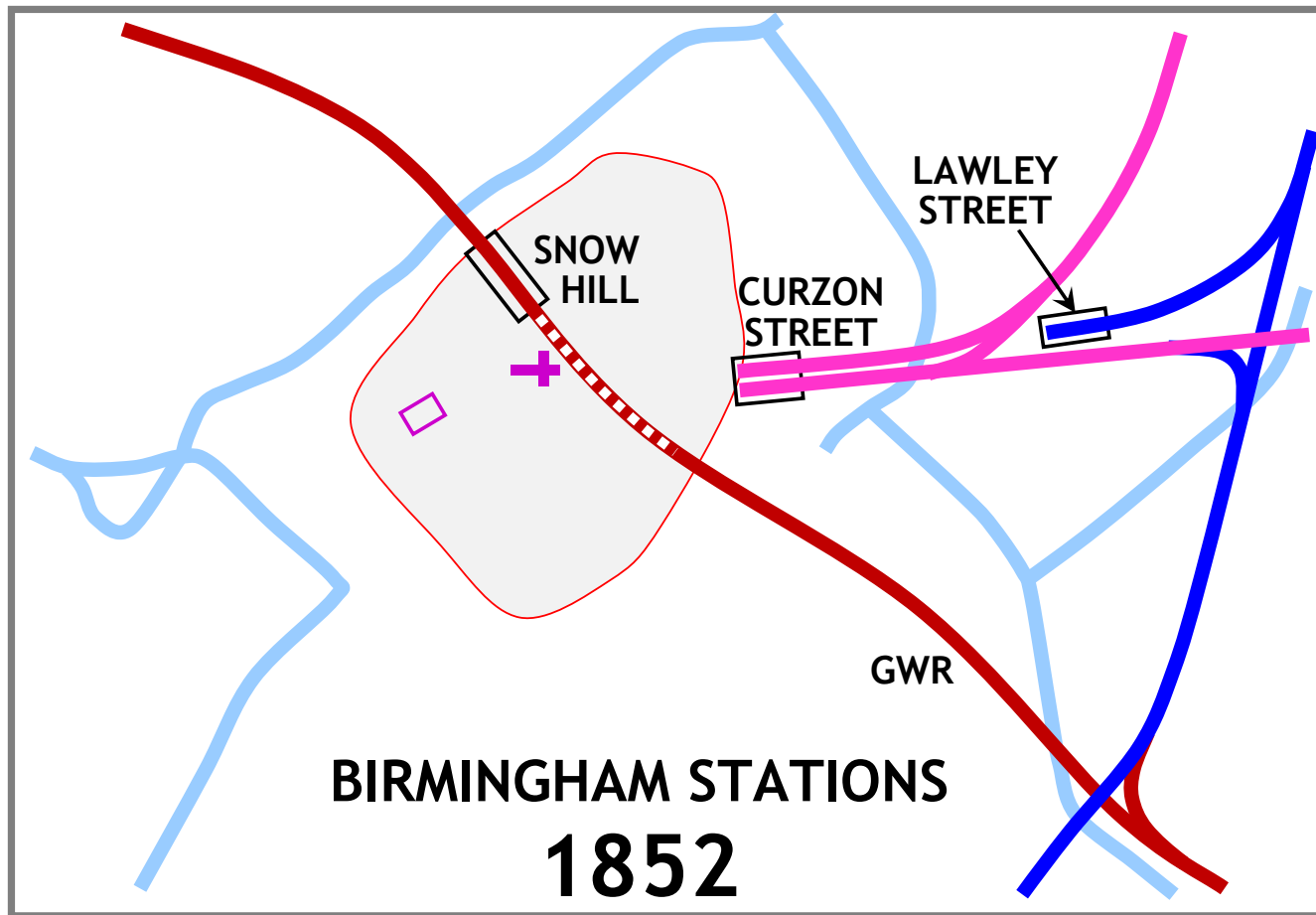
# Birmingham Rail Development (1)



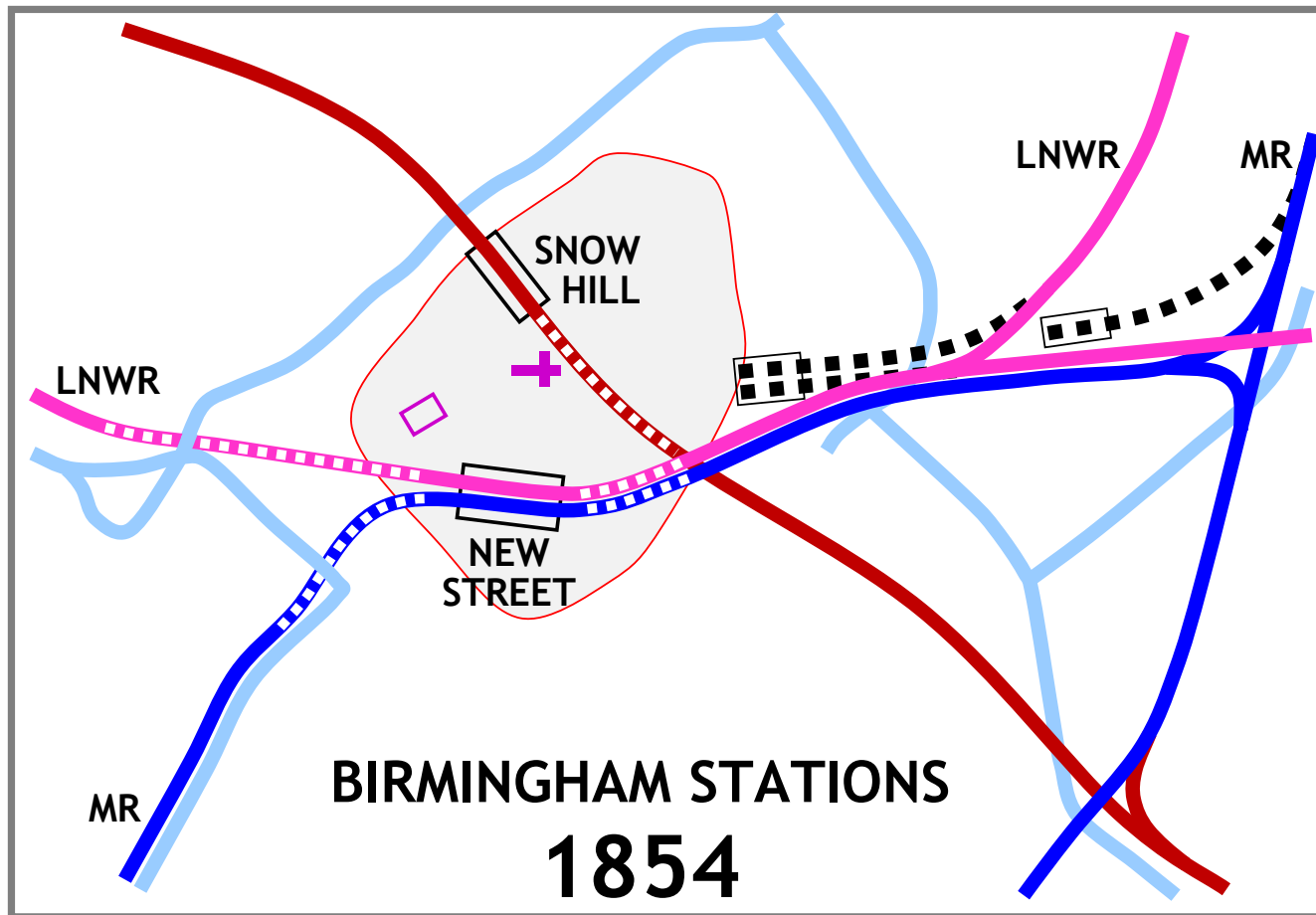
# Birmingham Rail Development (2)



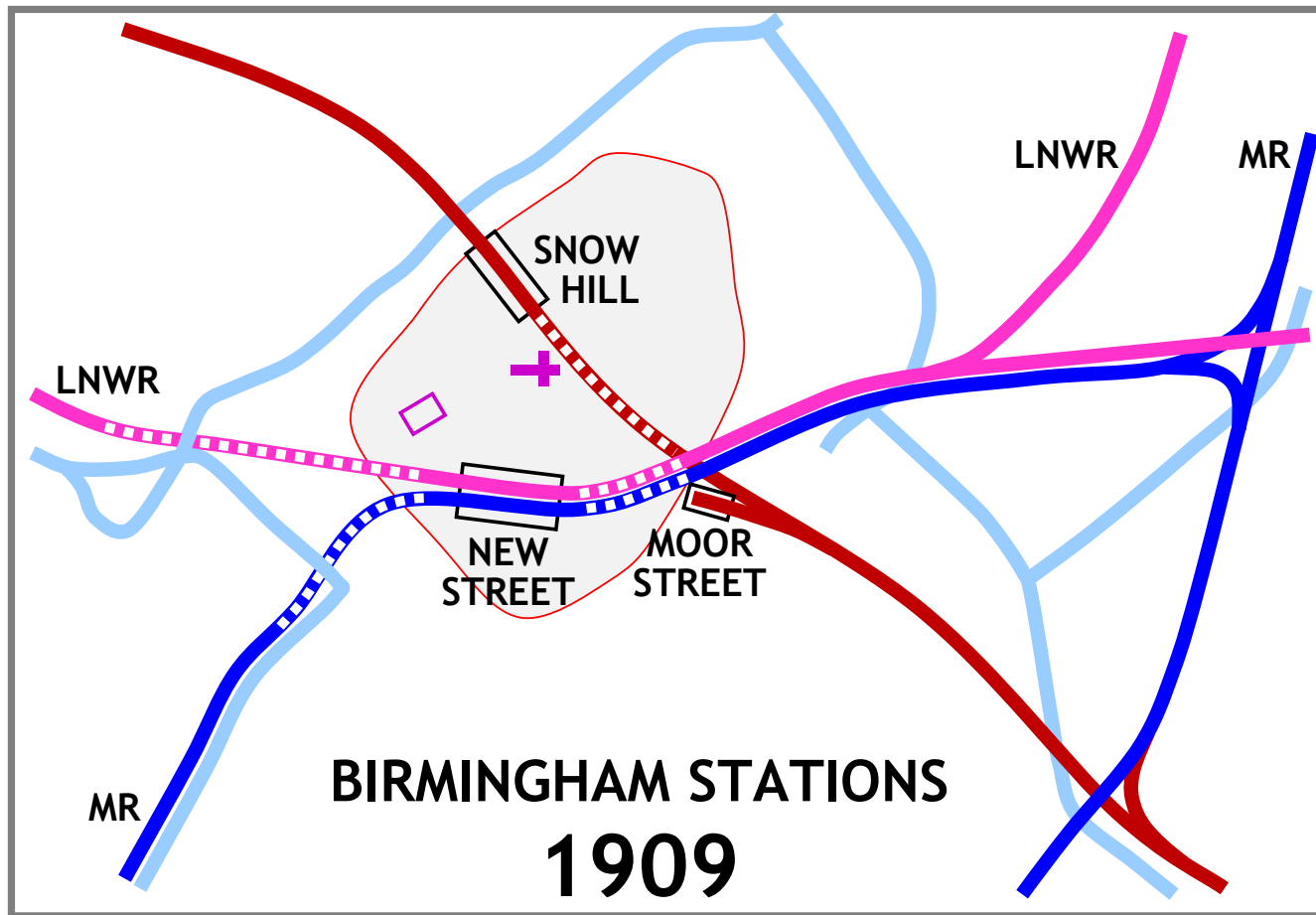
# Birmingham Rail Development (3)



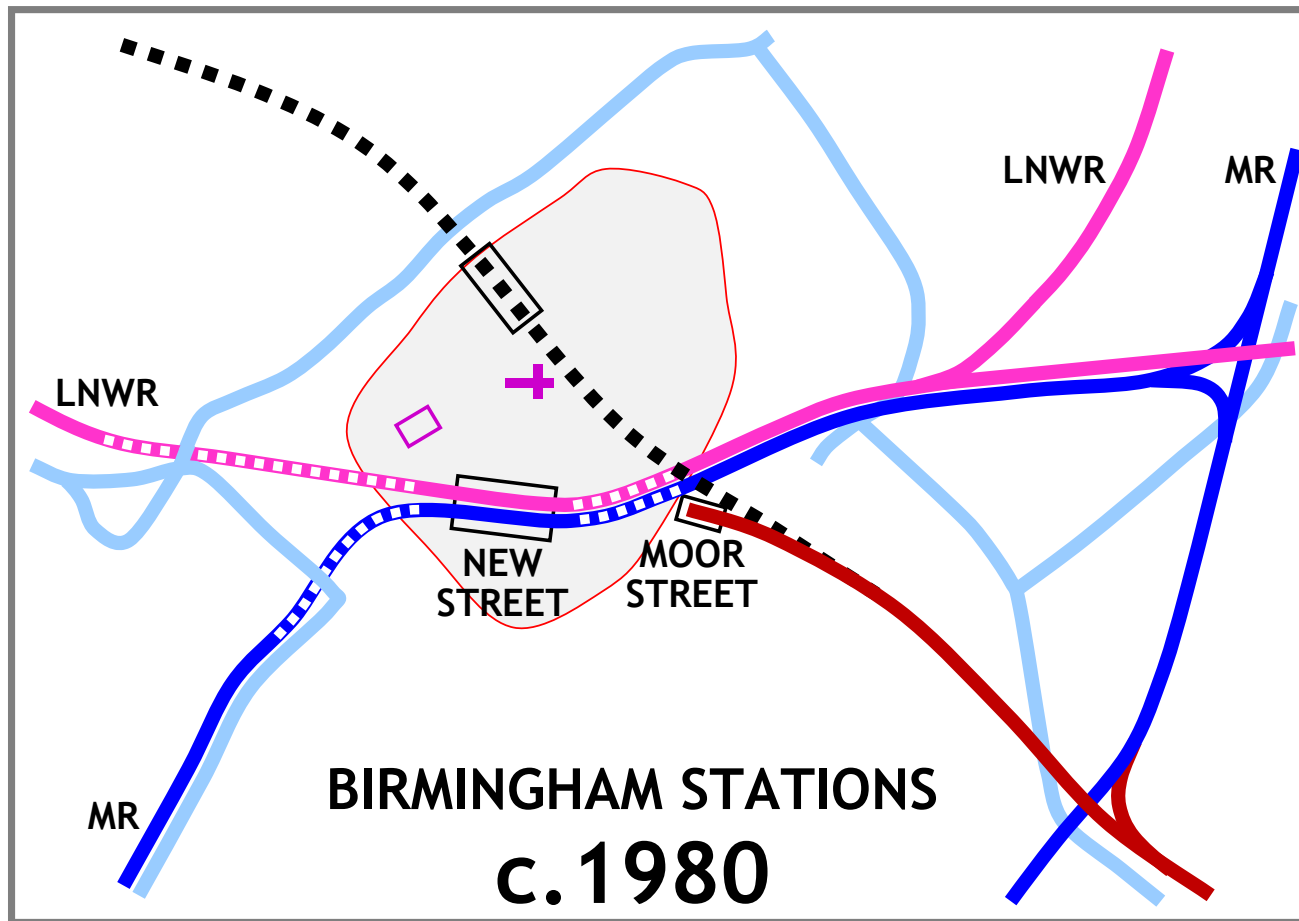
# Birmingham Rail Development (4)



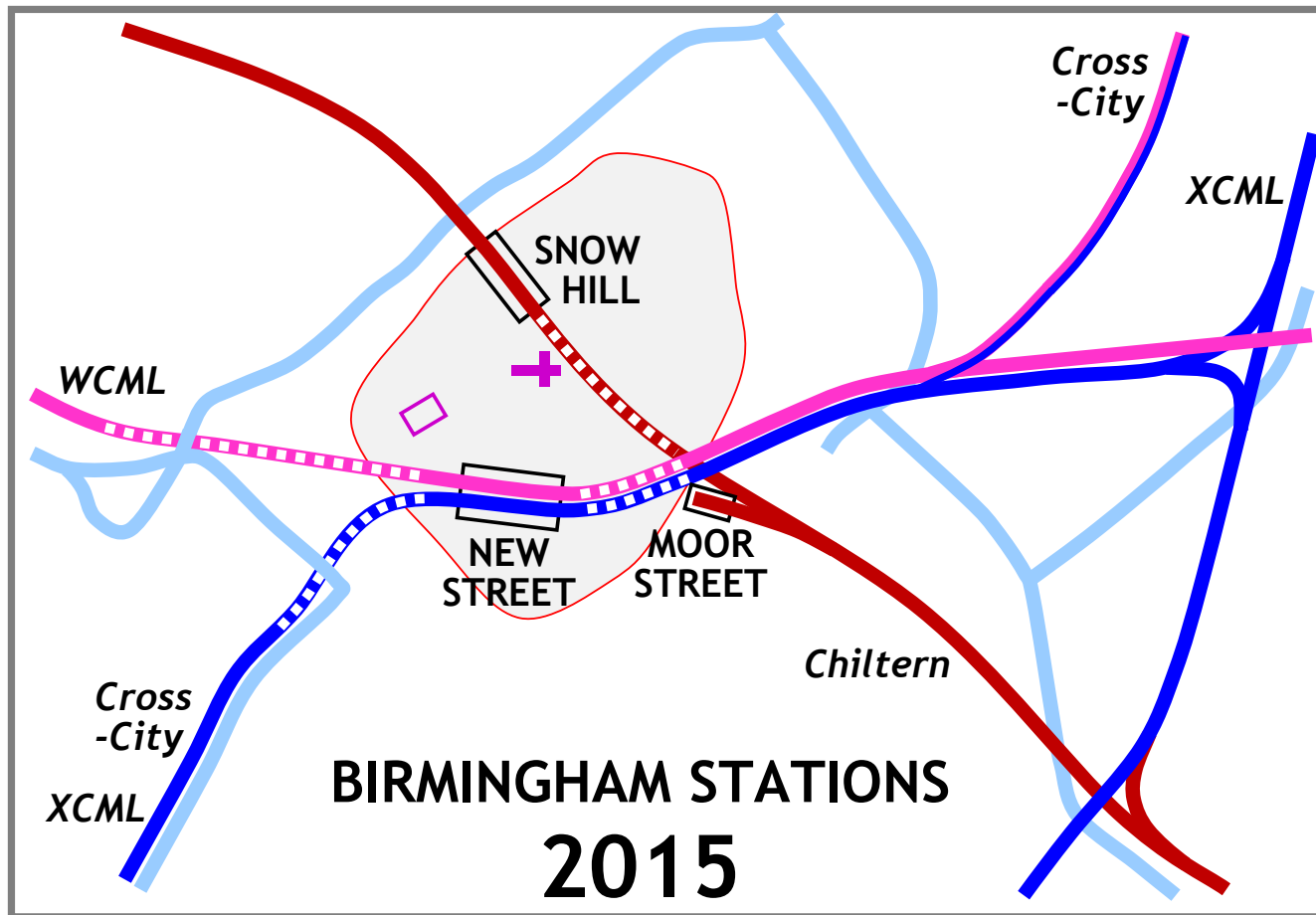
# Birmingham Rail Development (5)



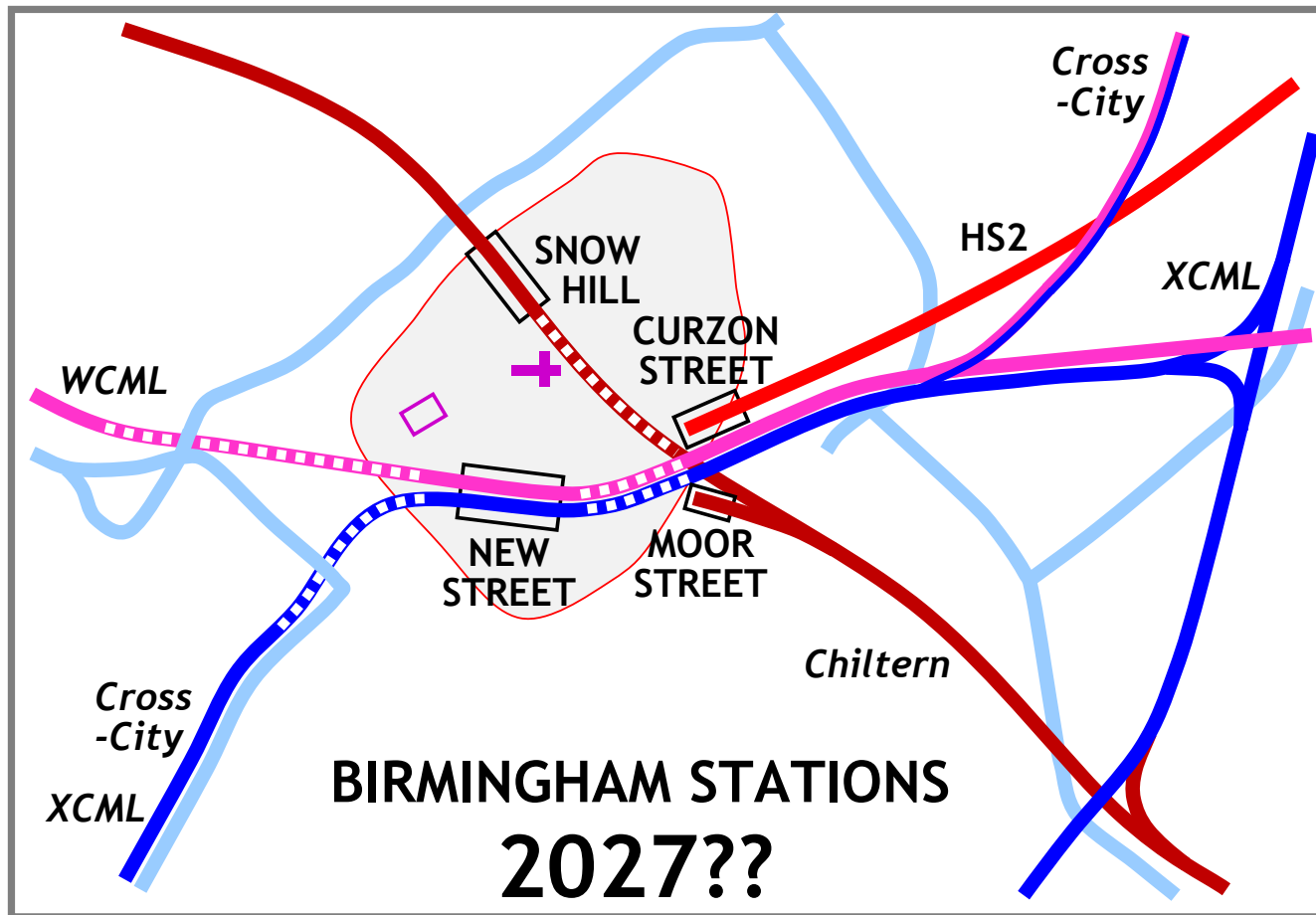
# Birmingham Rail Development (6)



# Birmingham Rail Development (7)



# Birmingham Rail Development (8)



# Integrate with Moor Street?

- Curzon St./Moor St. almost contiguous
- 3 radial routes within West Midlands
- 16 local stations within M42/M6(T) ring
- Walking transfer to LNW/Midland network focussed upon New Street
- Walking link for onward CrossCountry routes
- No proposals for improved heavy rail links to Moor St./Curzon St. - just trams

# Integrate with New Street?

- New Street primary regional hub
- Onward HS routes to satellite centres eg Wolverhampton, Walsall & Coventry
- 7 radial routes within West Midlands
- 40 local stations within M42/M6(T) ring
- Walking transfer to GWR network focussed upon Moor Street??
- 10 radial routes with existing links to GW network
- Network integrity maintained & enhanced
- BUT.....

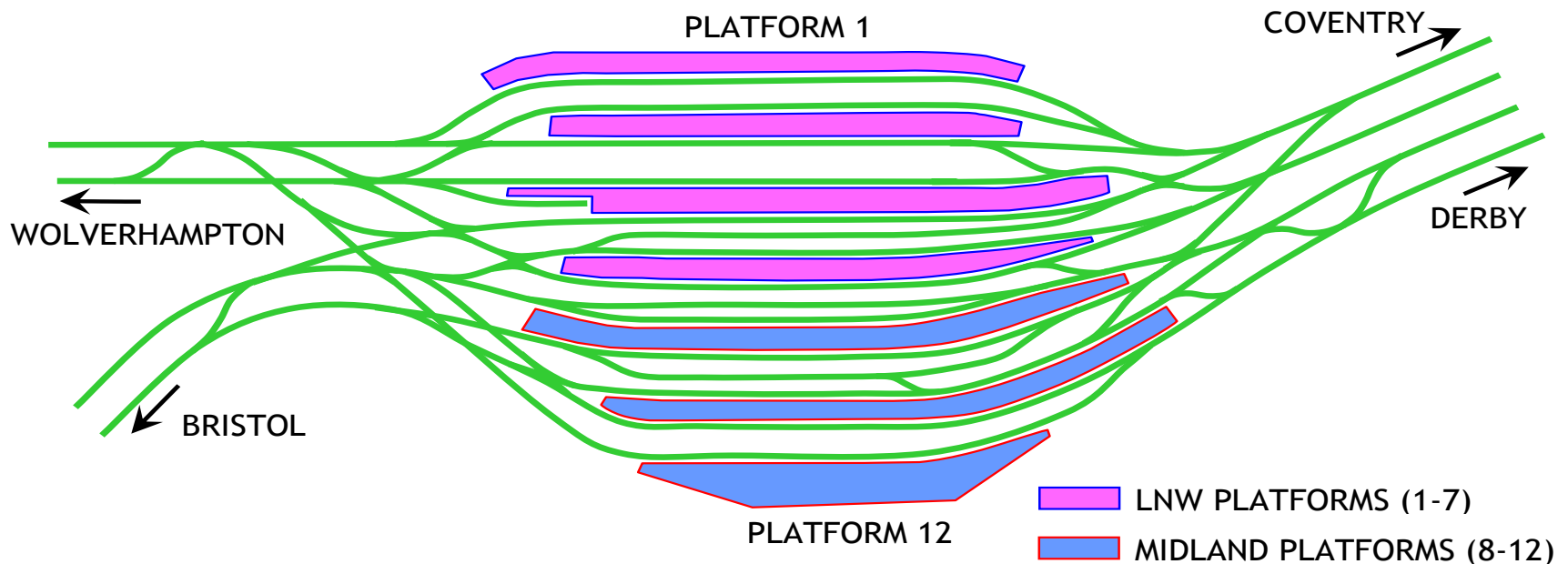
# Integrate with New Street?

- New Street too short for 400m long trains
- New Street approaches & platforms too tight for HS2 'fat trains'
- New Street already full

All so far taken as showstoppers...

How much of this really matters??

# Birmingham New Street - a quart into a pint point??



# **New Street : Facts & Figures**

- 12 through platforms - 5 Midland, 7 LNW
- 47 trains per hour (tph)
- 31tph running through
- 15tph terminating
- 1tph reversing
- Passenger handling facilities transformed with £500M Gateway project
- Station unchanged at track level

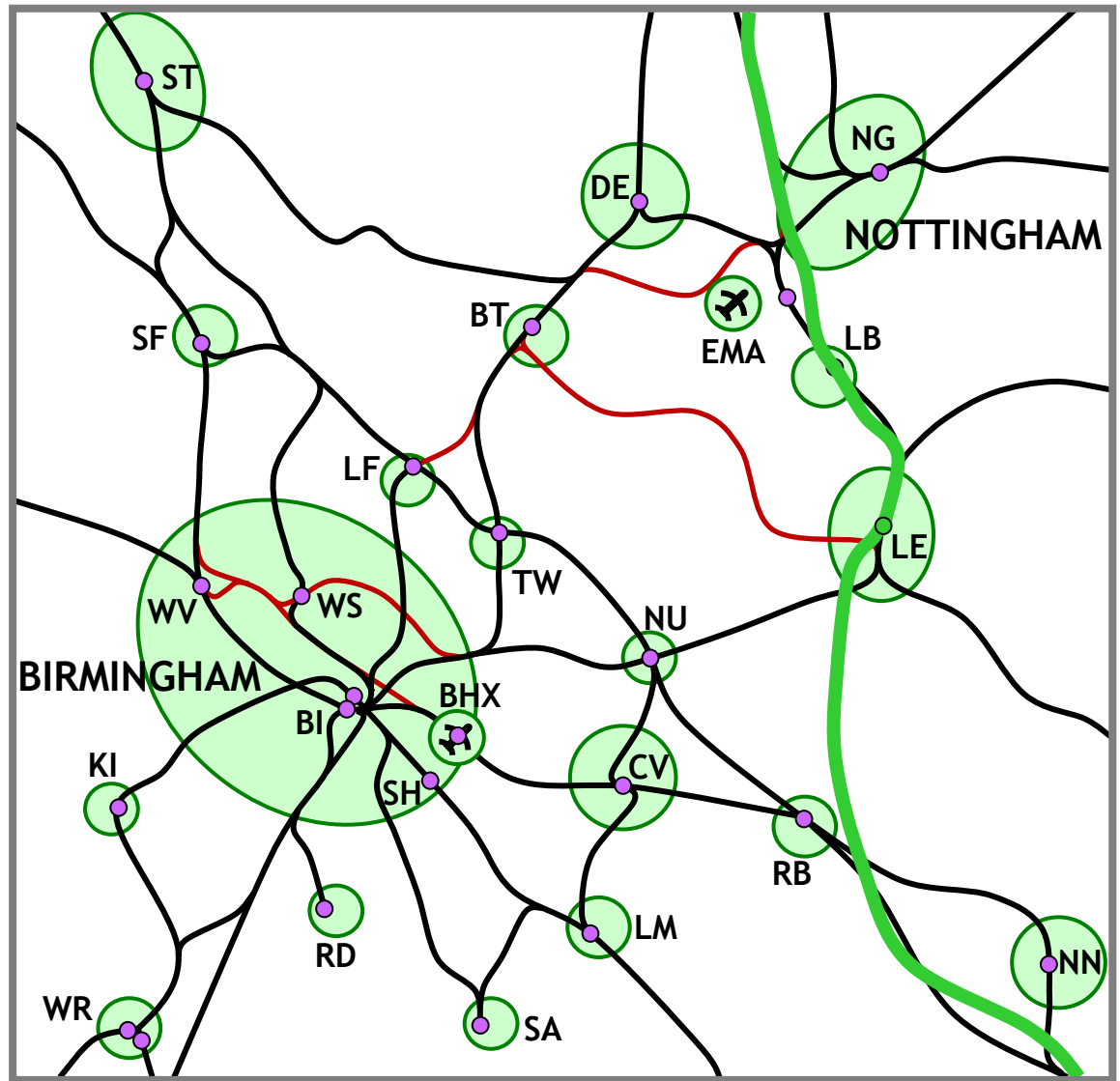
# New Street : The Challenge

- Station largely unchangeable at track level, in terms of civils & Pway
- Can operating pattern be changed instead?
- Can signalling system be improved?

# Midlands Rail Network

**HSUK**

showing only  
4-track  
north-south  
trunk route



# Midlands Rail Network

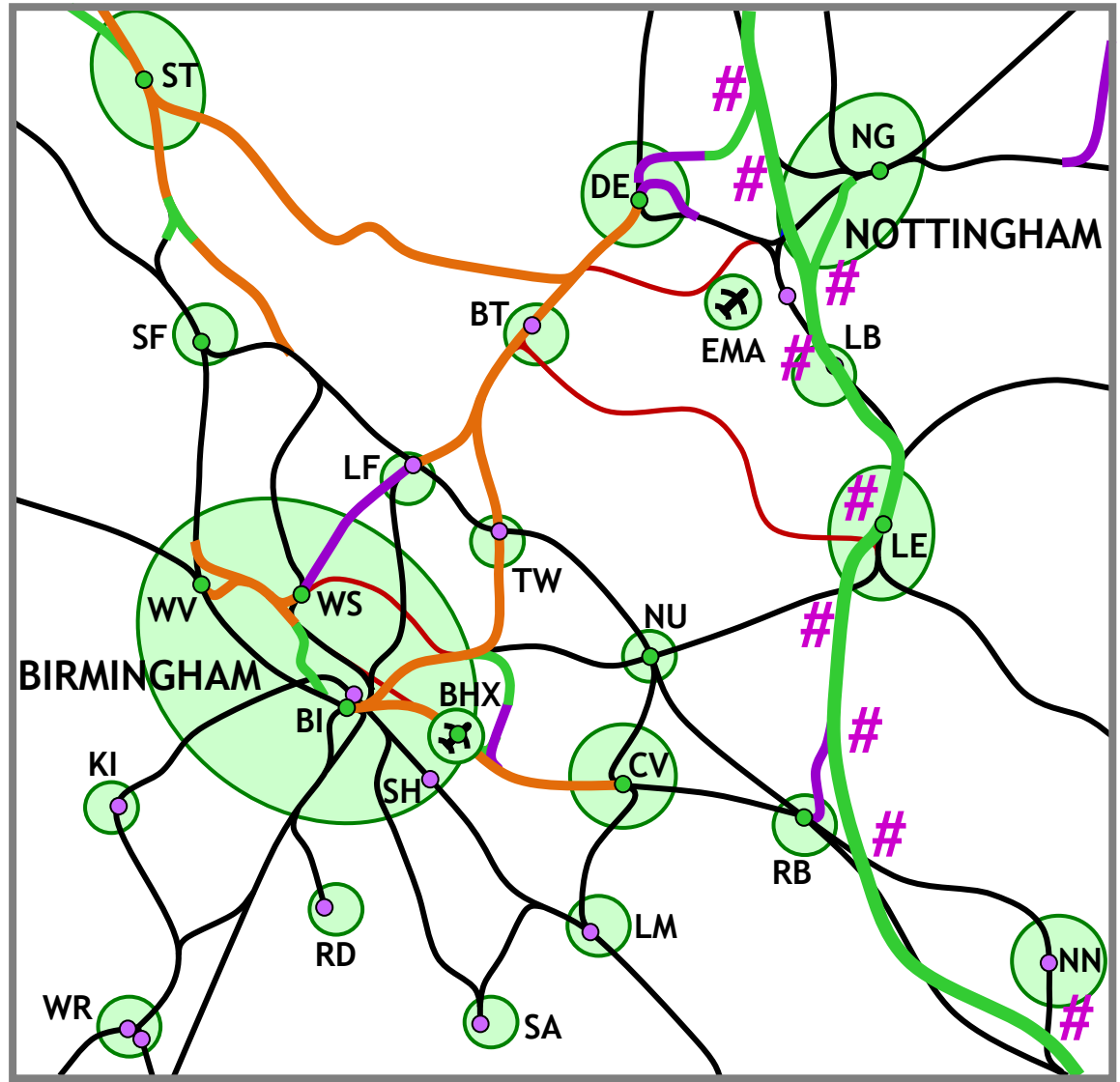
HSUK

Upgraded

Restored

New build

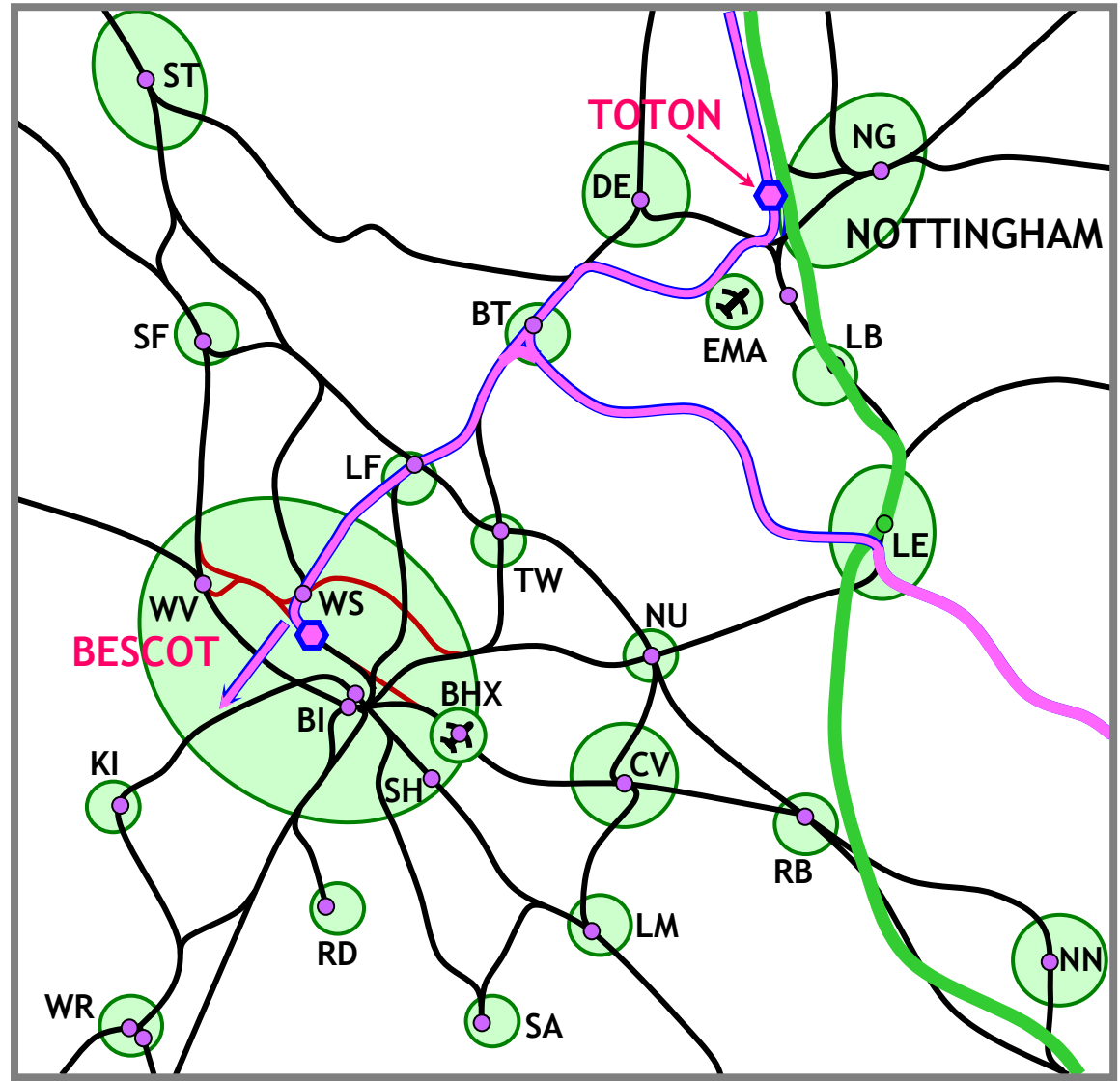
# - link to  
ex<sup>g</sup> network



# Midlands Rail Network

HSUK

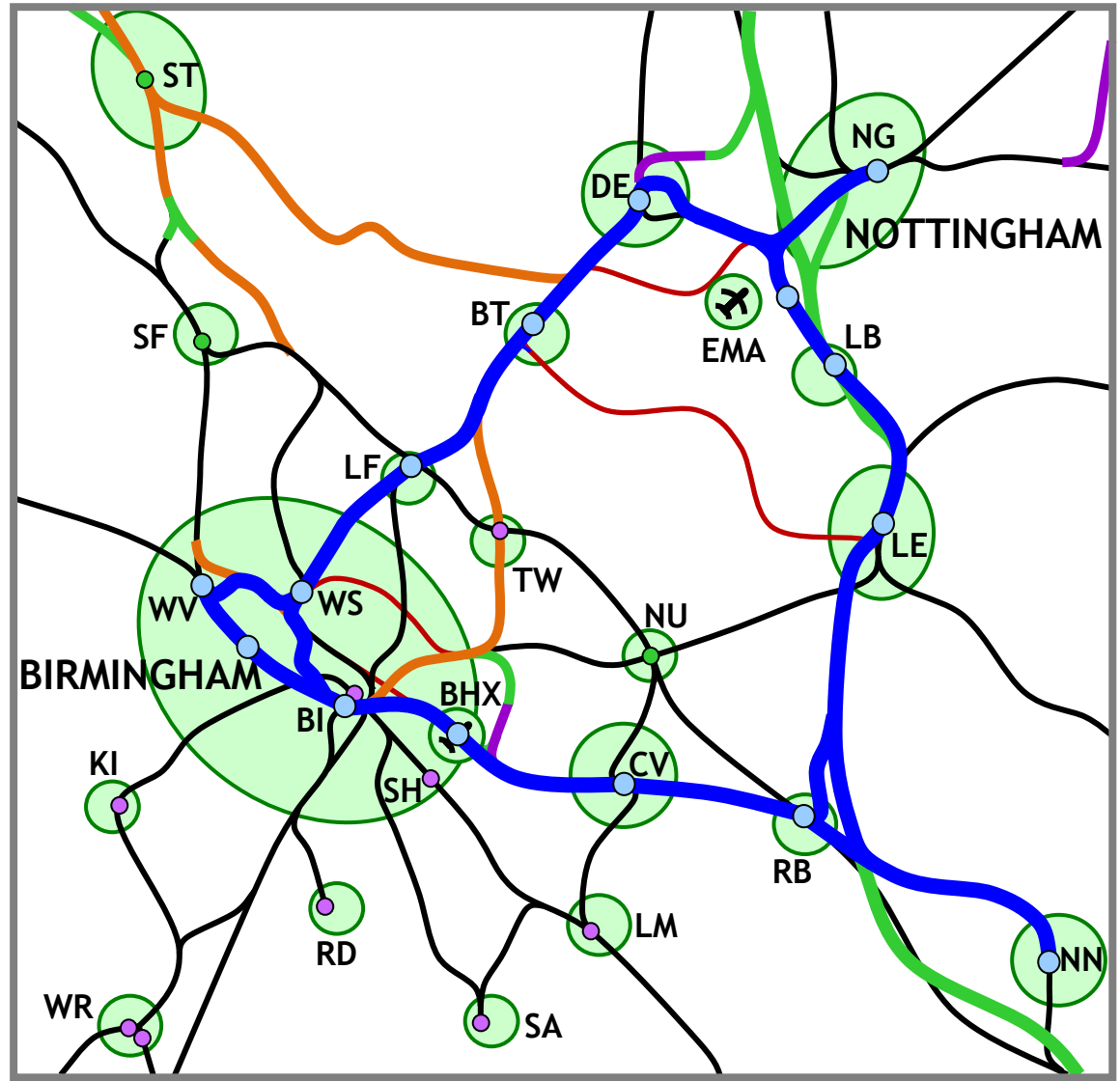
Eurogauge  
freight  
network



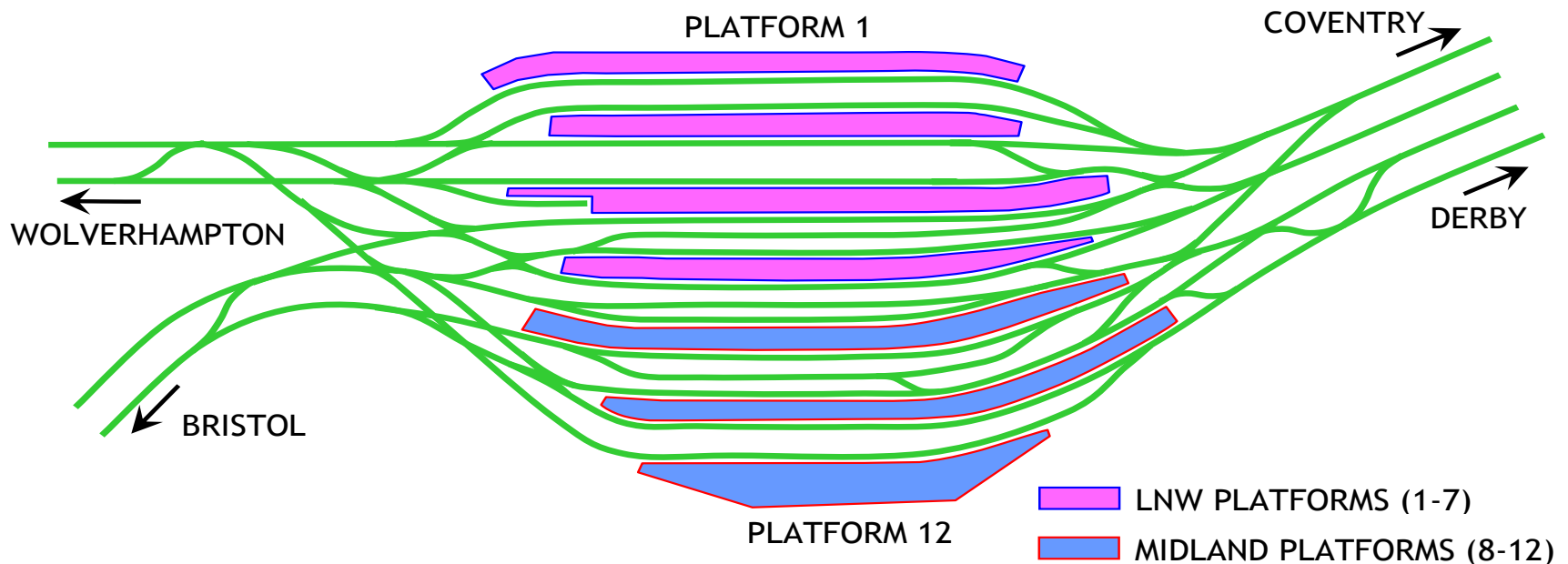
# Midlands Rail Network

HSUK

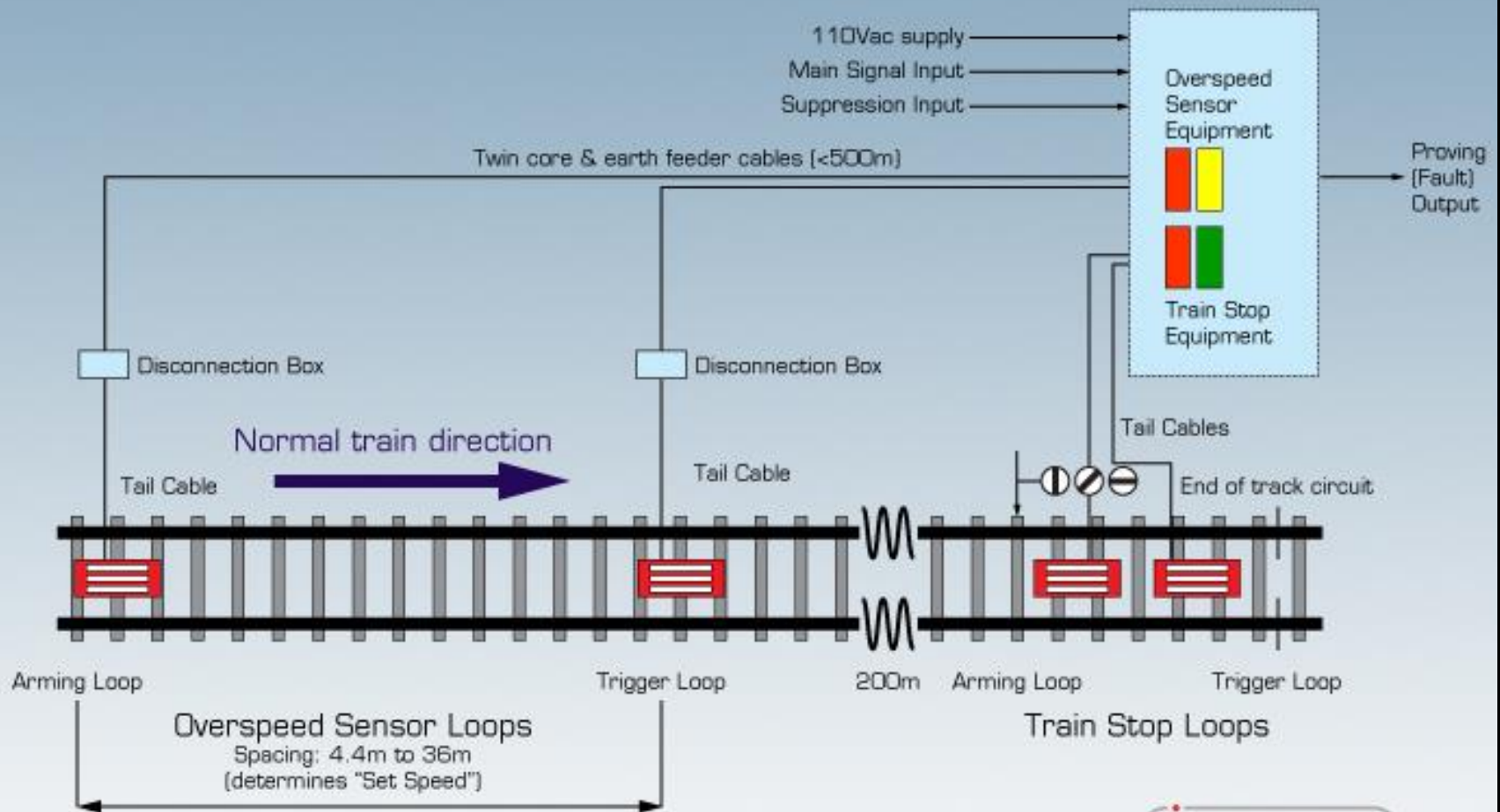
Midlands Ring  
regional  
passenger  
network



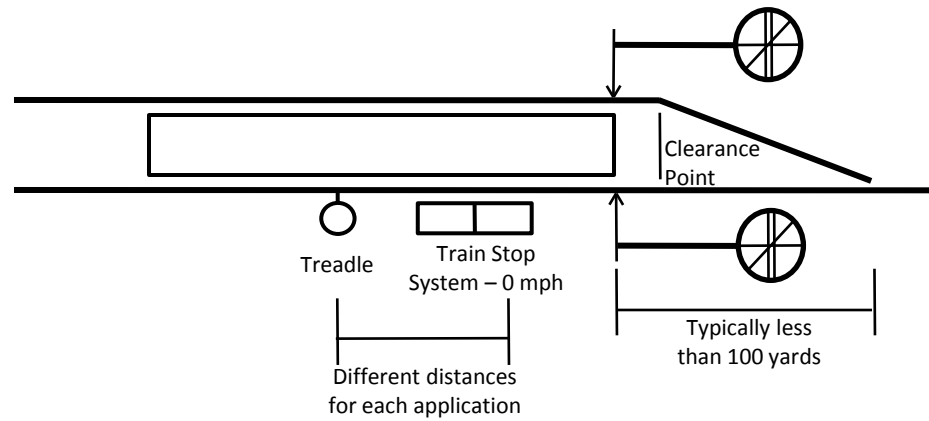
# Birmingham New Street - a quart into a pint point??



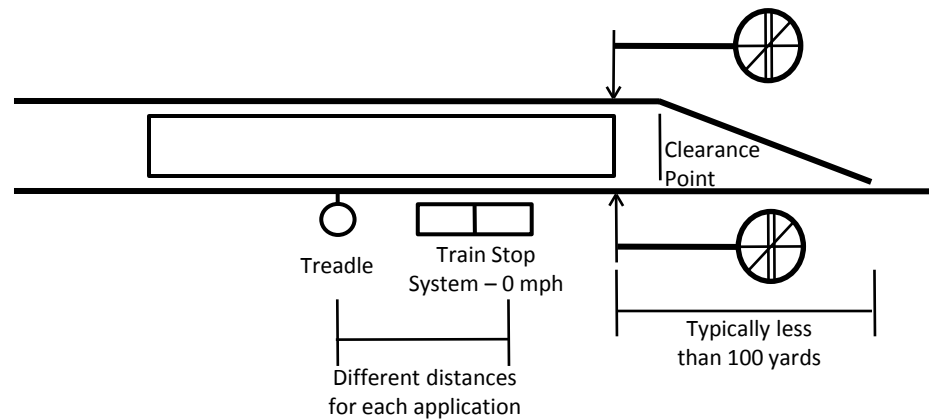
## Trackside Sub-System Functions



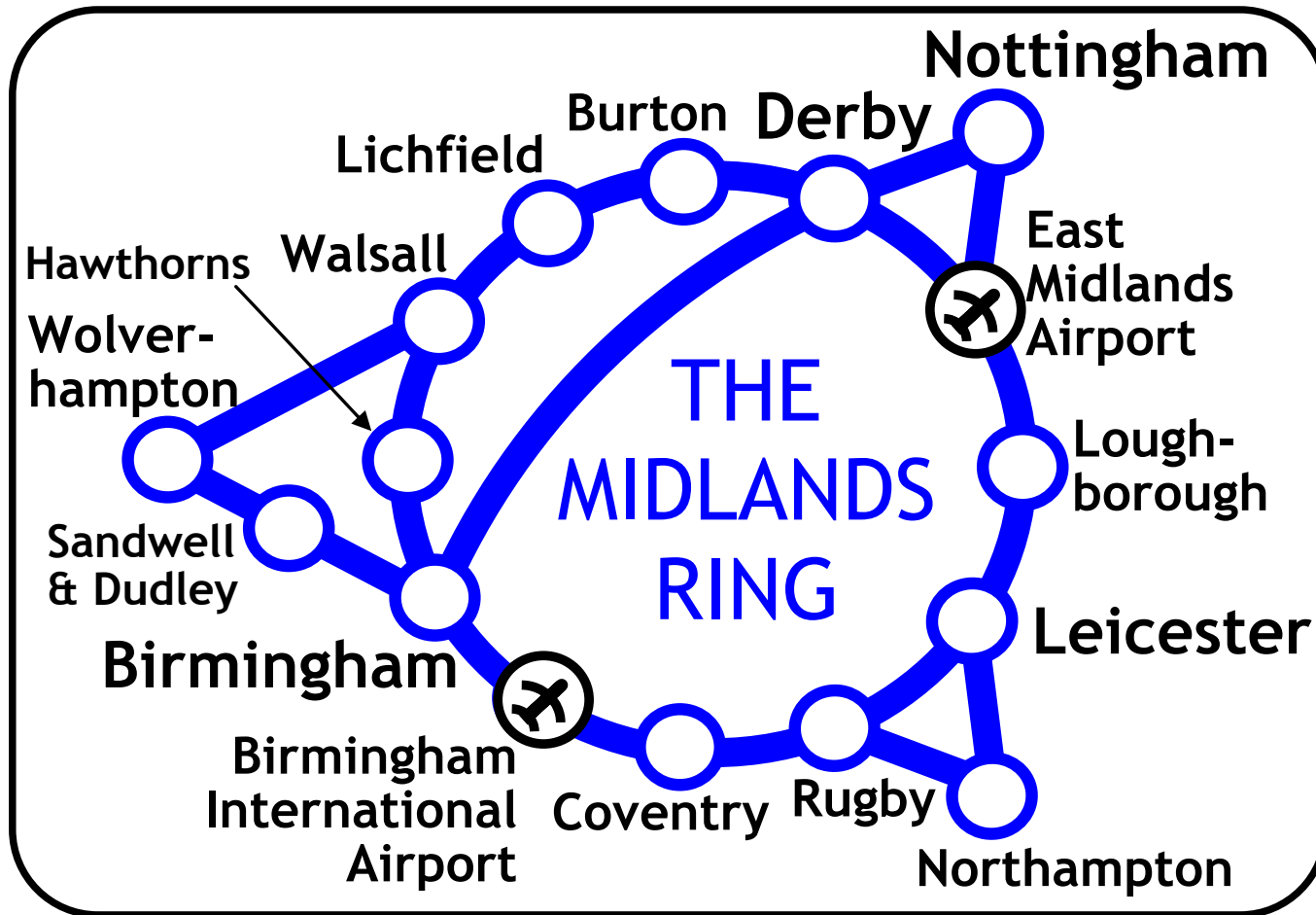
# TPWS with Virtual ROL



# TPWS with Virtual ROL



# HSUK Midlands Powerhouse





Connectivity  
Index (CI)  
**=2.5**

# Existing Regional Connectivity



Connectivity  
Index (CI)  
**=3.5**

# HSUK Enhanced Regional Connectivity

# HSUK Design Principles



1. Perform optimally as intercity network, interlinking all primary cities
2. Connect with local networks
3. Connect with HS1 & airports
4. Coordinate with railfreight strategy
5. Offer optimum connectivity, capacity, journey time, resilience etc
6. Comply with all relevant public policy

# The New Exam Questions



1. Perform optimally as intercity network, interlinking all primary cities?
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# **HIGH SPEED UK Challenge**

**We challenge the Government and HS2 Ltd to demonstrate that:**

- HS2 (& HS3) offers the best outcome for UK intercity travel**
- HS2 complies with public policy (cost, CO<sub>2</sub> emissions, land use, inclusivity etc)**
- HS2 has been developed with all necessary due process**

# HSUK Technical Challenge

***HS2 & HS3 must deliver best outcomes***

- But HSUK superior on any comparator
- No logical counter-argument to HSUK ever advanced
- All arguments from Government are for the principle of high speed rail
- The detail of HS2 doesn't conform with HS2 Ltd's own stated principles & remit

***Independent public inquiry essential***

# HSUK Public Policy Challenge

*Conformance with public policy  
essential for joined-up Government*

**But HS2 fails on multiple counts:**

- CO<sub>2</sub> emissions
- AONB issues
- Inclusivity
- Planning policy
- Integrated transport
- Budgetary restraint

*Independent public inquiry essential*

# HSUK Due Process Challenge

## *Due Process??*

Logical & structured process of:

- Remit formulation
- Option selection
- Design development
- Public consultation

*Essential to ensure optimum outcome of UK high speed rail project*

# HSUK Due Process Challenge

## Outcome of Due Process Review:

- Evidence from HS2 remit, HS2 Ltd reports & official consultation indicates prima-facie failure of due process at all levels.
- We challenge HS2 Ltd to provide an alternative narrative.

*Independent public inquiry essential*

# **HIGH SPEED UK Challenge**

**We will accept a challenge from:**

- Any MP**
- Any County / District / Met Council**
- Any Unitary Authority**

**to show that HSUK delivers far greater benefits than HS2/3 to their locale.**

**We will demonstrate that HSUK outperforms HS2/3 in every way.**

# HSR Project Checklist

	HS2	HSUK
Top 21 centres fully connected?	✗	✓
Serves existing city centre stations?		
40% journey time reductions?		
4-track stem?		
Direct links to Heathrow & HS1?		
Step-change CO <sub>2</sub> reductions?		
Avoids Chilterns AONB?		
Regional integration strategies?		
Freight strategy?		

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Regional integration strategies?	✗	✓
Freight strategy?	✗	✓

**Thank you**

# HS2 Remit Issues



**HS2 remit specified (*inter alia*):**

- **High speed line from London to West Mids**
- **Consideration of onward development to conurbations further north**
- **Heathrow/Crossrail interchange at Old Oak Common**
- **No mention of network!!**

***Remit biased, unbalanced and prescriptive***

# HS2 Option Selection



## Phase 1 option selection process:

- Required all candidate routes to pass through Old Oak Common in west London
- Dismissed all M1-aligned options with no serious consideration
- Made multiple assertions re M1 routeing
  - *all either false or spurious*
- No consideration of network - only journey time, cost & env. impact assessed

# HS2 Design Focus



**All HS2 design focus on high speed line  
- minimal attention to network:**

- **Phase 1 designed as London-West Mids HSL**
- **Only very brief consideration of network with subsequent phases of HS2**
- **All network options predicated upon a London-West Mids HSL via Chilterns & OOC**
- **Any M1-aligned option - such as HSUK - therefore dismissed without consideration**

# HS2 Consultation Issues



**All these issues have been repeatedly reported to HS2 Ltd. But...**

- **No engagement with HSUK concerns**
- **No counter-argument advanced**
- **No change to HS2 proposals**
- **No info to Parliament to report on unresolved technical issues**

**So... Consultation responses ignored**