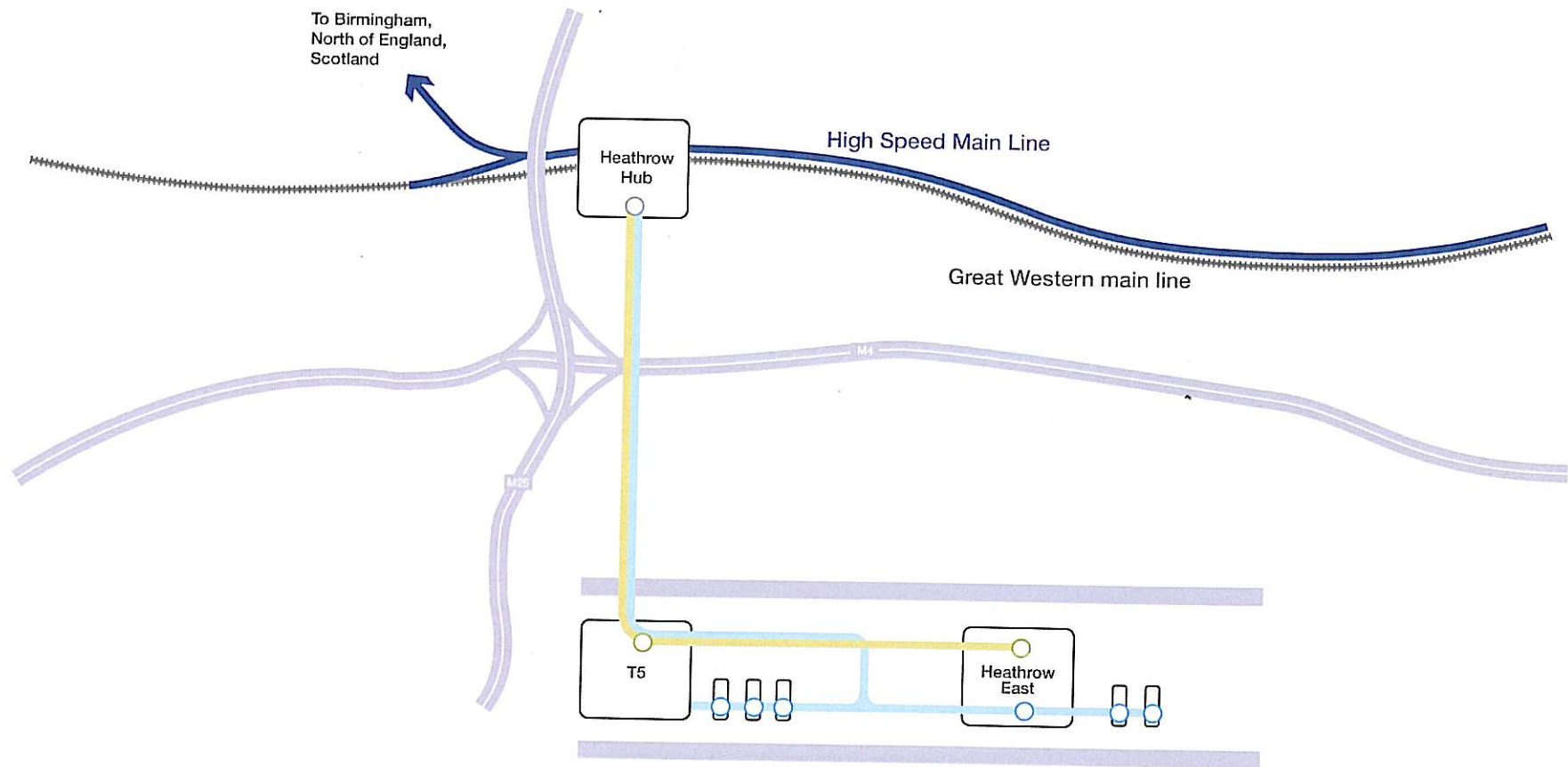


The Heathrow Hub:

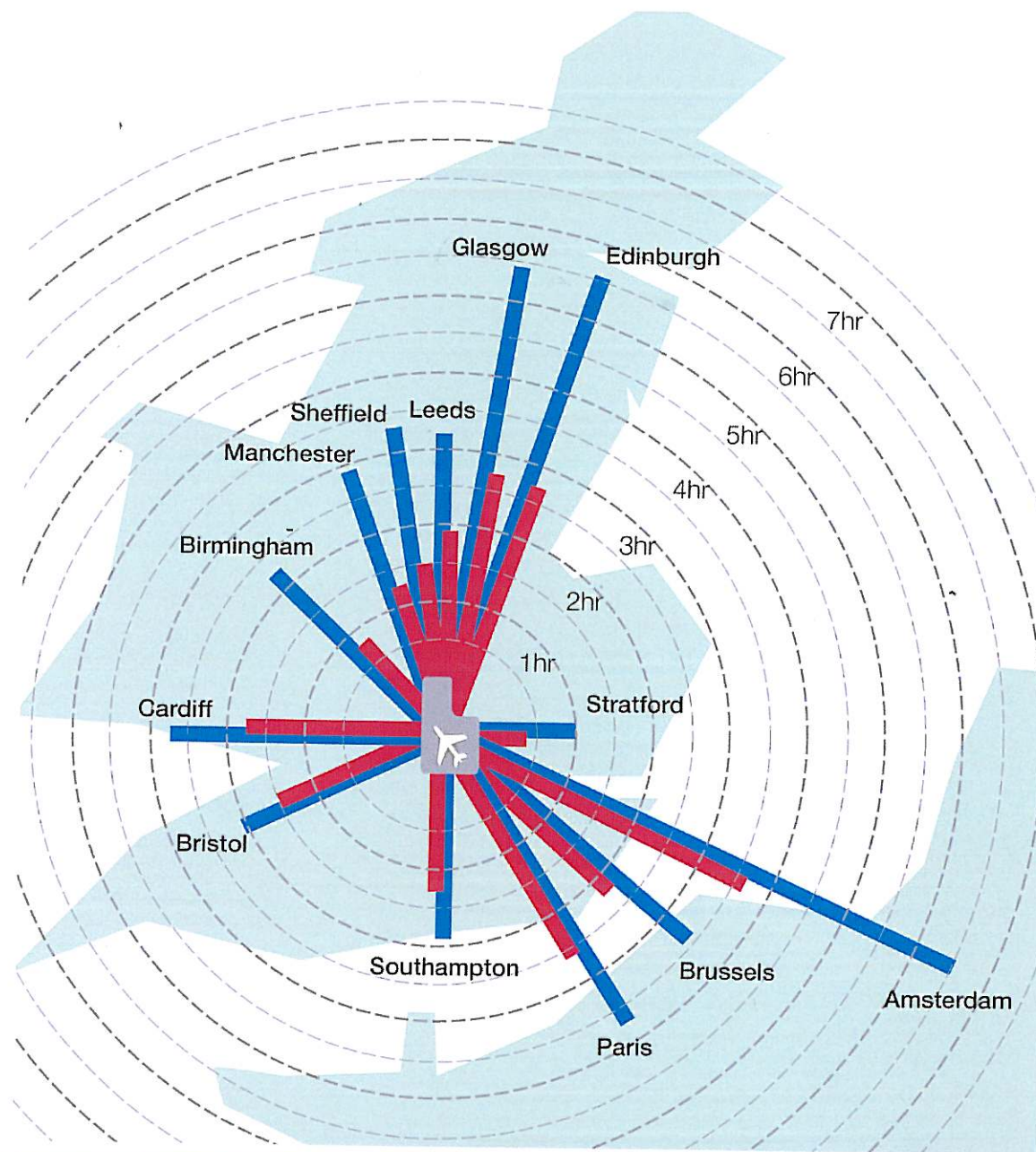
a new railway station with air terminal facilities located at London Heathrow

Briefing for the Secretary of State for Transport - September 2010

ARUP

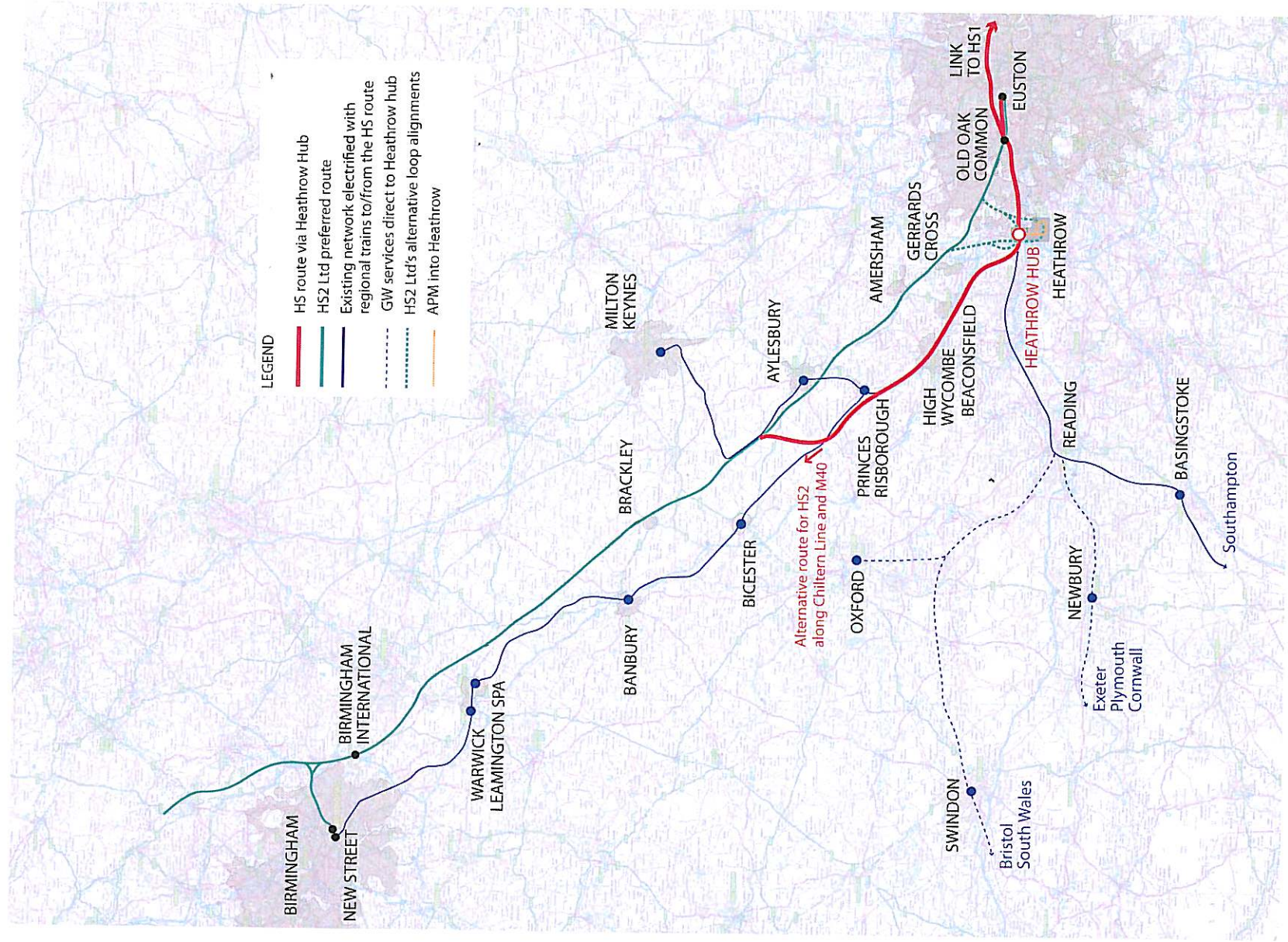


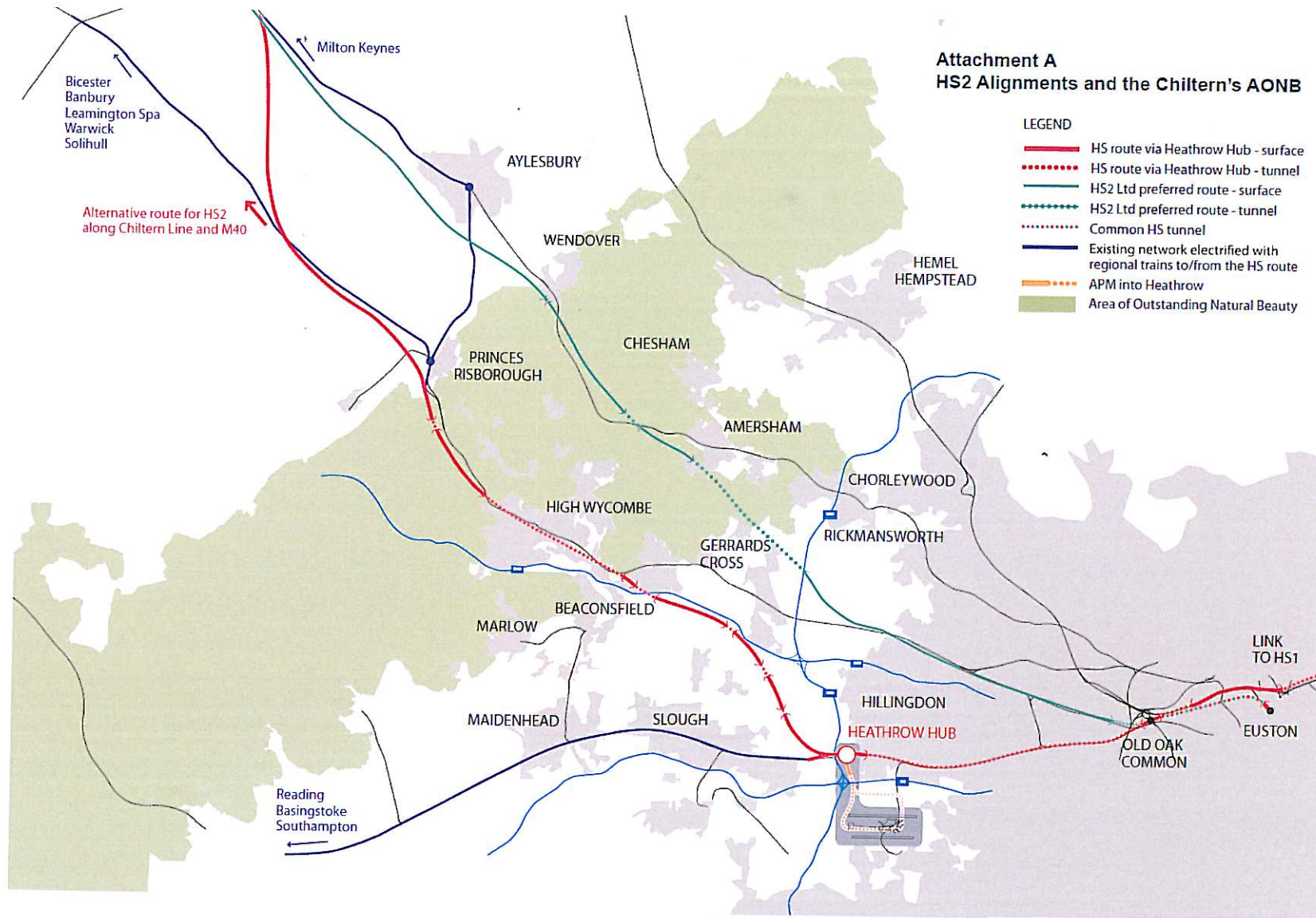
Train Services	Trains per hour
High speed (domestic)	16
High speed (international)	4
Great Western	20
Crossrail	12+
	Total 52

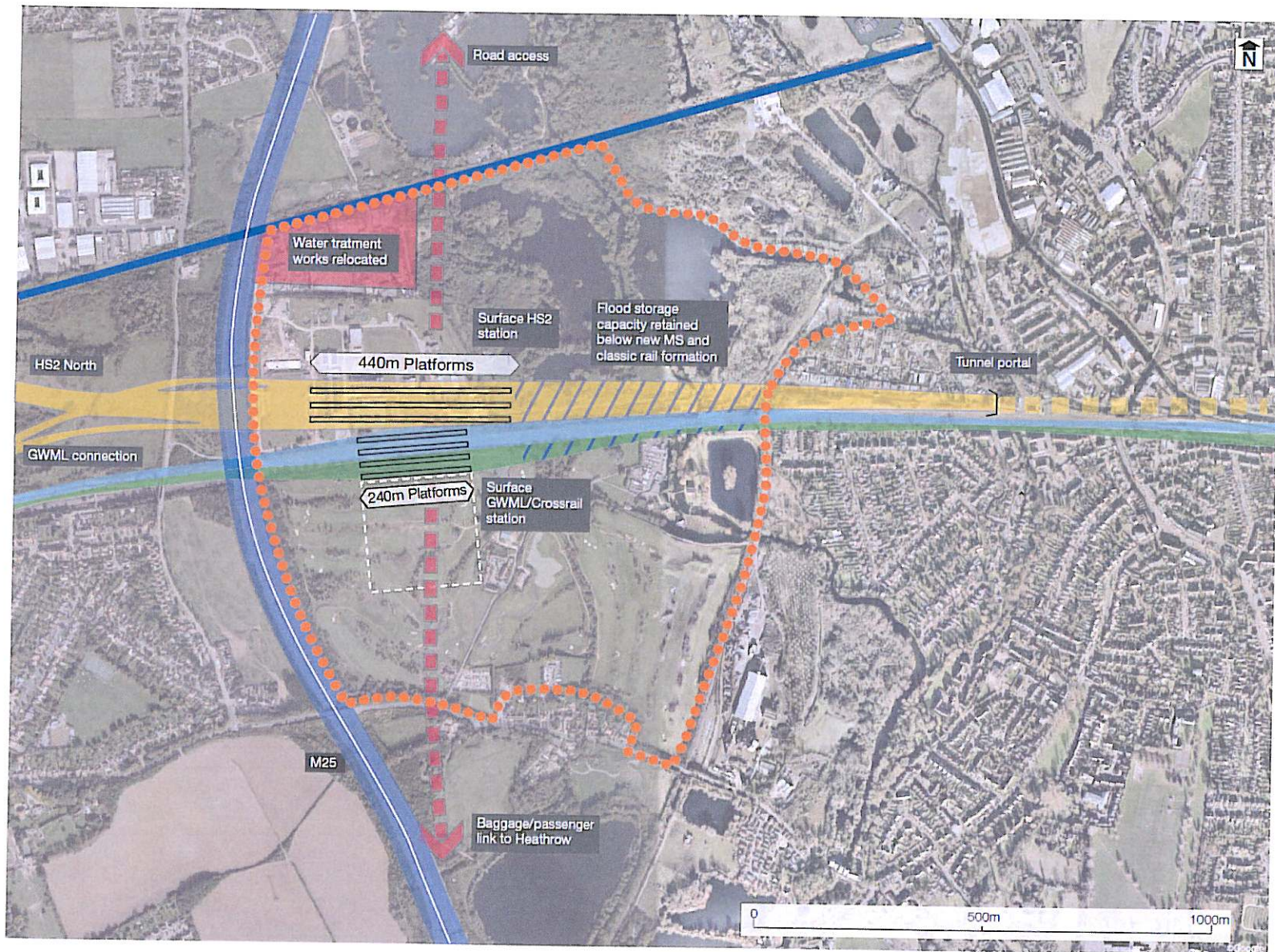


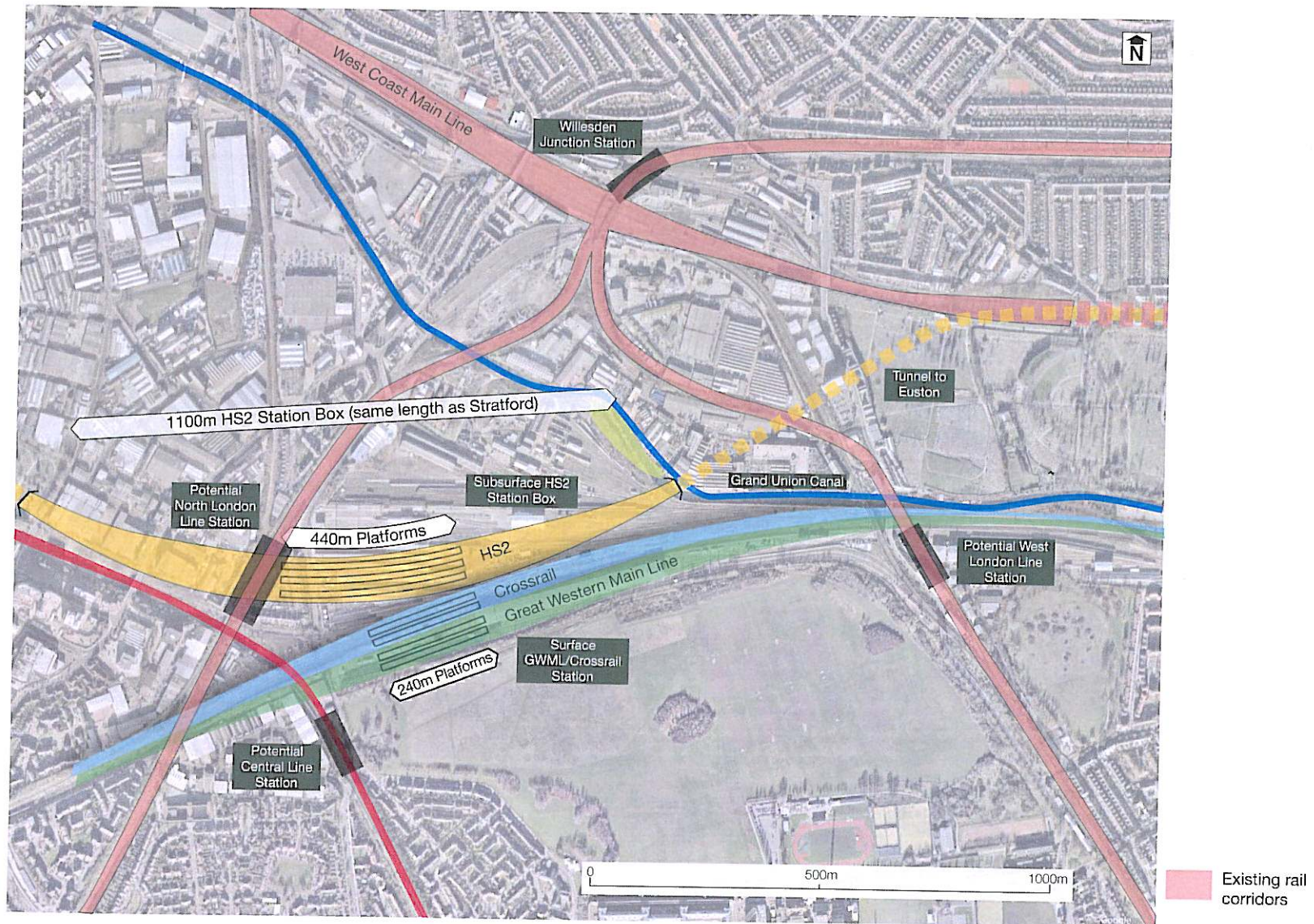
Bristol to Beijing via Schipol	
Taxi or bus to airport	0h15
Check in or bag drop	0h15
Security and walk to gate	0h10
Contingency time and boarding	1h
Feeder flight Bristol to Amsterdam	1h20
Stop-over/transfer in Amsterdam	3h20
Long haul flight Amsterdam to Beijing	9h45
Disembark and clear customs and immigration	0h45
Travel to final destination	0h30
Total transit time	17h20

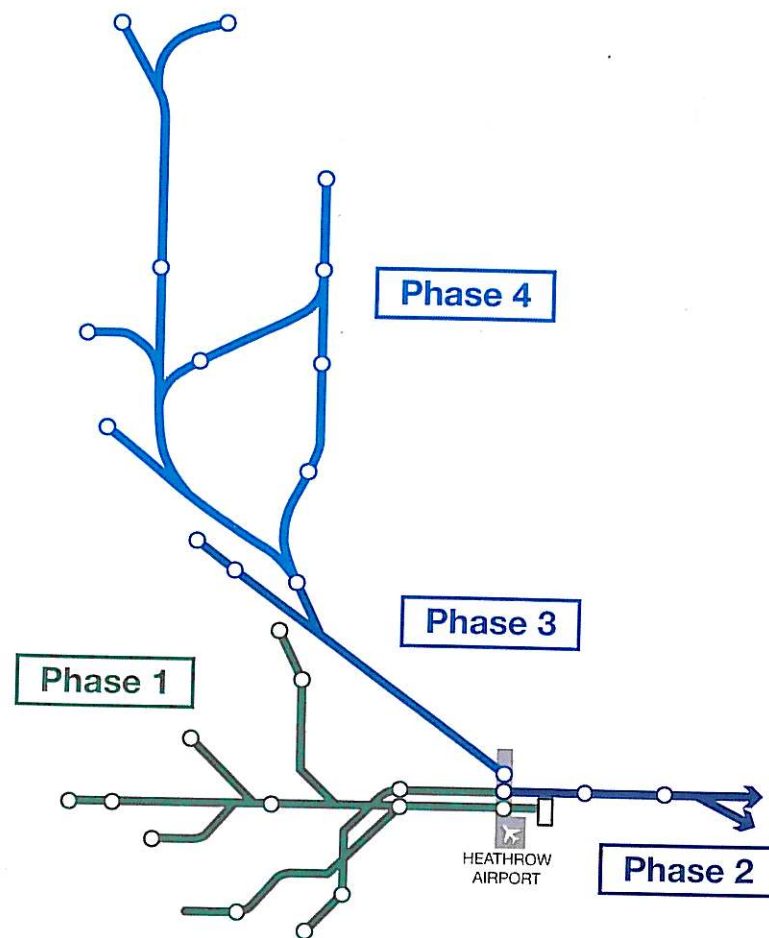
Bristol to Beijing through Heathrow Hub	
Taxi or bus to airport	0h15
Contingency time	0h10
Join train	0h5
Rail journey Bristol to Hub	1h23
Walk from train to check in	0h5
Check in or bag drop	0h15
Security and transit to gate	0h15
Contingency time and boarding	1h
Long haul flight Heathrow to Beijing	10h10
Disembark and clear customs and immigration	0h45
Travel to final destination	0h30
Total transit time	14h54











Phase 1 (2015/16): Heathrow station on GWML

Phase 2 (2019/20): HS link to Euston and HS1

Phase 3 (2022/23): HS link to Birmingham

Phase 4 (2029/30): HS link further north

Route section	Arup Hub Team Estimates		HS2 Ltd estimates	Phase of develop., Hub proposal
	Cost of HS2 routed via HH	Cost of HS2 Ltd's Preferred Route via Ruislip	Cost of HS2 Ltd's Preferred Route via Ruislip	
	(£bn)	(£bn)	(£bn)	
Euston station	1.19	1.19	1.82	3
Tunnelled route Euston (exc.) – OOC (exc.)	0.98	0.98	0.93	2
OOO station		0.83	1.02	-
Tunnelled route OOO (inc.) to HH (exc.)	2.27			2
HH station	0.75			1
HS railway HH (exc.) to NEC (exc.)	6.62			3
HS2 Ltd's preferred HS route, OOO (exc.) via Ruislip to NEC (exc.)		6.70	5.53	-
NEC station	0.46	0.46	0.74	3
HS railway, NEC (exc.) to Centre/ WCML	1.79	1.79	1.94	3
Birmingham City Centre station	0.34	0.34	0.40	3
Sub Total	14.40	12.29	12.38	
Link from HS1 at St Pancras to join HS2 at OOO	0.50	0.50	0.50	2
Total, including HS1 link	14.90	12.79	12.88	

Options for serving Heathrow		Cost (£bn)
Arup proposed alignment (HS2 routed via HH)		14.40
HS2 Ltd preferred route		12.29
+		+
HS2 Ltd's option for an Iver loop (includes a tunneled connection to the HS2 Ltd preferred route)		2.10 to 3.78
Total		14.39 to 16.07

Element	Cost (£bn)
Assets potentially not in the Airport RAB	
Road link to M25	0.32
Site acquisition and development, relocation of water treatment plant	0.60
Hub station – 12 platforms and associated infrastructure	0.75
Sub total	1.67
Assets potentially in the Airport RAB	
APM and baggage transfer	0.50
Airport passenger facilities	0.75
Airport forecourt access charging infrastructure	0.05
Sub total	1.30
Total	2.97

	Phase 1 2012 – 2016 (£bn)	Phase 2 2017 – 2019 (£bn)	Phase 3 2020 – 2022 (£bn)	Phase 4 2023 – 2029 (£bn)	After Phase 4 2030 – 2071 (£bn)	Capitalised Revenues (£bn), discounted at...	
						10% real (£bn)	3.5% Government rate (£bn)
Annual vehicle charging revenues	0	0.440	0.440	0.440	0.440	2.988	9.301
Annual additional rail revenues generated by Hub transport strategy	0	0.181	0.314	0.366	0.612	2.604	10.205
Net property receipts for 150,000 sq m development (one-off)	0	0.362	0	0	0	0.225	0.304
Net property receipts for further 600,000 sq m development (one off)	0	0	0	0	1.448	0.260	0.780
Total of annual and one off revenues in each Phase	0	2.224	1.507	6.450	45.633		
Total capitalised revenues						6.078	20.590

