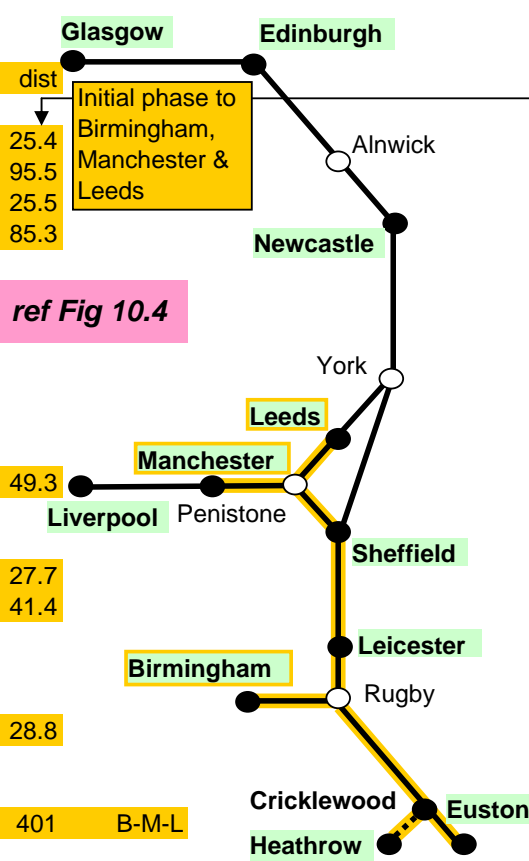


HIGH SPEED NORTH

all distances calculated as straight lines

Heathrow	9	E	N	dist	dist
Euston	9			529535	182805
M1/M25 interX				513500	202500
Rugby (M1/M6)				456100	278850
Leicester	9			459365	304105
Sheffield	9			448115	388645
York				459600	451710
Newcastle	9			424660	563855
Alnwick				418645	613617
Edinburgh	9			325960	673885
Glasgow	9			258750	665060
Rugby (M1/M6)				456100	278850
Birmingham	7			407445	286780
Sheffield				448115	388645
Penistone				425610	404755
Manchester	8			384825	397820
Liverpool	8			335115	390585
Penistone				425610	404755
Leeds	9			429850	433195
York				459600	451710



COST			TIMING		
£M/km	£M	£M	ave time speed	hr	Total time hr m
50	1270	1270	200	0.13	
30	2866	2866	250	0.41	
30	764	764	250	0.11	
30	2559	2559	250	0.36	
30	1923		250	0.27	
30	3524		250	0.50	1.78 1 47
40	2005		250	0.21	
40	4422		250	0.47	2.46 2 28
30	2034		200	0.36	2.82 2 49
			B-G		
30	1479	1479	200	0.26	0.80 0 48
			M-G		
50	1384	1384	250	0.12	
50	2069	2069	200	0.22	1.35 1 21
40	2009		250	0.21	1.56 1 34
50	1438	1438	200	0.15	1.28 1 17
30	1051		200	0.19	
	32643	14657	TOTAL COST £ million		

INTERCITY CONNECTIONS 95 TOTAL ROUTE LENGTH (km) 927

incl sinuosity

401 B-M-L 95 connections

NETWORK EFFICIENCY

10.25 connections/100km

NO OF ROUTES (TO SERVICE CORE NETWORK)

6 No of routes

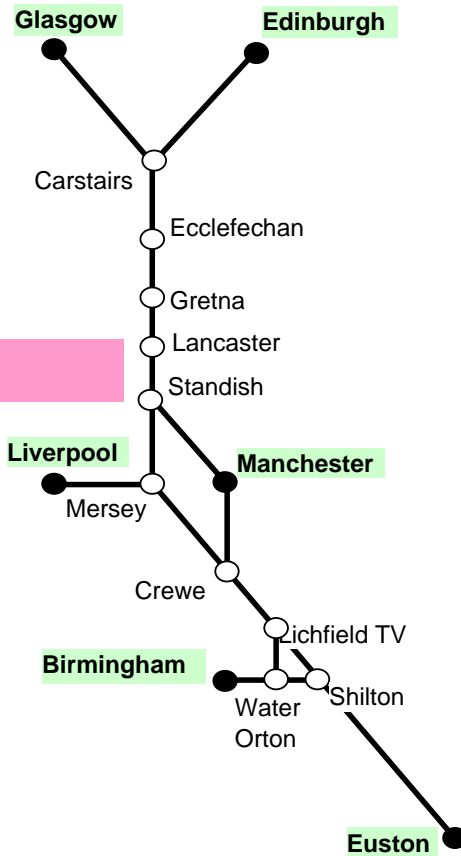
OPERATIONAL EFFICIENCY

15.83 connections/route

Sinuosity %age 6 %
 Sinuosity factor 1.06
 Minutes in hour 60

NR PROPOSAL - WCML *nouveau*
all distances calculated as straight lines

	E	N	dist
Euston	5	529535	182805
M1/M25 interX		513500	202500 25.4
Shilton		440000	284200 109.9
Lichfield TV		413685	309900 36.8
Crewe		371125	354670 61.8
Mersey		368335	388975 34.4
Standish		357165	411745 25.4
Preston		353440	429015 17.7
Lancaster		348775	458825 30.2
Gretna		332335	569190 111.6
Ecclefechan		316435	575500 17.1
Carstairs		295250	645400 73.0
Glasgow	3	258750	665060 41.5
Birmingham	5	407445	286780
Water Orton		417450	291225 10.9
Shilton		440000	284200 23.6
Lichfield TV		413685	309900 19.1
Mersey		368335	388975
Liverpool	1	335115	390585 33.3
Crewe		371125	354670
Wilmslow		384500	380500 29.1
Manchester	4	384825	397820 17.3
Eccles		375150	398590 9.7
Standish		357165	411745 22.3
Carstairs		295250	645400
Edinburgh	3	325960	673885 41.9



Communities served 5
 Communities served by other schemes 9

COST		TIMING	
£M/km	£M	ave time speed	Total time hr hr m
50	1270	200	0.13
30	3297	250	0.47
30	1103	250	0.16
30	1853	250	0.26
30	1033	250	0.15
30	761	250	0.11
30	530	250	0.07
30	905	250	0.13
40	4463	250	0.47
40	684	250	0.07
40	2922	250	0.31
40	1658	200	0.22
B-G			
			0.78 0 47
30	328	200	0.06
30	709	200	0.13
30	572	200	0.10
40	1330	200	0.18
M-B			
			1.34 1 20
30	873	250	0.12
80	1386	200	0.09
80	776	200	0.05
30	668	250	0.09
30	1257	200	0.22
			2.55 2 33
30081		TOTAL COST £ million	

INTERCITY CONNECTIONS 21 **TOTAL ROUTE LENGTH (km)** 839
incl sinuosity

21 connections

NETWORK EFFICIENCY **4.50 connections/100km**

NO OF ROUTES **7 No of routes**
 (TO SERVICE CORE NETWORK)

OPERATIONAL EFFICIENCY **3.00 connections/route**

DfT Projected - Reverse S

all distances calculated as straight lines

Heathrow	7	E	N	dist
Euston	7			529535 182805
Old Oak Common				521740 182260 7.8
Northolt				511975 185030 10.2
Princes Risboro				479490 202175 36.7
Warwick				426465 262485 80.3
Birmingham	6			407445 286780 30.9
Crewe				371125 354670 77.0
Wilmslow				384500 380500 29.1
Manchester	6			384825 397820 17.3
Penistone				425610 404755 41.4
Leeds	6			429850 433195 28.8
Newcastle	6			424660 563855 130.8
Alnwick				418645 613617 50.1
Edinburgh	6			325960 673885 110.6
Glasgow	6			258750 665060 67.8

TP Direttissima Manchester - Leeds 57.3

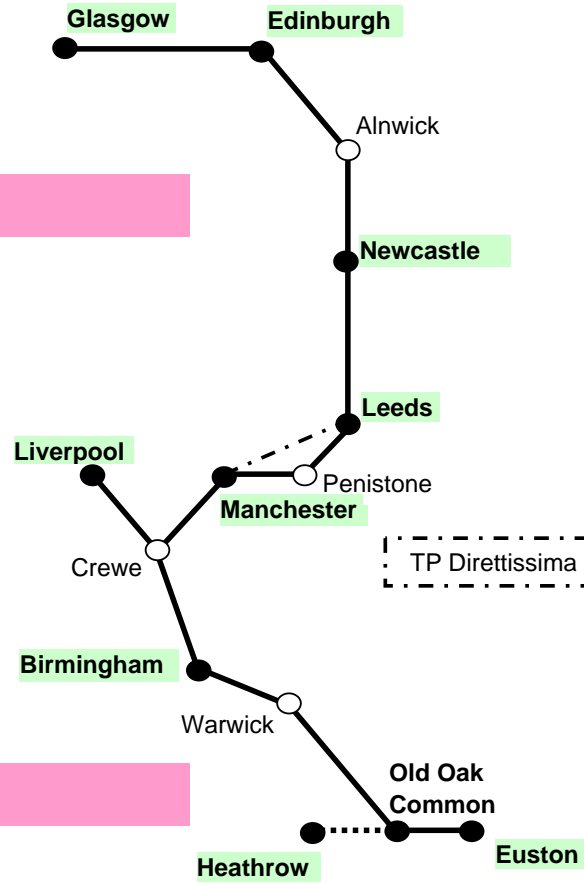
Crewe	371125	354670	
Liverpool	335115	390585	50.9

Communities served 7

Communities served by other schemes 9

INTERCITY CONNECTIONS 45 **TOTAL ROUTE LENGTH (km)** 816
incl sinuosity

(Normalised) NETWORK EFFICIENCY 7.09 connection/100km



COST		TIMING					
£M/km	£M	ave time speed	hr	Total time	hr m		
65	508	200	0.04				
30	305	200	0.05				
65	2388	250	0.16				
30	2409	250	0.34				
80	2468	200	0.16	0.75	0 45		
30	2310	250	0.33				
30	873	250	0.12				
80	1386	200	0.09	1.30	1 18		
50	2069	200	0.22				
65	1869	200	0.15	1.67	1 40		
30	3923	250	0.55	2.22	2 13		
40	2005	250	0.21				
40	4422	250	0.47	2.90	2 54		
30	2034	200	0.36	3.26	3 16		
TP Direttissima		80	4581	220	0.26	3.15	3 9
40	2034	200	0.27	1.35	1 21		
TOTAL COST £ million		32862					

NO OF ROUTES (TO SERVICE CORE NETWORK) OPERATIONAL EFFICIENCY 22.50 connections/train

2 No of trains

SUMMARY TABLE

Ref Figure	
Total Route Length	(km)
Principal Cities Served	(No)
No of Connections	(No)
Network Effectiveness	(connections/km)
Routes required to service core network	
Operational efficiency (connections/route)	
Cost	(£ million)

Sample Route Length & Timings

Euston-Manchester	(km)
	(hr)
Euston-Liverpool	(km)
	(hr)
Euston-Leeds	(km)
	(hr)
Euston-Newcastle	(km)
	(hr)
Euston-Edinburgh	(km)
	(hr)
Euston-Glasgow	(km)
	(hr)

Aggregate Route Length	(km)
Aggregate Timings	(hr)

High Speed North	NR WCML nouveau	DfT ReverseS thru B'ham
10.4		10.6A
927	839	816
9	5	7
95	21	45
10.25	4.50	7.09
6	7	2
15.83	3.00	22.50
32643	30081	32862
318.8	297.1	306.6
1.35	1.23	1.30
372.0	319.6	311.3
1.56	1.34	1.35
305.4	nrcba	380.9
1.28		1.67
438.0	nrcba	519.6
1.78		2.22
608.3	620.2	689.9
2.46	2.55	2.90
680.2	619.7	761.7
2.82	2.55	3.26
2722.7	*****	2970.1
11.24	#####	12.71