HSUK LONDON-BIRMINGHAM RAIL STRATEGY & COMPARISONS

These diagrams focus on the first stage of UK high speed rail construction between London and the West Midlands. They aim to make structured and quantified comparisons between a) the Chiltern-aligned HS2 proposals as currently published, b) the alternative M1/M6-aligned High Speed UK proposals, and c) the representation of an M1-aligned high speed line as set out in the January 2012 HS2 Ltd report *Review of HS2 London to West Midlands Route Selection and Speed*. The diagrams also set out the opportunity for vastly enhanced rail services along the M1 corridor, with Milton Keynes becoming a key hub in a transformed national intercity network.

For precise details of the core High Speed UK proposals (as included in the cost estimates), see the HSUK Regional Maps on www.highspeeduk.co.uk.

LBC1 : SOUTH-EAST MIDLANDS REGIONAL NETWORK – PRE 1923 GROUPING

The rail network in the South-East Midlands area between London and Birmingham has been dominated by the London-centric main lines. First to be established was the London and Birmingham (1837), which became the core route of the London North-Western (LNW) and latterly the West Coast Main Line. In the absence of other northern main lines, it became by default the primary route to the North, linking to the Midland Railway firstly at Hampton in Arden, and then at Rugby to give onward connection to the North-Eastern Railway at York. Only with the 1851 opening of the Great Northern route from Kings Cross to West Yorkshire were the separate West and East Coast systems established, that still dominate the modern UK rail network.

The LNW developed several offshoots including the Oxford-Cambridge 'Universities' line (now the East-West Link, currently under restoration) and the Nene Valley line from Northampton to Peterborough via Wellingborough. The LNW's regional monopoly was broken with the progressive southward construction of the Midland Railway, reaching St Pancras in 1868; regrettably, effective connections with the pre-existing LNW system were never established. Further intrusion came in the late nineteenth century, with the construction of the Great Central; again, the priority was fast main line links to London.

As a result, an effective regional network never developed, and with the Beeching rationalisations of the 1960's, almost all the 'offshoot' lines were shut down, along with the Great Central. Only the West Coast and the Midland Main Lines survived, and some vestigial elements of the Universities Line.

LBC2 : SOUTH-EAST MIDLANDS REGIONAL NETWORK – CONTEMPORARY

The rail network in the South-East Midlands area, through which the first stage of any high speed line between London and Birmingham must pass, is essentially London- and Birmingham-centric, dominated by the radial Midland, West Coast (and Chiltern) Main Lines. Whilst major population centres such as Luton, Milton Keynes, Northampton, Coventry and Leicester (all 250k plus) are efficiently interlinked by the modern motorway system, they are split between Midland and West Coast routes; this leaves Luton and Milton Keynes effectively disconnected by rail, and Northampton/Coventry and Leicester linked only by a circuitous change of trains at Nuneaton. Restoration of the East-West rail route between Cambridge and Oxford will provide significant cross-connectivity enhancements but will not improve rail links between disconnected communities along the M1 corridor.

The diagram also illustrates the poor rail connectivity of Heathrow Airport. Despite being at the fulcrum of the motorway system, and being situated in the densely populated Thames Valley, Heathrow's rail connectivity is almost exclusively London-centric. All journeys to Midlands, Northern and Scottish destinations must be routed via the central London Tube system.

LBC3 : HS2 PROPOSALS AS PER 2011 CONSULTATION

Heathrow's poor rail connectivity has had a profound influence on the routeing of HS2. To meet the political requirement for high speed rail links to the national airport, the route has been drawn westwards from the traditional M1 alignment (followed by Roman road builders, canal navvies, railway and motorway builders alike) onto a much more difficult and controversial Chiltern route. This has massive impacts in terms of increased lengths of tunnelling (and therefore cost), imposition of an inefficient 'Y' configuration on the entire national high speed system, and intrusion of a major interconurbation transport system onto local communities that will see no benefit. HS2 was always an inefficient intervention in terms of links to Heathrow, and potentially entirely redundant if Heathrow's hub airport function were to be transferred to another location, probably in the Thames Estuary. But with the cancellation in March 2015 of the proposed HS2 spur to Heathrow, most if not all of the primary political logic in the proposed HS2 route through the Chilterns and rural areas further north has now been lost.

HS2 also bypasses the major communities along the M1 corridor, and overall, only 4 HS2 stations are proposed in the area covered by this series of plans; 2 in London, 2 in the West Midlands, and nothing whatsoever that might serve the major intermediate communities of Luton, Milton Keynes, Northampton, Leicester and Oxford.

LBC4 : HIGH SPEED UK DEDICATED NEW LINES, UPGRADES & ASSOCIATED NEW BUILD

The M1 provides an ideal corridor for high speed rail construction. Constructed with few curves, and creating major environmental nuisance that has consistently deterred construction of adjacent housing, there is generally a clear corridor alongside the motorway that will be exploited by High Speed UK. This is proved by HSUK's comprehensive route mapping at 1:25,000 scale. The requirement for tunnelling and other environmental mitigation is minimised, and hence controversy and cost are also minimised; but with close-spaced links to the major communities along the M1 corridor, connectivity benefits and commercial opportunities are maximised.

LBC5 : HIGH SPEED UK AND WIDER INTEGRATED INTERCITY NETWORK

Whereas HS2 proposes 4 stations only in London and the Midlands, High Speed UK will connect to 16 stations, spread evenly along the M1/M6 corridor, plus Oxford and Reading in the Thames Valley. HSUK's proximity to the major population centres along the M1 corridor will bring huge benefits in terms of improved rail connectivity, effectively integrating Luton, Milton Keynes, Northampton and Leicester et al into a national intercity rail system, without the false divisions of 'West Coast', 'Midland' etc. The M1 alignment also permits a massively more efficient 'spine & spur' configuration of the national rail system, with all regional communities far more effectively interconnected than under either the present system or the HS2 'Y'.

LBC6 : HIGH SPEED UK AND 'COMPASS POINT' NETWORK FOCUSSED UPON HEATHROW AIRPORT

A 'Compass Point' network based upon the existing Heathrow Express system will transform the airport's rail connectivity, with links to the north, south, east and west extending to regional hubs on the national rail network. Allied with the wider efficiencies of High Speed UK, it becomes possible to achieve widespread direct airport rail links across the South-East Midlands area, as well as to all principal UK regional centres of the Midlands, the North and Scotland. In terms of effective regional access to Heathrow, this vastly outperforms HS2, and thus eliminates any logic for routeing HS2 close to Heathrow, and onwards through the Chilterns.

LBC7 : HIGH SPEED UK : INTERCITY/REGIONAL NETWORK FOCUSSED UPON LUTON & MILTON KEYNES

An integrated high speed line along the M1 corridor, combined with the restored East-West route, will transform the rail connectivity of Luton, Milton Keynes and Northampton. Luton will enjoy direct connections to Birmingham and along the MML corridor to Leicester, Nottingham, Sheffield and Leeds, and onward connections to all other primary centres; while Milton Keynes and Northampton will be directly connected to all primary cities of the Midlands, the North and Scotland. Major benefits for Chiltern communities will be achieved through northward links to Milton Keynes that will be created by the current East-West project, and by changing at Milton Keynes for HSUK's national intercity services.

LBC8 : M1 ALTERNATIVE AS REPRESENTED BY HS2 Ltd IN JANUARY 2012 REPORT *REVIEW OF ROUTE SELECTION AND SPEED*

The attempts by HS2 Ltd to dismiss any possibility of an M1-aligned high speed line rely on forcing such a route to conform with the proposed terminal at Old Oak Common and with the proposed Birmingham Interchange station. This imposes around 30km of unnecessary tunnelling on the route to Euston, and thus most of the advantages of a motorway-aligned route are lost. It must be noted that no overwhelming connectivity benefits are achieved at either Old Oak Common or at Birmingham Interchange; indeed, High Speed UK's London and Birmingham integration strategies far outperform those of HS2.

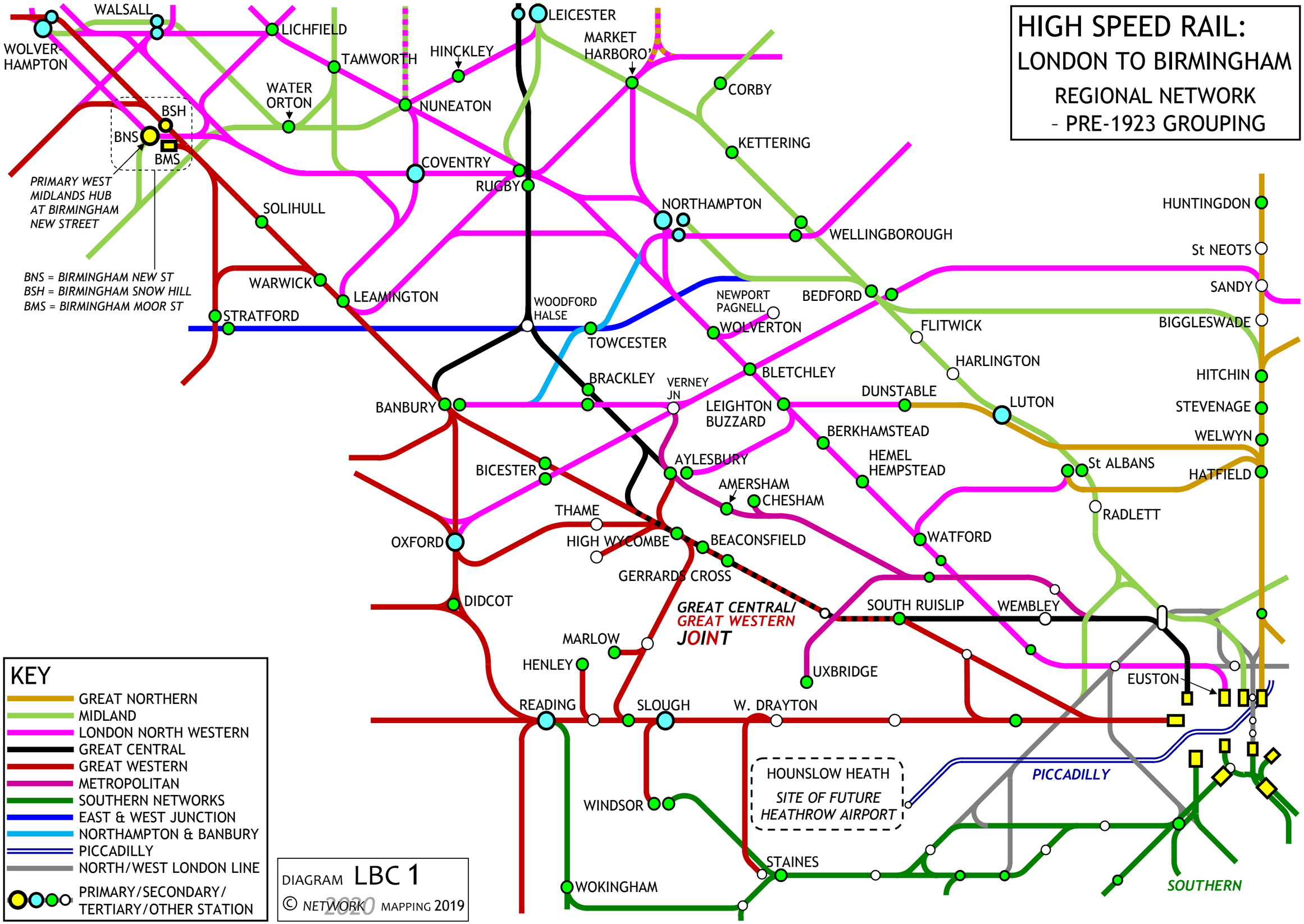
LBC9 : DIRECT COMPARISONS BETWEEN HS2 AND HIGH SPEED UK

This diagram illustrates both HS2 and High Speed UK, appropriately colour-coded, to allow direct comparisons to be made. On any comparator, HSUK's M1-aligned route appears to perform far better, and this must call into question the processes by which the current HS2 route proposals have been developed.

LBC10 : HIGH SPEED UK AND ASSOCIATED FREIGHT DEVELOPMENTS

With High Speed UK established as the primary route between London and the East Midlands, all intercity traffic linking London-Luton-Leicester-Nottingham/Derby-Sheffield can be diverted away from the existing Midland Main Line. This effectively 'decriticalises' this route; and with the Midland Main Line comprising 4 tracks (either existing or abandoned) for most of its length, with very few tunnels, this is an ideal corridor to develop as a 'prime user' freight route with the potential for Continental Gauge operation. Connection to the West Coast Main Line at Watford via an upgraded St Albans Abbey branch allows freight flows to be diverted away from critical sections of the Midland Main Line south of the M25.

HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
REGIONAL NETWORK – PRE-1923 GROUPING



KEY

- GREAT NORTHERN
- MIDLAND
- LONDON NORTH WESTERN
- GREAT CENTRAL
- GREAT WESTERN
- METROPOLITAN
- SOUTHERN NETWORKS
- EAST & WEST JUNCTION
- NORTHAMPTON & BANBURY
- PICCADILLY
- NORTH/WEST LONDON LINE
- PRIMARY/SECONDARY/ TERTIARY/OTHER STATION

DIAGRAM LBC 1

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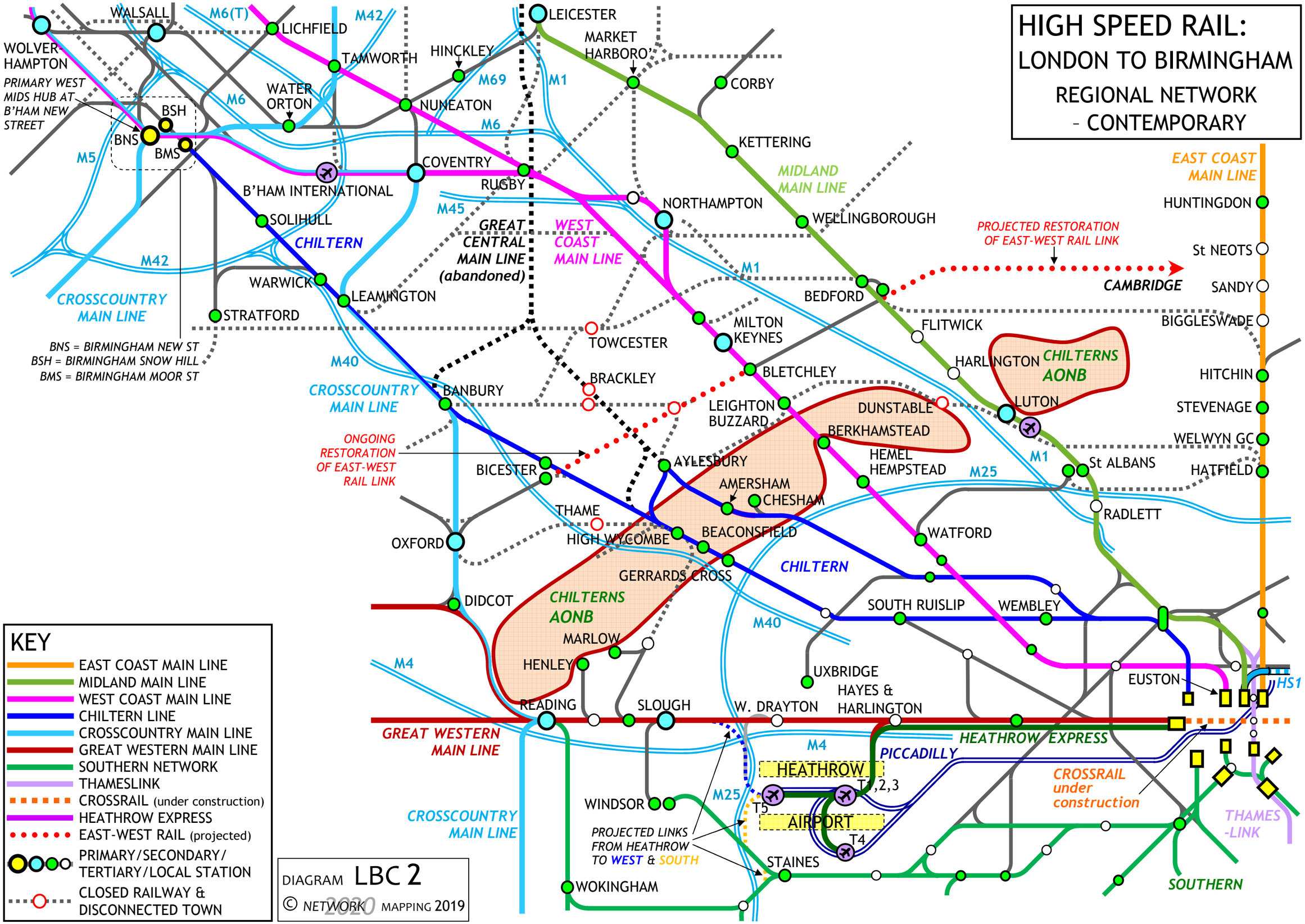
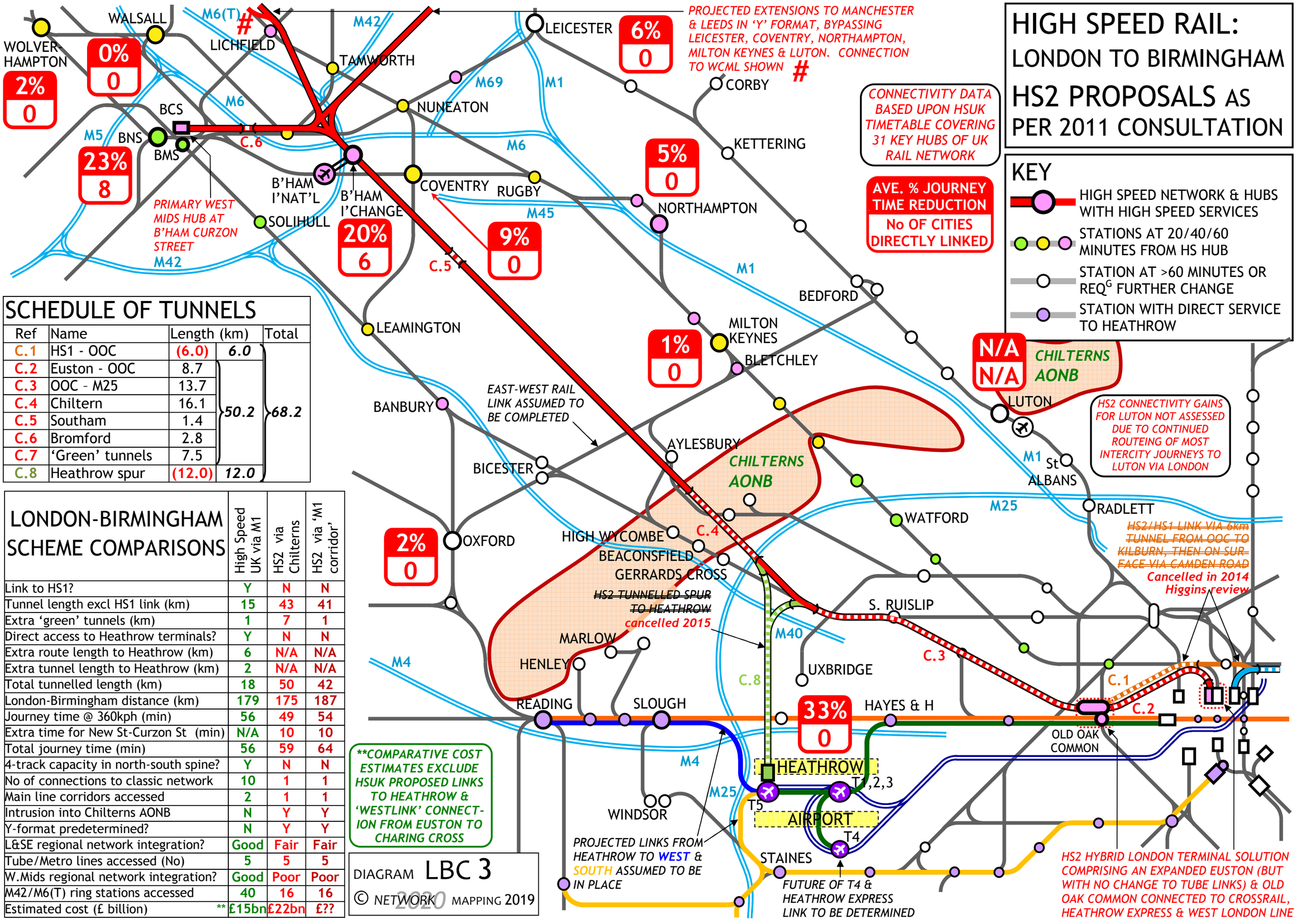
HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
REGIONAL NETWORK – CONTEMPORARY



HIGH SPEED RAIL: LONDON TO BIRMINGHAM
HS2 PROPOSALS AS PER 2011 CONSULTATION



SCHEDULE OF TUNNELS

Ref	Name	Length (km)		Total
C.1	HS1 - OOC	(6.0)	6.0	68.2
C.2	Euston - OOC	8.7	50.2	
C.3	OOC - M25	13.7		
C.4	Chiltern	16.1		
C.5	Southam	1.4		
C.6	Bromford	2.8		
C.7	'Green' tunnels	7.5		
C.8	Heathrow spur	(12.0)	12.0	

LONDON-BIRMINGHAM SCHEME COMPARISONS

	High Speed UK via M1	HS2 via Chilterns	HS2 via 'M1 corridor'
Link to HS1?	Y	N	N
Tunnel length excl HS1 link (km)	15	43	41
Extra 'green' tunnels (km)	1	7	1
Direct access to Heathrow terminals?	Y	N	N
Extra route length to Heathrow (km)	6	N/A	N/A
Extra tunnel length to Heathrow (km)	2	N/A	N/A
Total tunnelled length (km)	18	50	42
London-Birmingham distance (km)	179	175	187
Journey time @ 360kph (min)	56	49	54
Extra time for New St-Curzon St (min)	N/A	10	10
Total journey time (min)	56	59	64
4-track capacity in north-south spine?	Y	N	N
No of connections to classic network	10	1	1
Main line corridors accessed	2	1	1
Intrusion into Chilterns AONB	N	Y	Y
Y-format predetermined?	N	Y	Y
L&SE regional network integration?	Good	Fair	Fair
Tube/Metro lines accessed (No)	5	5	5
W.Mids regional network integration?	Good	Poor	Poor
M42/M6(T) ring stations accessed	40	16	16
Estimated cost (£ billion) **	£15bn	£22bn	£??

**COMPARATIVE COST ESTIMATES EXCLUDE HSUK PROPOSED LINKS TO HEATHROW & 'WESTLINK' CONNECTION FROM EUSTON TO CHARING CROSS

DIAGRAM LBC 3

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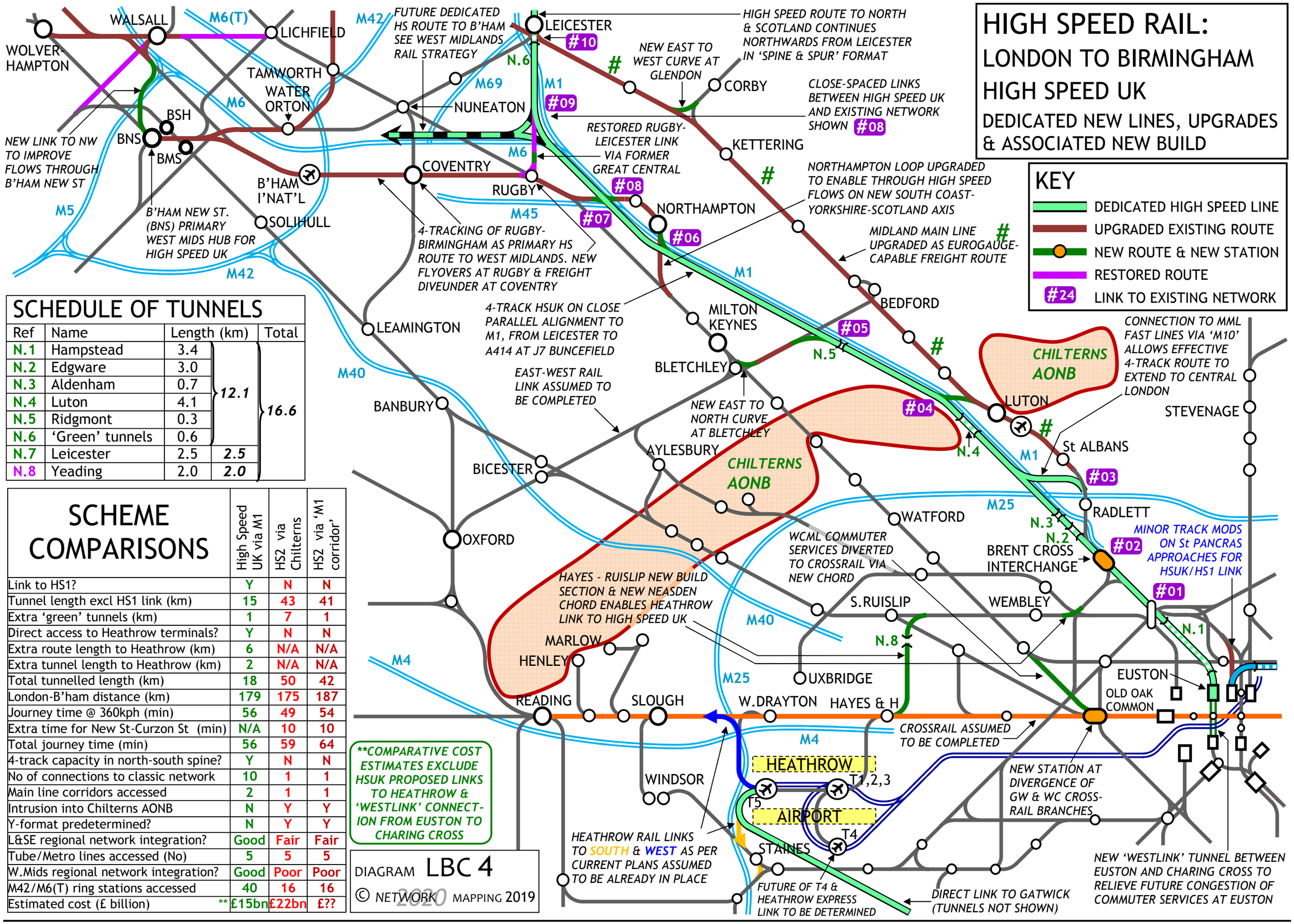
HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
HIGH SPEED UK
DEDICATED NEW LINES, UPGRADES & ASSOCIATED NEW BUILD



SCHEDULE OF TUNNELS

Ref	Name	Length (km)		Total
N.1	Hampstead	3.4	12.1	16.6
N.2	Edgware	3.0		
N.3	Aldenham	0.7		
N.4	Luton	4.1		
N.5	Ridgmont	0.3		
N.6	'Green' tunnels	0.6		
N.7	Leicester	2.5	2.5	
N.8	Yeading	2.0	2.0	

SCHEME COMPARISONS

	High Speed UK via M1	HS2 via Chilterns	HS2 via 'M1 corridor'
Link to HS1?	Y	N	N
Tunnel length excl HS1 link (km)	15	43	41
Extra 'green' tunnels (km)	1	7	1
Direct access to Heathrow terminals?	Y	N	N
Extra route length to Heathrow (km)	6	N/A	N/A
Extra tunnel length to Heathrow (km)	2	N/A	N/A
Total tunnelled length (km)	18	50	42
London-B'ham distance (km)	179	175	187
Journey time @ 360kph (min)	56	49	54
Extra time for New St-Curzon St (min)	N/A	10	10
Total journey time (min)	56	59	64
4-track capacity in north-south spine?	Y	N	N
No of connections to classic network	10	1	1
Main line corridors accessed	2	1	1
Intrusion into Chilterns AONB	N	Y	Y
Y-format predetermined?	N	Y	Y
L&SE regional network integration?	Good	Fair	Fair
Tube/Metro lines accessed (No)	5	5	5
W.Mids regional network integration?	Good	Poor	Poor
M42/M6(T) ring stations accessed	40	16	16
Estimated cost (£ billion) **	£15bn	£22bn	£??

**COMPARATIVE COST ESTIMATES EXCLUDE HSUK PROPOSED LINKS TO HEATHROW & 'WESTLINK' CONNECTION FROM EUSTON TO CHARING CROSS

DIAGRAM LBC 4

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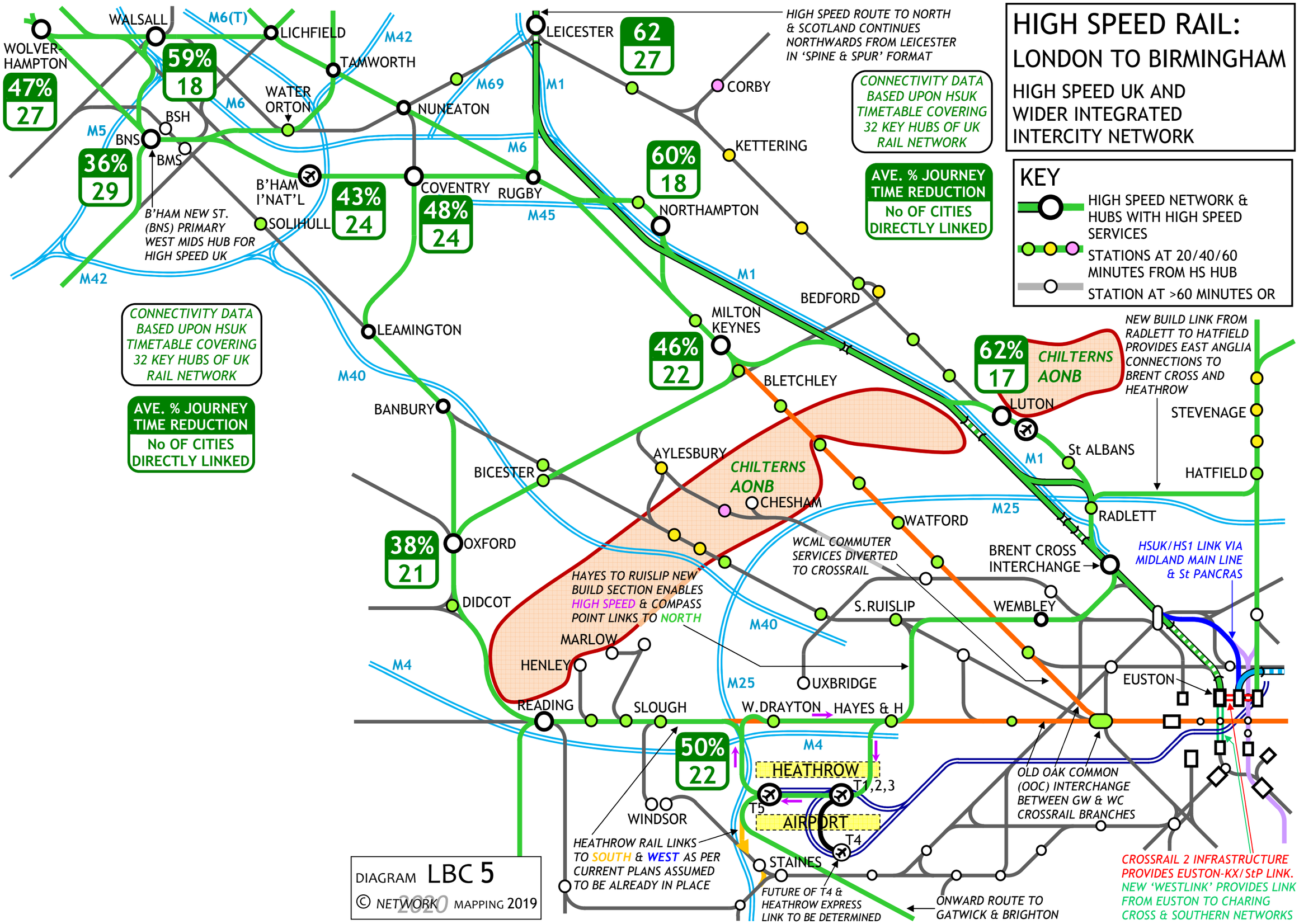
HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
HIGH SPEED UK AND WIDER INTEGRATED INTERCITY NETWORK
KEY
HIGH SPEED NETWORK & HUBS WITH HIGH SPEED SERVICES
STATIONS AT 20/40/60 MINUTES FROM HS HUB
STATION AT >60 MINUTES OR
HIGH SPEED ROUTE TO NORTH & SCOTLAND CONTINUES NORTHWARDS FROM LEICESTER IN 'SPINE & SPUR' FORMAT
CONNECTIVITY DATA BASED UPON HSUK TIMETABLE COVERING 32 KEY HUBS OF UK RAIL NETWORK
AVE. % JOURNEY TIME REDUCTION
No OF CITIES DIRECTLY LINKED
WOLVER-HAMPTON
47% 27
WALSALL
59% 18
M6(T)
LICHFIELD
M42
TAMWORTH
LEICESTER
62 27
CORBY
KETTERING
M69
M1
WATER ORTON
M6
NUNEATON
BSH
M5
BNS
BMS
36% 29
B'HAM NEW ST. (BNS) PRIMARY WEST MIDS HUB FOR HIGH SPEED UK
B'HAM I'NAT'L
SOLIHULL
43% 24
COVENTRY
48% 24
RUGBY
M45
60% 18
NORTHAMPTON
M42
M1
BEDFORD
MILTON KEYNES
46% 22
BLETCHLEY
LEAMINGTON
M40
BANBURY
62% 17
CHILTERNS AONB
LUTON
NEW BUILD LINK FROM RADLETT TO HATFIELD PROVIDES EAST ANGLIA CONNECTIONS TO BRENT CROSS AND HEATHROW
STEVENAGE
St ALBANS
HATFIELD
M1
AYLESBURY
CHILTERNS AONB
CHESHAM
BICESTER
M25
RADLETT
WATFORD
38% 21
OXFORD
WCML COMMUTER SERVICES DIVERTED TO CROSSRAIL
BRENT CROSS INTERCHANGE
HSUK/HS1 LINK VIA MIDLAND MAIN LINE & St PANCRAS
DIDCOT
HAYES TO RUISLIP NEW BUILD SECTION ENABLES HIGH SPEED & COMPASS POINT LINKS TO NORTH
S.RUISLIP
WEMBLEY
M40
MARLOW
M4
HENLEY
M25
UXBRIDGE
EUSTON
READING
SLOUGH
W.DRAYTON
HAYES & H
M4
50% 22
HEATHROW
T1,2,3
T5
AIRPORT
T4
WINDSOR
OLD OAK COMMON (OOC) INTERCHANGE BETWEEN GW & WC CROSSRAIL BRANCHES
HEATHROW RAIL LINKS TO SOUTH & WEST AS PER CURRENT PLANS ASSUMED TO BE ALREADY IN PLACE
STAINES
FUTURE OF T4 & HEATHROW EXPRESS LINK TO BE DETERMINED
ONWARD ROUTE TO GATWICK & BRIGHTON
CROSSRAIL 2 INFRASTRUCTURE PROVIDES EUSTON-KX/StP LINK.
NEW 'WESTLINK' PROVIDES LINK FROM EUSTON TO CHARING CROSS & SOUTHERN NETWORKS
DIAGRAM LBC 5
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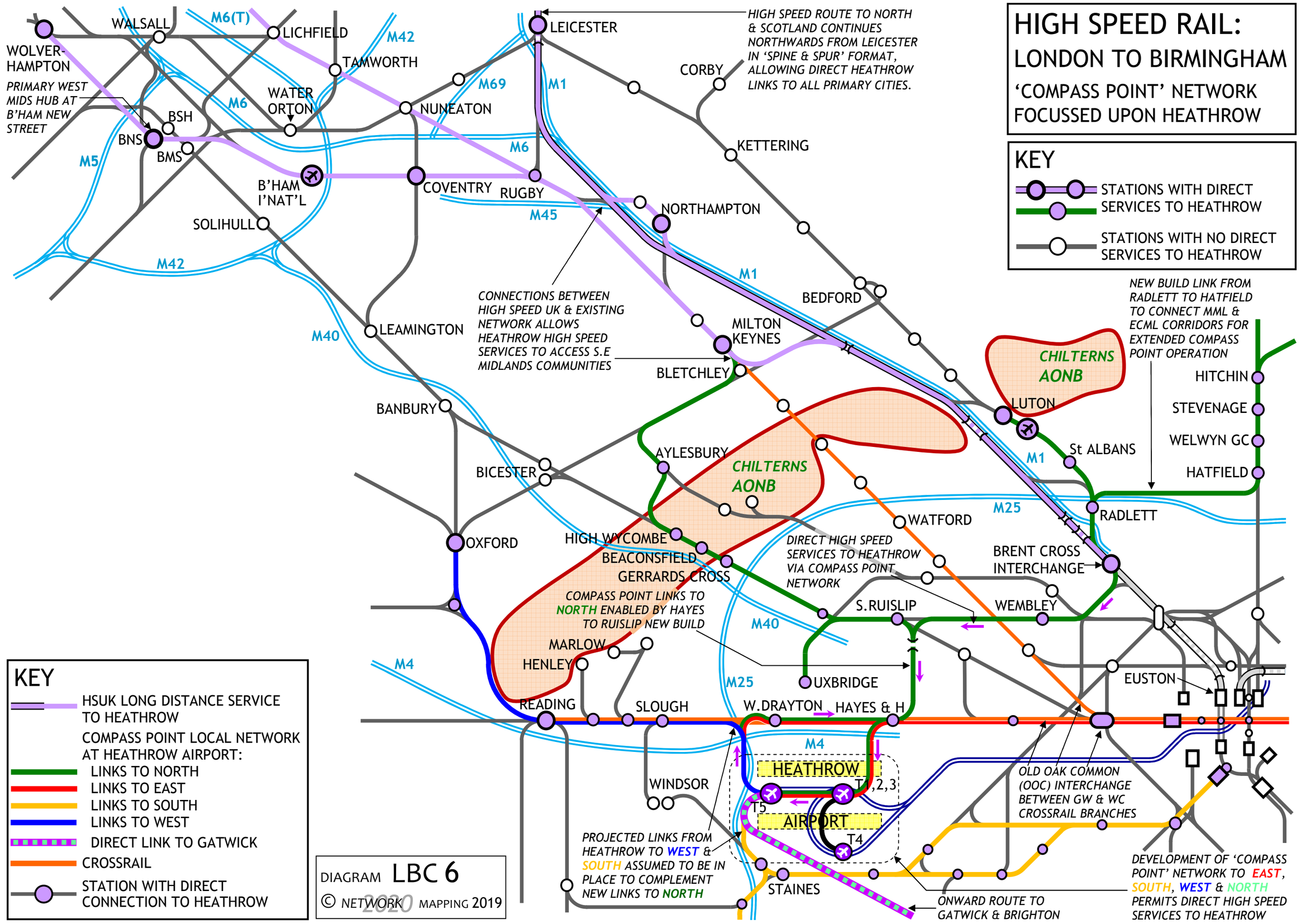
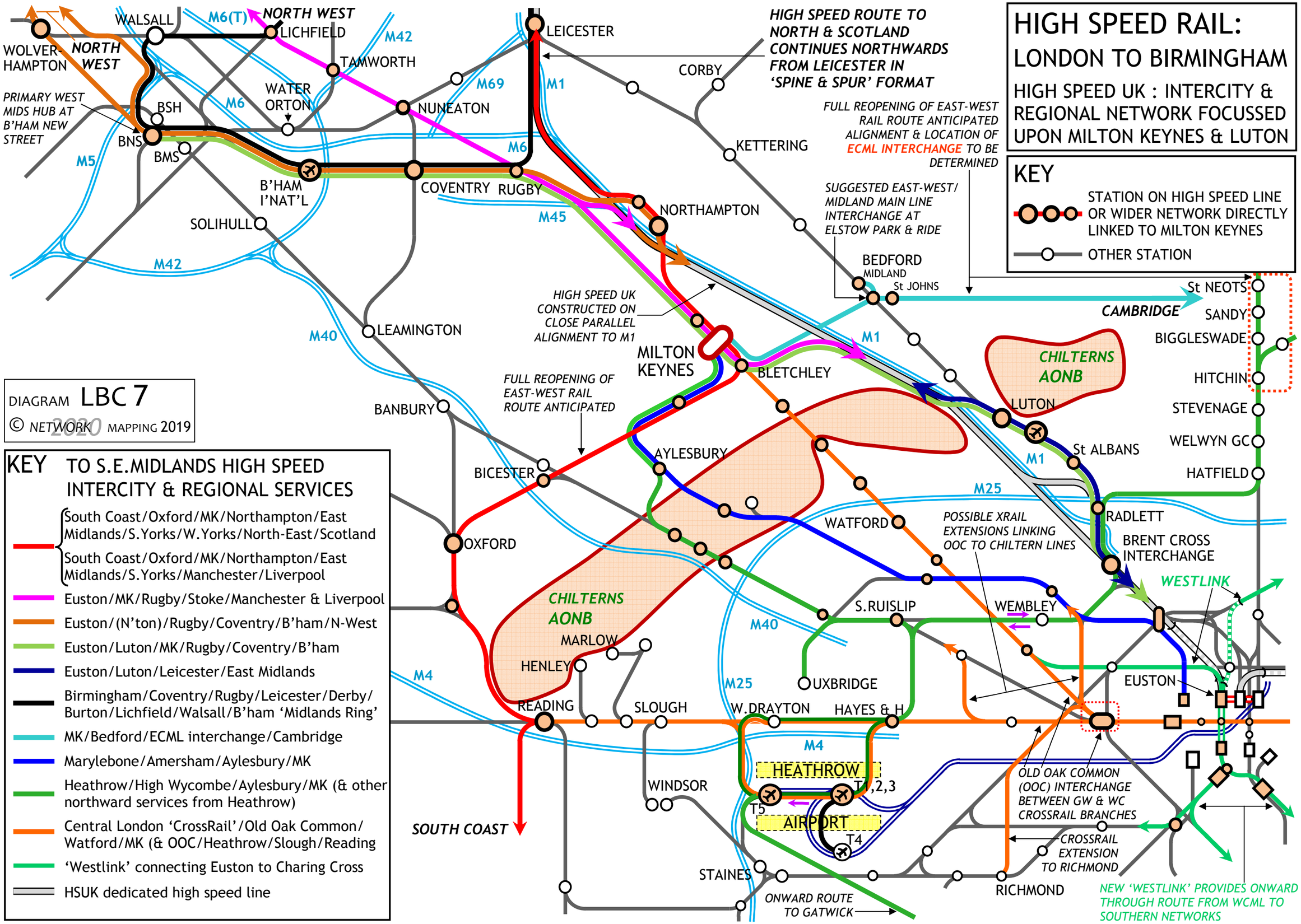
HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
'COMPASS POINT' NETWORK FOCUSSED UPON HEATHROW



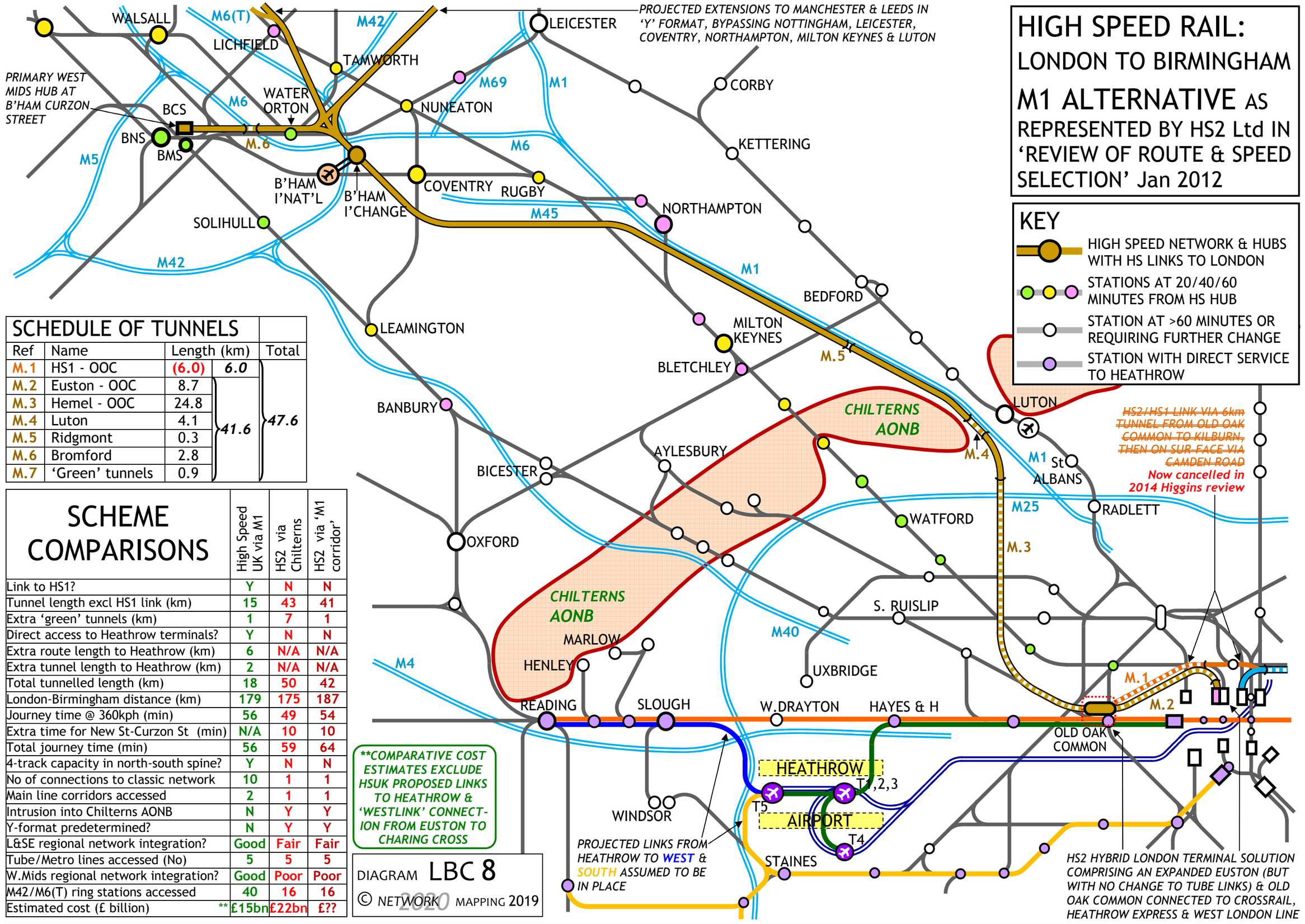
HIGH SPEED RAIL:
LONDON TO BIRMINGHAM

HIGH SPEED UK : INTERCITY & REGIONAL NETWORK FOCUSSED UPON MILTON KEYNES & LUTON



HIGH SPEED RAIL: LONDON TO BIRMINGHAM

M1 ALTERNATIVE AS REPRESENTED BY HS2 Ltd IN 'REVIEW OF ROUTE & SPEED SELECTION' Jan 2012



KEY

- HIGH SPEED NETWORK & HUBS WITH HS LINKS TO LONDON
- STATIONS AT 20/40/60 MINUTES FROM HS HUB
- STATION AT >60 MINUTES OR REQUIRING FURTHER CHANGE
- STATION WITH DIRECT SERVICE TO HEATHROW

SCHEDULE OF TUNNELS

Ref	Name	Length (km)		Total
M.1	HS1 - OOC	(6.0)	6.0	47.6
M.2	Euston - OOC	8.7	41.6	
M.3	Hemel - OOC	24.8		
M.4	Luton	4.1		
M.5	Ridgmont	0.3		
M.6	Bromford	2.8		
M.7	'Green' tunnels	0.9		

SCHEME COMPARISONS

	High Speed UK via M1	HS2 via Chilterns	HS2 via 'M1 corridor'
Link to HS1?	Y	N	N
Tunnel length excl HS1 link (km)	15	43	41
Extra 'green' tunnels (km)	1	7	1
Direct access to Heathrow terminals?	Y	N	N
Extra route length to Heathrow (km)	6	N/A	N/A
Extra tunnel length to Heathrow (km)	2	N/A	N/A
Total tunnelled length (km)	18	50	42
London-Birmingham distance (km)	179	175	187
Journey time @ 360kph (min)	56	49	54
Extra time for New St-Curzon St (min)	N/A	10	10
Total journey time (min)	56	59	64
4-track capacity in north-south spine?	Y	N	N
No of connections to classic network	10	1	1
Main line corridors accessed	2	1	1
Intrusion into Chilterns AONB	N	Y	Y
Y-format predetermined?	N	Y	Y
L&SE regional network integration?	Good	Fair	Fair
Tube/Metro lines accessed (No)	5	5	5
W.Mids regional network integration?	Good	Poor	Poor
M42/M6(T) ring stations accessed	40	16	16
Estimated cost (£ billion) **	£15bn	£22bn	£??

**COMPARATIVE COST ESTIMATES EXCLUDE HSUK PROPOSED LINKS TO HEATHROW & 'WESTLINK' CONNECT-ION FROM EUSTON TO CHARING CROSS

DIAGRAM LBC 8

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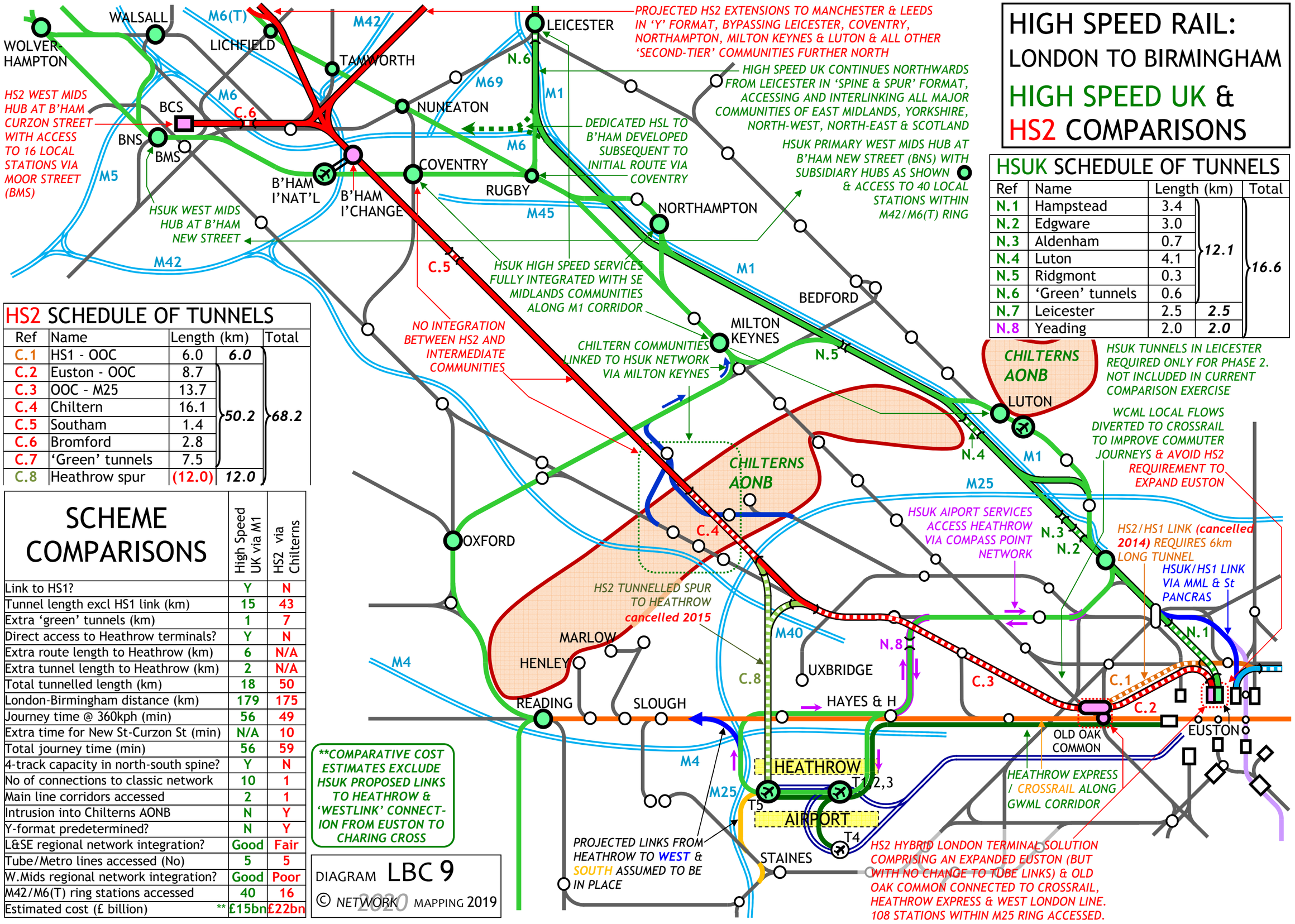
HIGH SPEED RAIL: LONDON TO BIRMINGHAM

HIGH SPEED UK & HS2 COMPARISONS



HSUK SCHEDULE OF TUNNELS

Ref	Name	Length (km)		Total
N.1	Hampstead	3.4	12.1	16.6
N.2	Edgware	3.0		
N.3	Aldenham	0.7		
N.4	Luton	4.1		
N.5	Ridgmont	0.3		
N.6	'Green' tunnels	0.6		
N.7	Leicester	2.5	2.5	
N.8	Yeading	2.0	2.0	

HS2 SCHEDULE OF TUNNELS

Ref	Name	Length (km)		Total
C.1	HS1 - OOC	6.0	6.0	68.2
C.2	Euston - OOC	8.7	50.2	
C.3	OOC - M25	13.7		
C.4	Chiltern	16.1		
C.5	Southam	1.4		
C.6	Bromford	2.8		
C.7	'Green' tunnels	7.5		
C.8	Heathrow spur	(12.0)	12.0	

SCHEME COMPARISONS

	High Speed UK via M1	HS2 via Chilterns
Link to HS1?	Y	N
Tunnel length excl HS1 link (km)	15	43
Extra 'green' tunnels (km)	1	7
Direct access to Heathrow terminals?	Y	N
Extra route length to Heathrow (km)	6	N/A
Extra tunnel length to Heathrow (km)	2	N/A
Total tunnelled length (km)	18	50
London-Birmingham distance (km)	179	175
Journey time @ 360kph (min)	56	49
Extra time for New St-Curzon St (min)	N/A	10
Total journey time (min)	56	59
4-track capacity in north-south spine?	Y	N
No of connections to classic network	10	1
Main line corridors accessed	2	1
Intrusion into Chilterns AONB	N	Y
Y-format predetermined?	N	Y
L&SE regional network integration?	Good	Fair
Tube/Metro lines accessed (No)	5	5
W.Mids regional network integration?	Good	Poor
M42/M6(T) ring stations accessed	40	16
Estimated cost (£ billion) **	£15bn	£22bn

**COMPARATIVE COST ESTIMATES EXCLUDE HSUK PROPOSED LINKS TO HEATHROW & 'WESTLINK' CONNECT-ION FROM EUSTON TO CHARING CROSS

DIAGRAM LBC 9

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HIGH SPEED RAIL:
LONDON TO BIRMINGHAM
HIGH SPEED UK AND ASSOCIATED FREIGHT DEVELOPMENTS

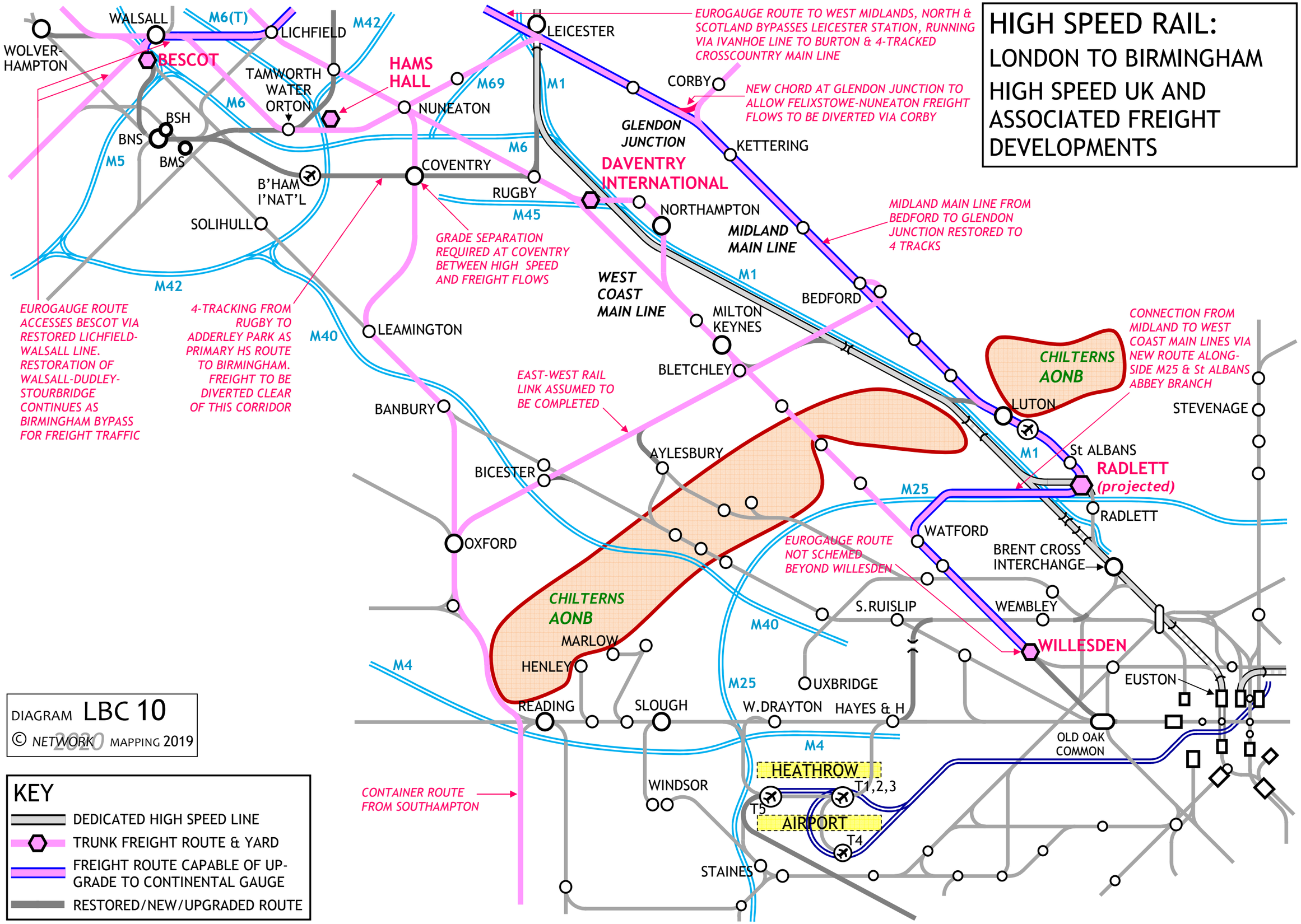

DIAGRAM LBC 10

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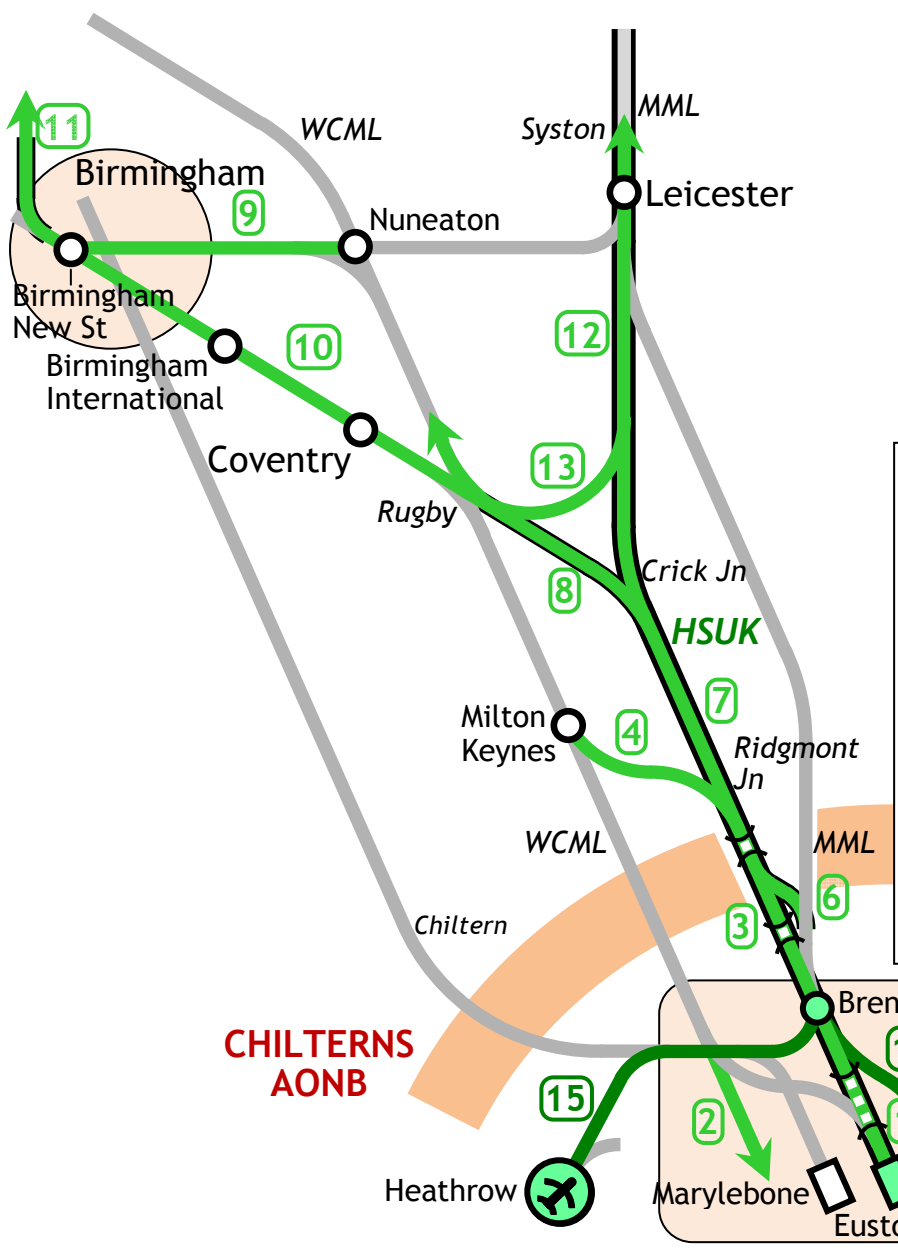
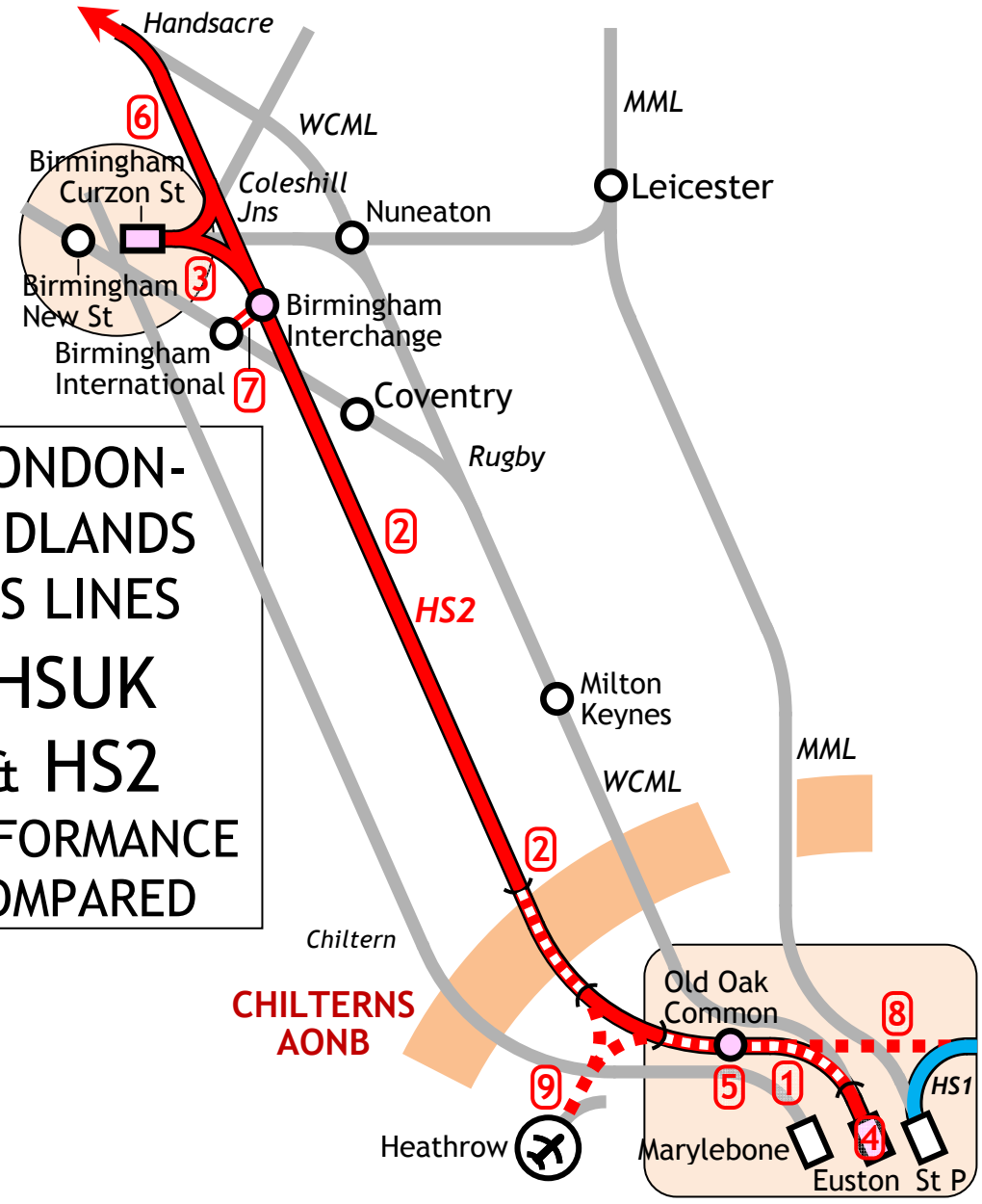
KEY

- DEDICATED HIGH SPEED LINE
- TRUNK FREIGHT ROUTE & YARD
- FREIGHT ROUTE CAPABLE OF UP-GRADE TO CONTINENTAL GAUGE
- RESTORED/NEW/UPGRADED ROUTE



LONDON-MIDLANDS HS LINES

HSUK & HS2 PERFORMANCE COMPARED



	Project Element *(all costs in £ billion)*	Cost *(2-track spine)*	Cost *(4-track spine)*
1	Euston – Brent X	0.99	1.46
2	WCML – Crossrail link	0.10	0.10
3	Brent X – Ridgmont	3.60	4.43
4	Ridgmont – Milton K	0.21	0.21
5	Euston Reconstruct	1.13	1.13
6	St Albans Loop	N/A	0.43
7	Ridgmont – Crick HSL	2.39	3.12
8	Crick – Rugby HSL	0.54	0.54
9	Nun – B'ham electrify	0.22	0.22
10	Rugby – B'ham 4-track	2.05	2.05
11	Soho – Tame Br. link	0.50	0.50
	Total – *for comparison with HS2 Phase 1*	£11.7bn	£14.2bn
12	HSL Crick – Syston	N/A	2.62
13	Rugby GC link	N/A	1.55
14	HSUK – HS1 link	N/A	0.002
15	Brent X – Heathrow	N/A	0.91
	Total – *for full regional network functionality*	N/A	£4.4bn
	Grand Total	£11.7bn	£18.6bn

Performance Checklist	**HSUK**	**HS2**
No of homes demolished?	<10	>100
Ancient Woodlands damaged?	0	31
Intrusion into Chilterns AONB?	N	Y
Direct journey times (in mins)		
Birmingham – London (## HS2 journey time includes 10 mins walking time to New Street)	57	59##
Coventry – London	38	FR/JTI
Milton Keynes – London	32	FR/JTI
Leicester – London	37	FR/JTI
Birmingham – Heathrow	98	NDJP
Coventry – Heathrow	79	NDJP
Milton Keynes – Heathrow	46	NDJP
Leicester – Heathrow	80	NDJP
Birmingham – Leicester	37	NDJP
Coventry – Leicester	19	NDJP
Milton Keynes – Leicester	32	NDJP

Connectivity Assessment tabulating ave %age journey time reductions & cities directly linked:				
London	31%	27	19%	11
Birmingham	36%	29	20%	6
Coventry	48%	24	9%	0
Milton Keynes	46%	22	1%	0
Leicester	62%	27	6%	0
Heathrow	52%	22	33%	0

Other project features:		
4-track UK high speed spine?	Y	N
Need to expand Euston?	Y	N
Through Birmingham station?	Y	N
Intermediate cities served?	Y	N
Walking time to central Birmingham (ie New St station)	0 mins	10 mins
Links to other West Mids cities	Good	Poor
Capacity relief/link to MML?	Y	N
Direct link to HS1?	Y	N
Parallel freight strategy?	Y	N

	Project Element *(all costs in £ billion)*	Cost *(2-track spine)*
1	Euston – OOC	1.24
2	OOC – B'ham I/change	13.60
3	I/change – Curzon St	1.36
4	Euston rebuild	1.88
5	Old Oak Common	1.50
6	Coleshill – Handsacre	1.98
7	B'ham I/change link	0.16
8	HS2 –HS1 Link ***cancelled***	N/A
9	Heathrow Spur ***cancelled***	N/A
	Total	£21.7bn

Coventry	48%	24	9%	0

HSUK's Connectivity Assessment is derived from the HSUK timetable based on 32 key towns, cities & airports. This shows Coventry enjoying 48% average journey time reductions and direct (no change of trains) links to 24 out of 32 other towns/cities/airports. By contrast HS2 offers no direct links to Coventry and the 9% reduction in average journey times is achieved by connection to HS2 services at the nearby Birmingham International/ Interchange. Predicted HS2 journey times are derived from HS2 Ltd info and the national rail website www.nationalrail.co.uk.

KEY

- Existing route
- HSUK 4-track/2-track route
- HSUK upgraded route
- HS2 new build 2-track route
- Tunnel (only tunnels >3km long illustrated)
- Station served by HSUK
- Station served by HS2
- NDJP — No direct journey possible
- FR/JTI — Frequency reduced/ journey time increased

DIAGRAM LBC 11

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LONDON-MIDLANDS HS LINES
HSUK STAGING DIAGRAMS

DIAGRAM LBC 12

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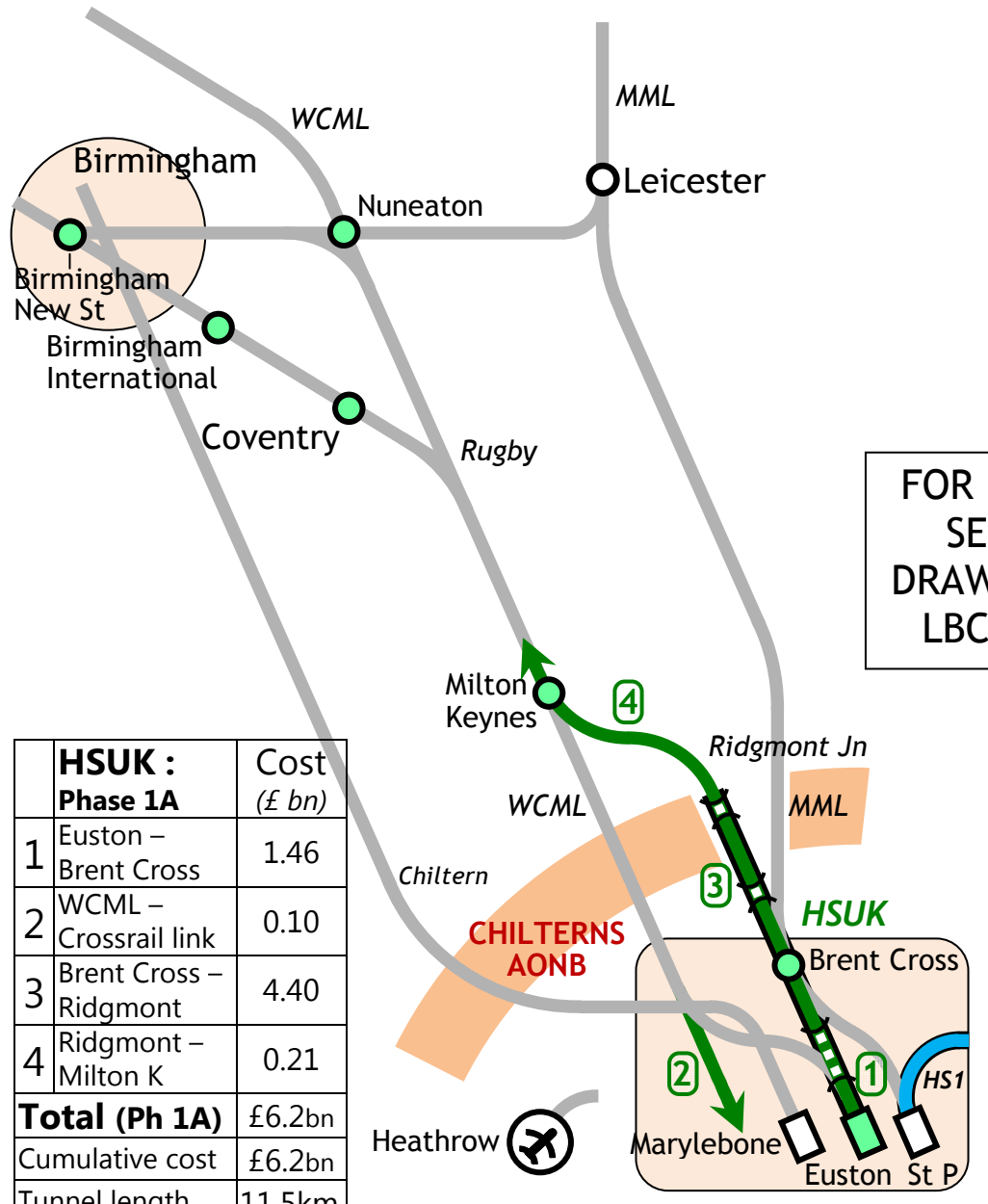
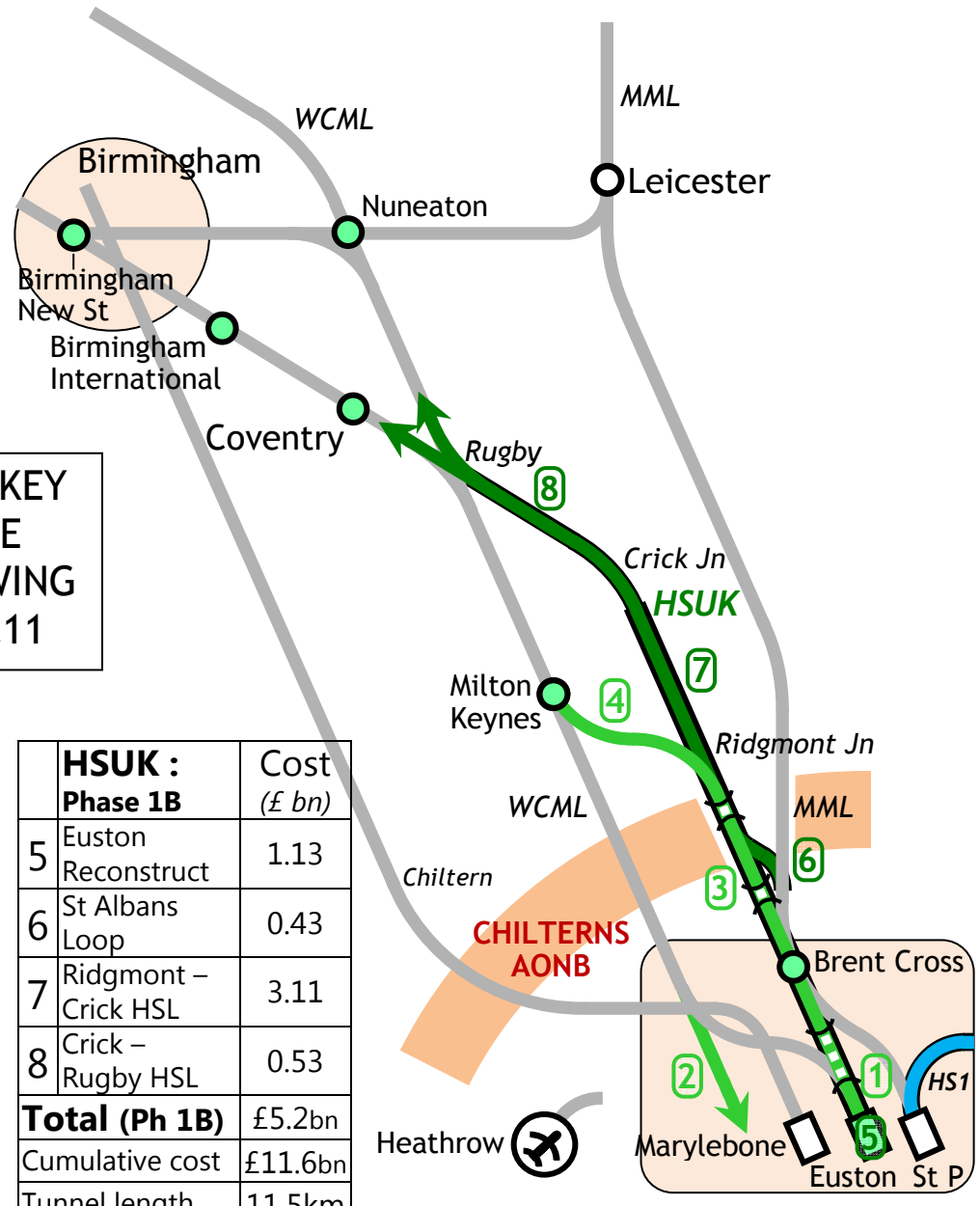
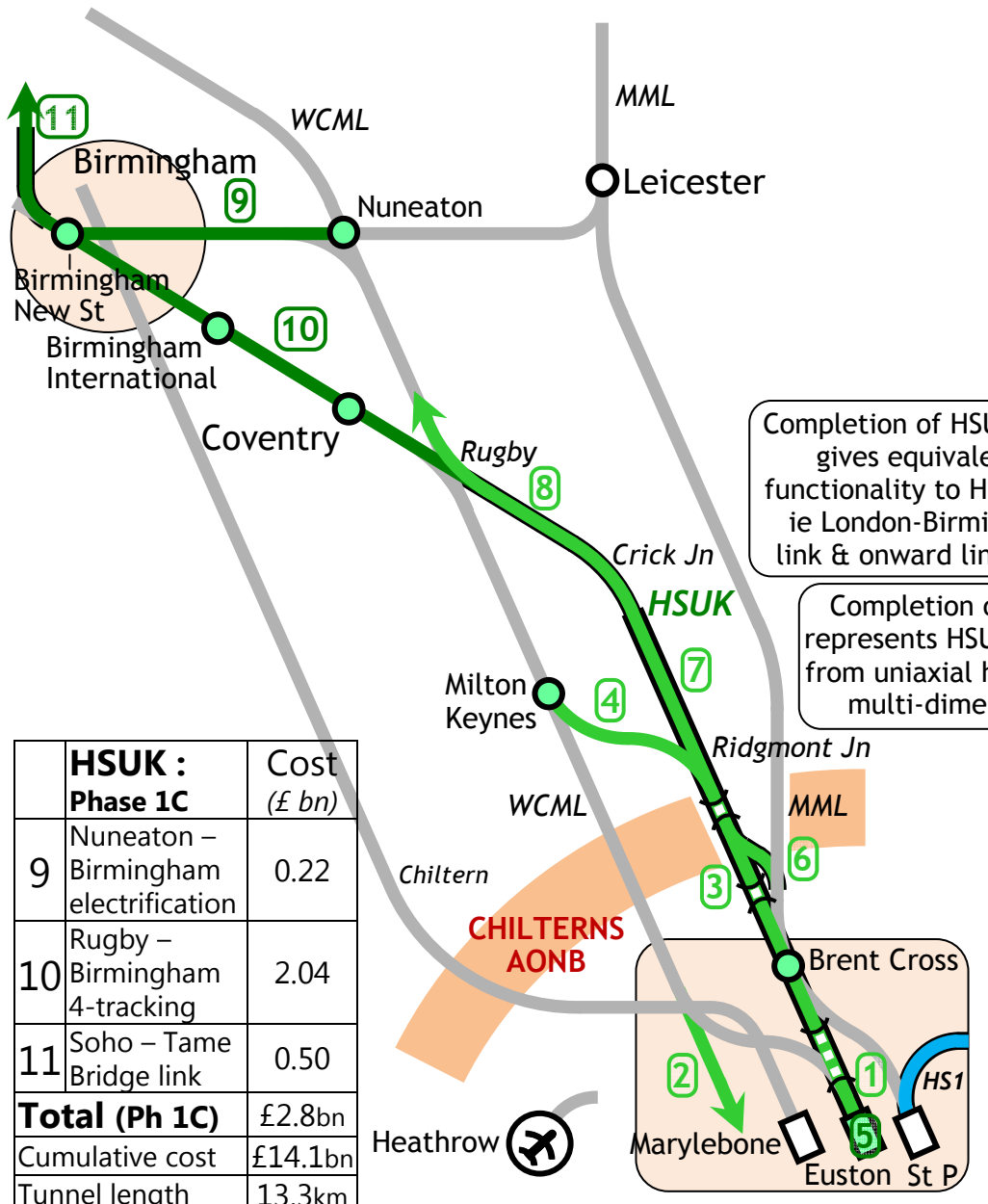


	HSUK : Phase 1A	Cost (£ bn)
1	Euston – Brent Cross	1.46
2	WCML – Crossrail link	0.10
3	Brent Cross – Ridgmont	4.40
4	Ridgmont – Milton K	0.21
Total (Ph 1A)		£6.2bn
Cumulative cost		£6.2bn
Tunnel length		11.5km
Completion date		2021



	HSUK : Phase 1B	Cost (£ bn)
5	Euston Reconstruct	1.13
6	St Albans Loop	0.43
7	Ridgmont – Crick HSL	3.11
8	Crick – Rugby HSL	0.53
Total (Ph 1B)		£5.2bn
Cumulative cost		£11.6bn
Tunnel length		11.5km
Completion date		2024

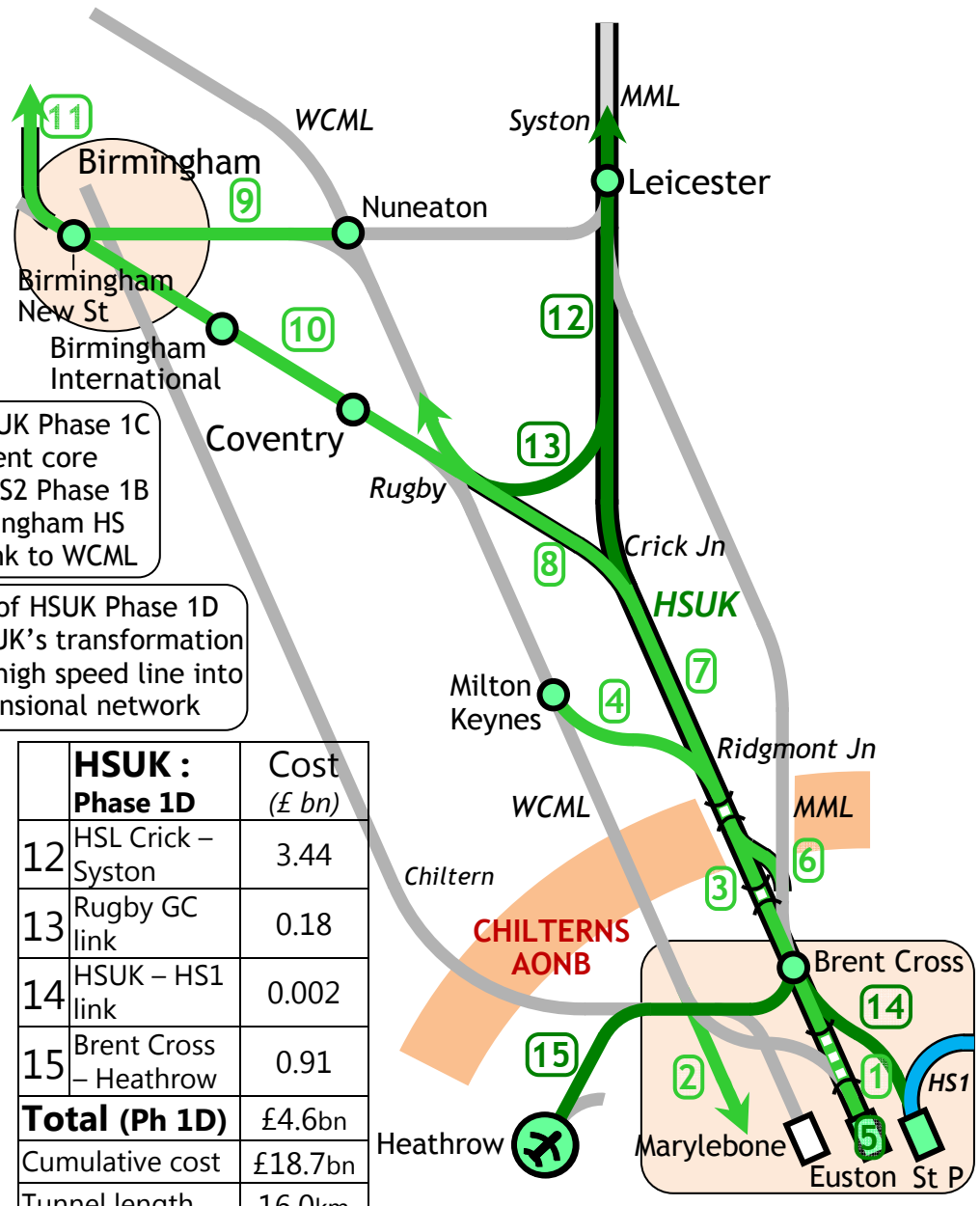
FOR KEY SEE DRAWING LBC11



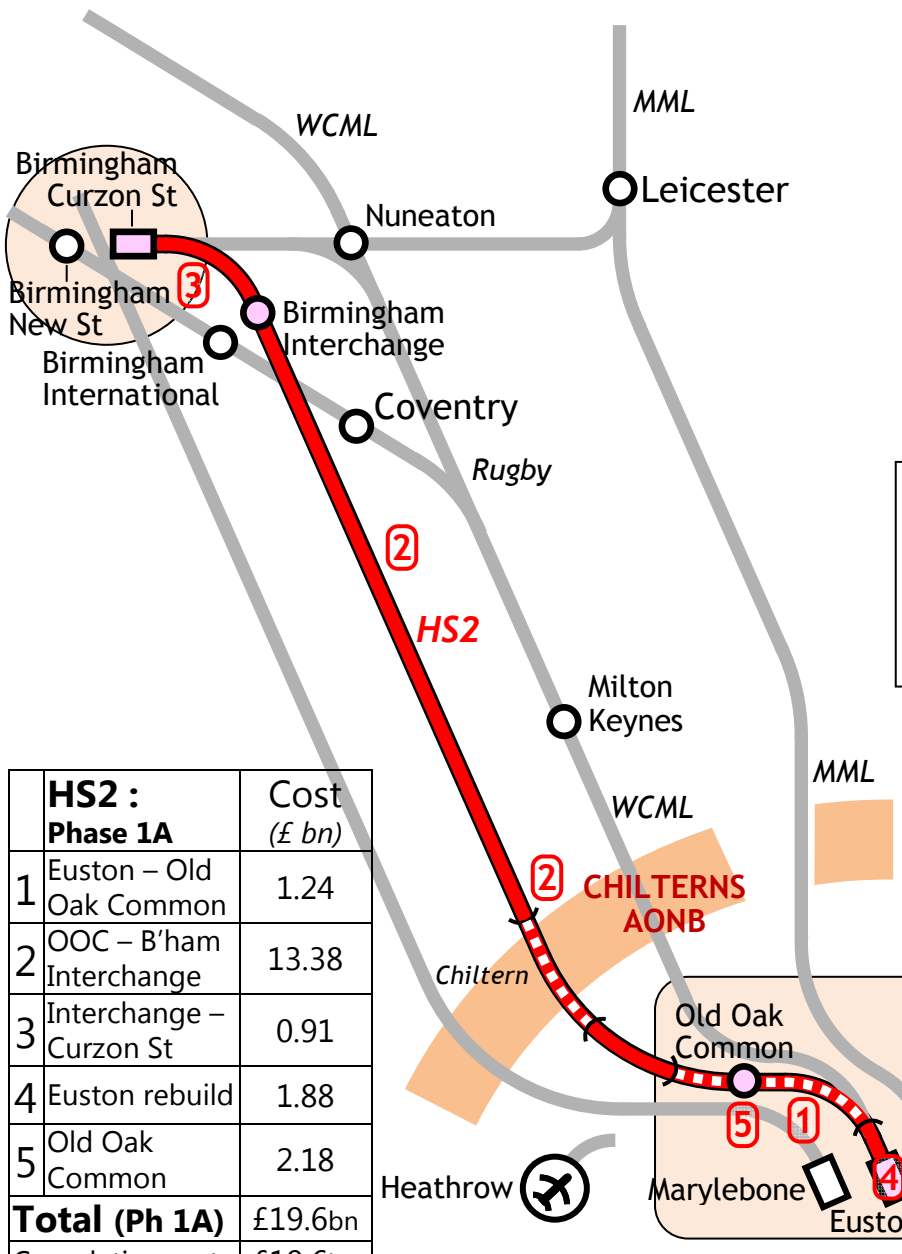
Completion of HSUK Phase 1C gives equivalent core functionality to HS2 Phase 1B ie London-Birmingham HS link & onward link to WCML

Completion of HSUK Phase 1D represents HSUK's transformation from uniaxial high speed line into multi-dimensional network

	HSUK : Phase 1C	Cost (£ bn)
9	Nuneaton – Birmingham electrification	0.22
10	Rugby – Birmingham 4-tracking	2.04
11	Soho – Tame Bridge link	0.50
Total (Ph 1C)		£2.8bn
Cumulative cost		£14.1bn
Tunnel length		13.3km
Completion date		2026

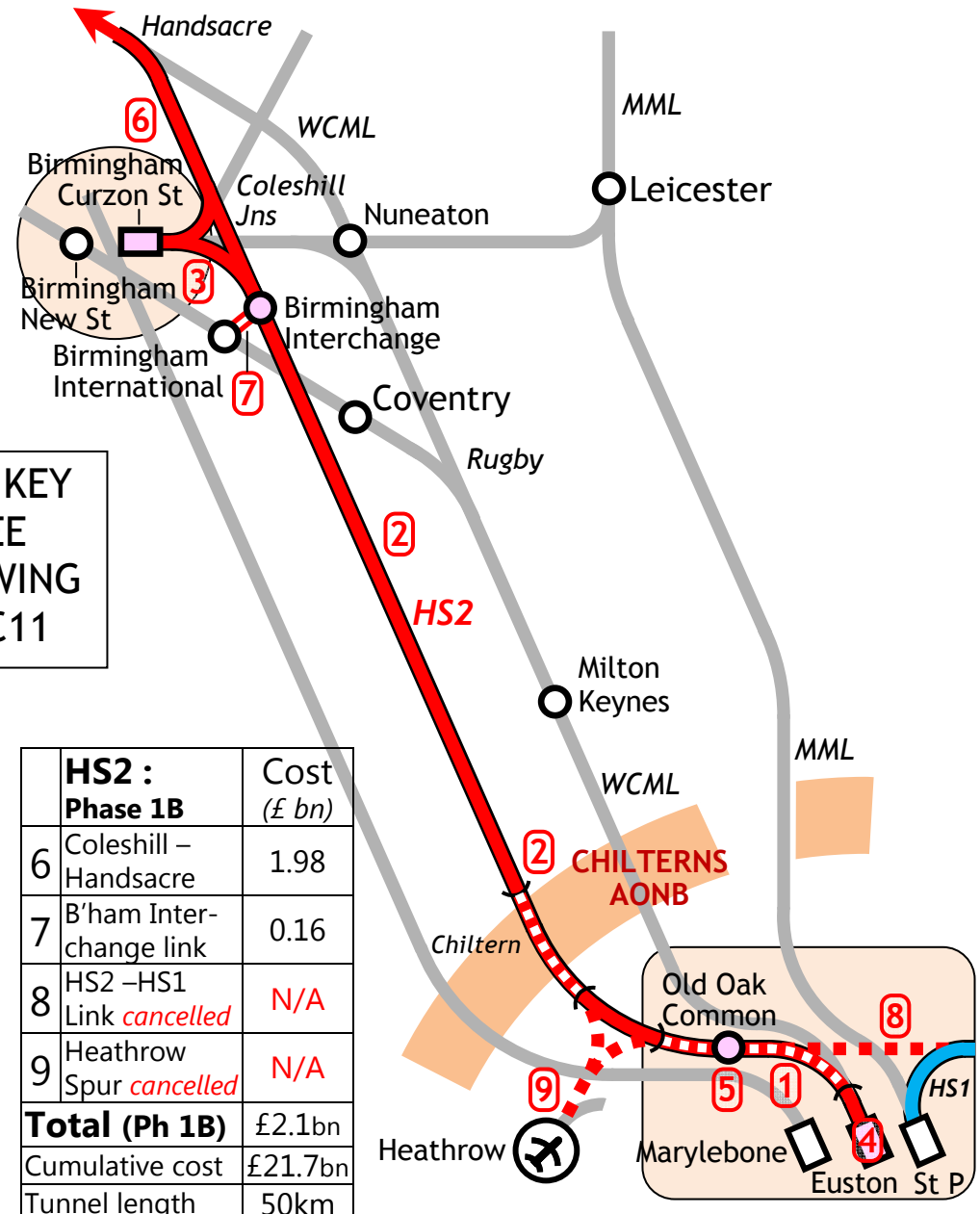


	HSUK : Phase 1D	Cost (£ bn)
12	HSL Crick – Syston	3.44
13	Rugby GC link	0.18
14	HSUK – HS1 link	0.002
15	Brent Cross – Heathrow	0.91
Total (Ph 1D)		£4.6bn
Cumulative cost		£18.7bn
Tunnel length		16.0km
Completion date		????



	HS2 : Phase 1A	Cost (£ bn)
1	Euston – Old Oak Common	1.24
2	OOC – B'ham Interchange	13.38
3	Interchange – Curzon St	0.91
4	Euston rebuild	1.88
5	Old Oak Common	2.18
Total (Ph 1A)		£19.6bn
Cumulative cost		£19.6bn
Tunnel length		50km
Completion date		2024

FOR KEY SEE DRAWING LBC11



	HS2 : Phase 1B	Cost (£ bn)
6	Coleshill – Handsacre	1.98
7	B'ham Inter-change link	0.16
8	HS2 –HS1 Link *cancelled*	N/A
9	Heathrow Spur *cancelled*	N/A
Total (Ph 1B)		£2.1bn
Cumulative cost		£21.7bn
Tunnel length		50km
Completion date		2026

LONDON-MIDLANDS HS LINES
HS2 STAGING DIAGRAMS

DIAGRAM LBC 13

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