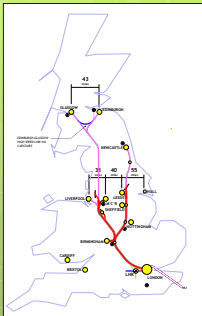

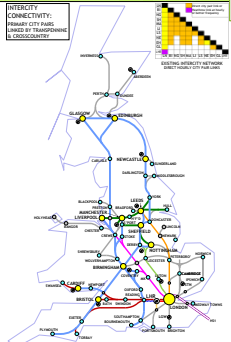
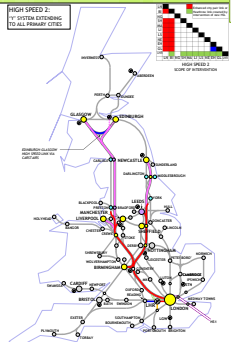


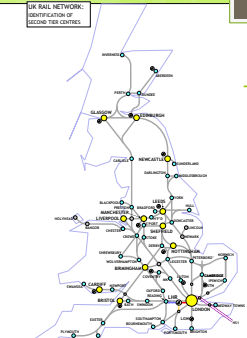
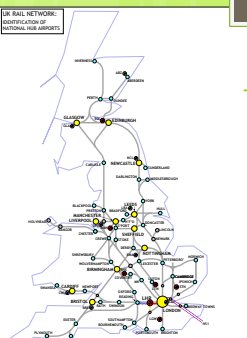
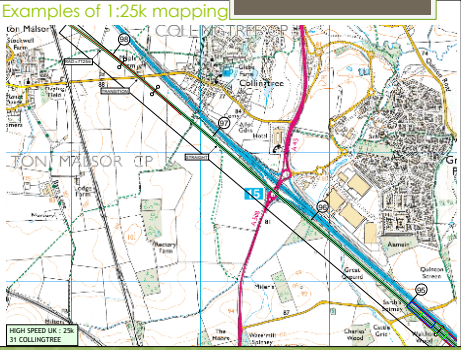
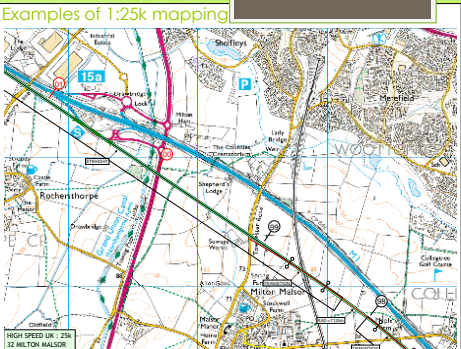
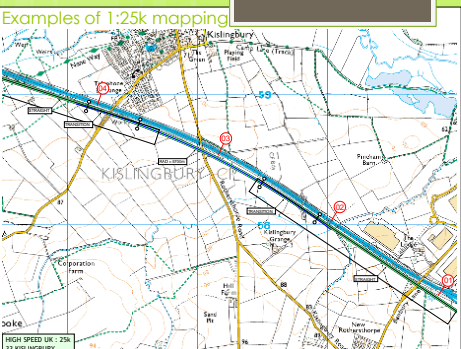
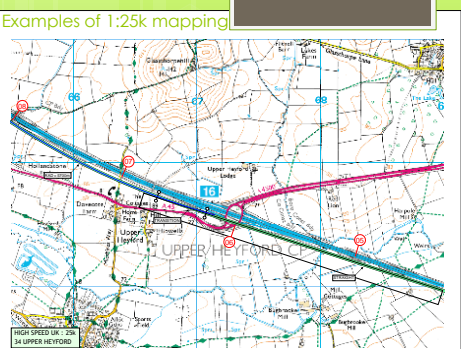
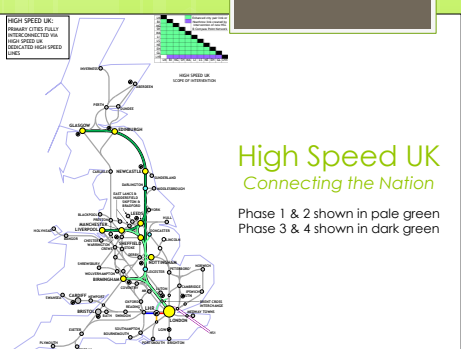


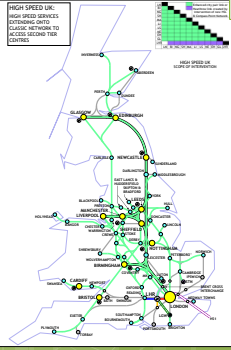
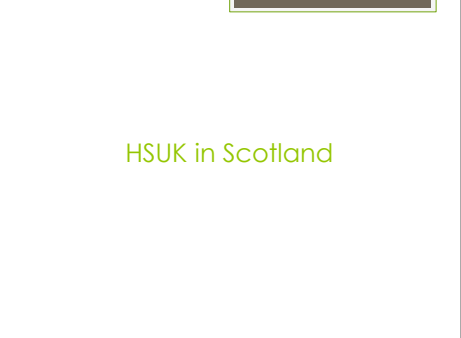
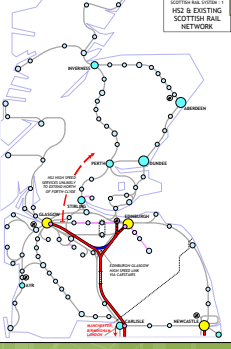
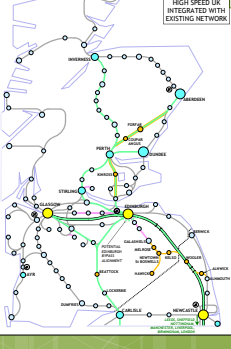
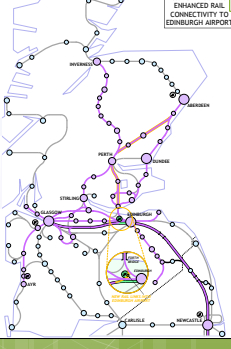
1	<h2 style="text-align: center;">High Speed UK</h2> <p style="text-align: center;">Connecting the Nation</p>	<ul style="list-style-type: none"> • Connectivity/capacity is our priority. • 'High speed' is the by-product of building new railways to achieve more capacity.
2	<h3 style="text-align: center;">High Speed UK</h3> <p style="text-align: center;">Rail Network Design Specialists</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Quentin Macdonald B.Sc.(Eng.), C.Eng., MIET, FIRSE</p> <ul style="list-style-type: none"> • Lifetime experience in railway systems engineering • Clients ranging from high speed mainline to metro and heavy haul freight railways to heritage railways • International experience includes working with the European Commission </div> <div style="width: 45%;"> <p>Colin Eliff B.Sc., C.Eng., MICE</p> <ul style="list-style-type: none"> • Lifetime experience in railway civil engineering • Published papers in railway airport access and railway network development • Active in local groups to restore trans-Pennine links • Member of ICE regional advisory board </div> </div> <p style="text-align: center;">Together we have over 80 years of combined experience in railway design and engineering</p>	<ul style="list-style-type: none"> • Our expertise is in engineering systems to optimise capacity on the existing network, harmonising new systems with existing. • Any development of new railways must take an optimised existing railway network as its starting point. • On that basis we can minimise the length of new build and maximise overall connectivity and capacity. • This minimises cost and maximises benefit.
3	<h3 style="text-align: center;">The Problems with HS2 - 1</h3> <ul style="list-style-type: none"> • For many people HS2 has become controversial • For us HS2 has always been controversial • Hardwired London centric rail network 	<ul style="list-style-type: none"> • HS2 makes no sense to most professional railway people. • It does very little to improve the existing network, and merely concentrates connectivity on London.
4	 <p style="text-align: center;">HS2 Published Network HS2 Phase 1 and Phase 2 in red; future phases in purple</p>	<ul style="list-style-type: none"> • HS2 only facilitates long distance links to London (and possibly Birmingham). • Other shorter, but equally congested routes are being ignored. • It does nothing to connect Liverpool, Manchester, Sheffield, Leeds, Hull, Teesside, Newcastle, Edinburgh, Glasgow and other smaller nearby communities to each other. • KPMG should now evaluate our scheme on the same basis as their HS2 evaluation.
5	<h3 style="text-align: center;">The Problems with HS2 - 1</h3> <ul style="list-style-type: none"> • For many HS2 has recently become controversial • For us HS2 has always been controversial • Hardwired London centric rail network • It brings little or no benefit to rail transportation in the regions • We believe that HS2 cannot deliver its promise or the nation's needs in the north of England or in Scotland • It does significant environmental damage • Only marginal reduction of CO₂ emissions • Not compliant with 2008 Climate Change Act 	<ul style="list-style-type: none"> • HS2 costs too much. • HS2 will suck economic activity away from regions to London. • HS2 will not achieve significant CO₂ reductions. • HS2 will needlessly damage landscapes, flora/fauna and heritage. • HS2 offers no benefit to affected communities. • All this contravenes public policy.


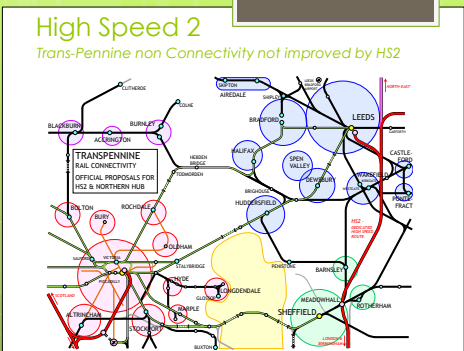
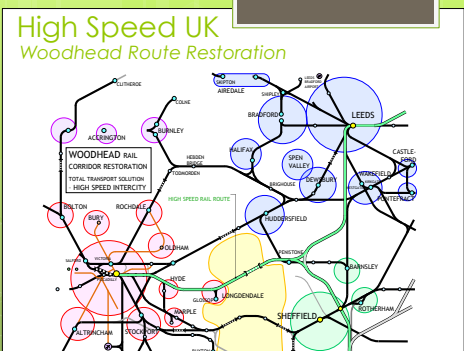
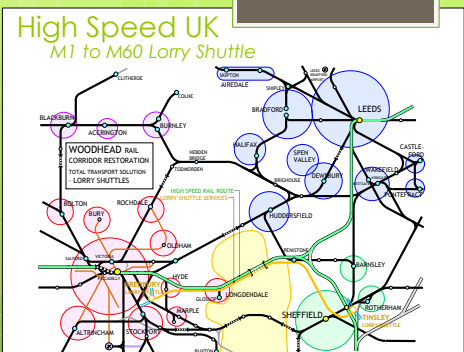
6	<p>The Problems with HS2 - 2</p> <ul style="list-style-type: none"> Does not follow existing transport corridors Has few connections to the existing network Like building the M1 with no interchanges Therefore fails public policy tests HS2 has not been designed using the right criteria; the result is totally unbalanced Costs too much; benefits too few Benefit Cost Ratio is awful and probably below the treasury norm 	<ul style="list-style-type: none"> HS2 costs too much. HS2 will suck economic activity away from regions to London. HS2 will not achieve significant CO₂ reductions. HS2 will needlessly damage landscapes, flora/fauna and heritage. HS2 offers no benefit to affected communities. All this contravenes public policy.
7	<p>Today and Tomorrow with HS2</p>	
8	 <p>Today's Inter-City Connectivity London Centric Routes</p>	<ul style="list-style-type: none"> Existing main lines (WCML, MML, ECML) tend to concentrate national transport connectivity upon London. Few interregional links offered. London-centric system symptomatic of North-South divide.
9	 <p>Today's Inter-City Connectivity Trans Pennine & Cross Country Routes</p>	<ul style="list-style-type: none"> Interregional routes (XC & TP) achieve many more city pair connections. These are the 'glue' for the existing network. But many connectivity deficiencies still exist – particularly for Glasgow, Liverpool & Nottingham. Interregional links slower and poorer in quality than London-centric routes.
10	 <p>HS2 Proposed Connectivity</p>	<ul style="list-style-type: none"> HS2 does nothing to remedy existing connectivity problems. Only enhancement is improved (but still indirect) links to Heathrow. Entire HS2 routeing strategy redundant if London hub airport moves from Heathrow.

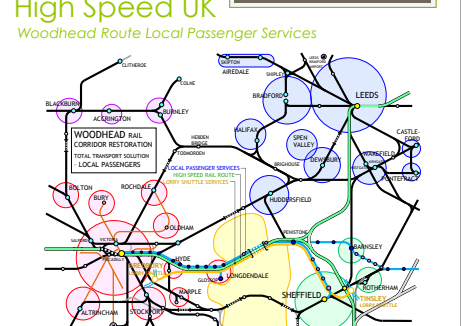
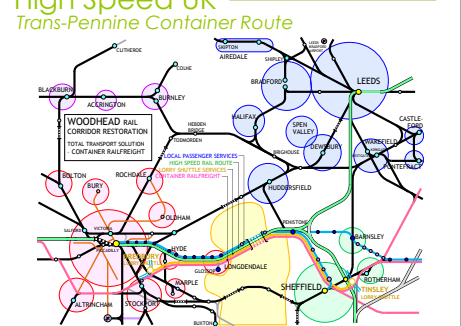

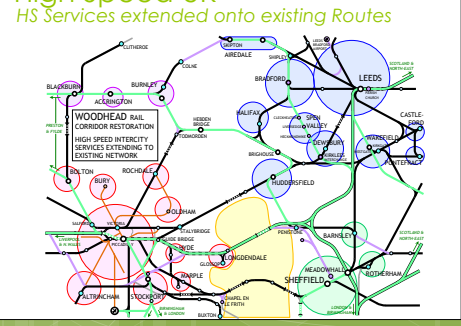

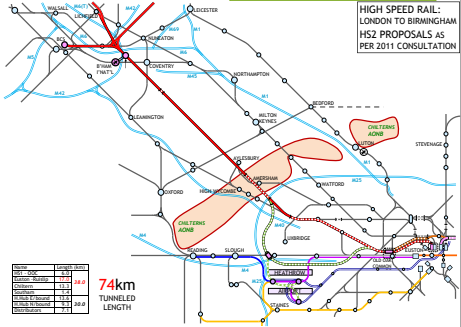
11	<h3>The Biggest Problem HS2</h3> <ul style="list-style-type: none"> Government's insistence that the route goes via Old Oak Common Why go to OOC? <ul style="list-style-type: none"> Connection to Crossrail Connection to LHR Boost redevelopment of OOC area Result is that any chosen route thereafter goes through the Chiltern AONB with nothing to connect to We have abandoned OOC and offer different and better solutions 	<ul style="list-style-type: none"> • OOC's primary aims can all be achieved better, by other means. • OOC predetermines HS2 route through Chilterns. • OOC also dictates HS2 'Y' configuration, preventing interregional links. • The tail is wagging the dog!
12	<h3>High Speed UK Proposals</h3>	<ul style="list-style-type: none"> • 'High speed rail' is simply new railway that can (if necessary) go faster. Just like motorways. • Integration with and connection to the existing network is essential to improve shorter distance journeys. • Integration & connection is more effective in reducing overall journey times than outright speed.
13	<h3>High Speed UK Ltd</h3> <ul style="list-style-type: none"> Although we believe the UK needs High Speed Rail, it should be less than 400km/h (225 mph) <ul style="list-style-type: none"> To minimise wear and tear on track and trains and because Britain is a small island We also believe that it should be a network which enhances the existing Inter-City network and does not stand alone like HS2 So, the HSUK network must connect to the existing railway as often as possible either directly or connecting with other services at hubs This will speed up many, many rail journeys overall creating significant modal shift Since nobody seemed to be taking this approach we decided to do something about it and we are launching HSUK today 	<ul style="list-style-type: none"> • Radically alternative approach from HS2. • Lower design speed @ 360km/h maximum. • Lower operating speed @ 280/320km/h. • Full integration between high speed and existing, with frequent connections. • Achieves much greater acceleration of entire network than HS2. • Concentrated upon existing corridors. • Avoids Chiltern AONB. • Allied but independent Heathrow solution.
14	<h3>Improved Connectivity Defined</h3> <p>We need to improve Connectivity of the network as a whole, so let's define it first</p> <p>Connectivity is the sum of</p> <ul style="list-style-type: none"> Reduced individual journey times New journey opportunities Easy connections onto local services Extra network capacity A more resilient network in the event of disruption <p>The result is reduced overall journey times for more journeys which we define as Improved Connectivity</p> <p>Makes journeys easier and quicker and the result will be significant modal shift</p>	<ul style="list-style-type: none"> • Reduced journey times? Essential to get people out of cars. • New journey opportunities? 19th century railway doesn't address 21st century flows. • Easy connections with local services? The system must function as a network. • Extra network capacity? Essential to accommodate modal shift. • Greater resilience? Network must operate at all times to serve public.
15	 <h3>HSUK Primary Transport Aims</h3> <p>To maintain functionality of the existing Inter-City railway</p>	<ul style="list-style-type: none"> • Essential to understand how existing network functions.

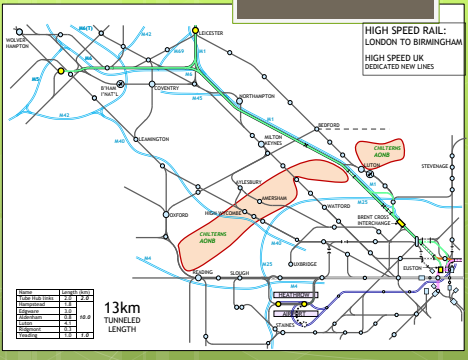
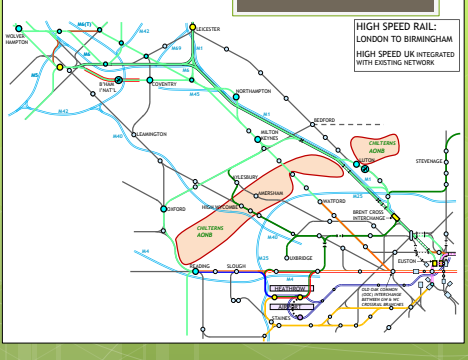
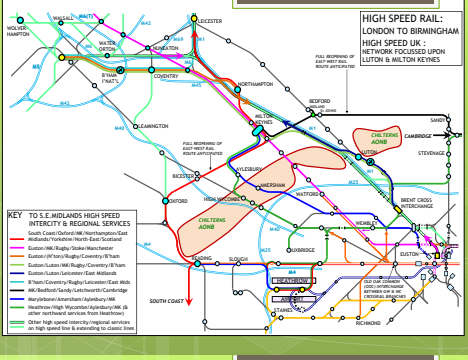
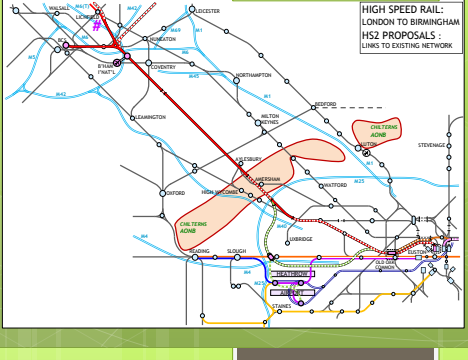
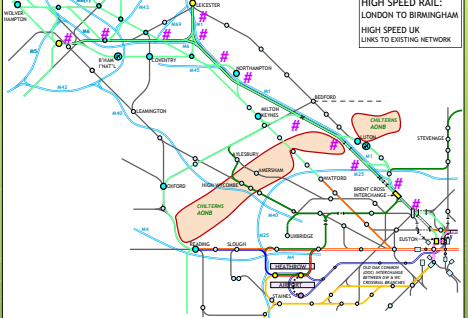
16	 <p>HSUK Primary Transport Aims</p> <p>To create a high speed railway linking all primary conurbations in the Midlands, the North and Scotland</p>	<ul style="list-style-type: none"> • Primary cities (500k+ population) at heart of conurbations. • Existing network hinges upon hub stations in primary cities e.g. Birmingham New St, Leeds City, Manchester Piccadilly, Edinburgh Waverley. • These must be the targets for new high speed lines.
17	 <p>HSUK Primary Transport Aims</p> <p>To extend high speed services to all the second tier communities</p>	<ul style="list-style-type: none"> • Second-tier cities (200k+ population) in generally peripheral or intermediate positions between primaries. • Usually bypassed by high speed lines. • These must be included in national high speed system – only possible with full integration.
18	 <p>HSUK Primary Transport Aims</p> <p>To provide direct links to the national hub airports</p>	<ul style="list-style-type: none"> • Airports comprise vital international gateways that must be included in national rail network. • Primary hub at Heathrow needs full UK-wide connectivity. • Next tier – Birmingham, Manchester, Edinburgh – need comprehensive connectivity across their regions. • HSUK can facilitate all this.
19	<p>HSUK Primary Transport Aims</p> <ul style="list-style-type: none"> • To create a high speed railway linking all primary conurbations in the Midlands, the North and Scotland • To extend high speed services to all the second tier communities • To maintain functionality of the existing Inter-City railway • To provide direct links to the national hub airports • To be the core network for national rail services 	<ul style="list-style-type: none"> • Summary of HSUK primary transport aims: • Direct links between all primary cities. • High speed services extending to second tier. • Maintain functionality of existing intercity system. • Direct links to national hub airports. • Core network for national rail services. • Integration essential for spreading HSUK benefits to second/third tier communities.
20	<p>HSUK Design Principles</p> <ul style="list-style-type: none"> • Full integration of operation of new and existing railway with direct connections at an average spacing of 30km • Maximum speed 360km/h on a radius of curvature of 5,700 metres • Maximum gradient 2% (1 in 50) or flatter occasionally 3.5% (1 in 28) for short distances • 4 track southern end spine (HS2 only 2 track) • Follow existing transport corridors up the east side of the country because it is easier and cheaper • Access all existing Inter-City hubs stations for connections to local services • Add a local dimension to all proposals • All lines to be fully mapped at 1:25,000 scale • The railway you will see is totally buildable 	<ul style="list-style-type: none"> • 360km/h design speed reduced where appropriate. • 4-track southern section essential for network capacity. • Alignment along existing corridors essential for public support. • Access to existing hubs (& frequent links to existing system) essential for integration.

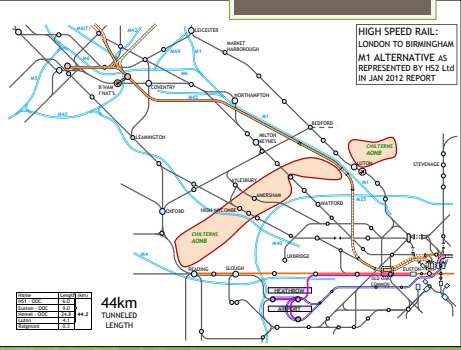
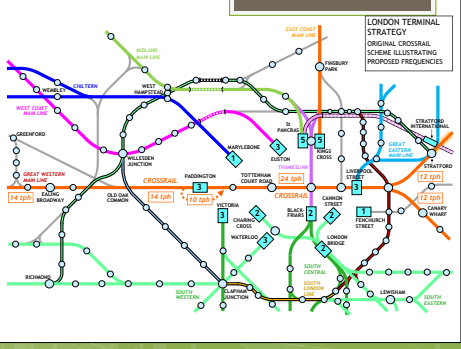
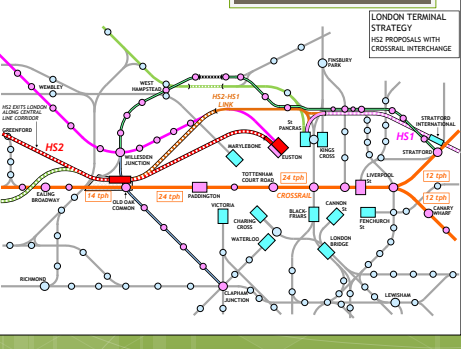
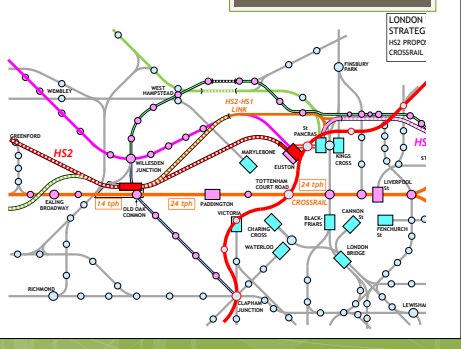
21	<p>Examples of 1:25k mapping</p> 	<ul style="list-style-type: none"> • If new railways – high speed or otherwise – have to be built, it makes sense to build them alongside transport corridors, particularly existing motorways. • HSUK 4 track formation shown in green.
22	<p>Examples of 1:25k mapping</p> 	<ul style="list-style-type: none"> • Motorways such as the M1 have created environmental nuisance for more than 50 years. This has tended to discourage adjacent development, and leave a clear corridor alongside the motorway.
23	<p>Examples of 1:25k mapping</p> 	<ul style="list-style-type: none"> • A high speed line alongside the M1 will have little if any additional environmental impact, given the noise, nuisance and pollution already present.
24	<p>Examples of 1:25k mapping</p> 	<ul style="list-style-type: none"> • Contrary to frequent statements in HS2 reports, the M1 is generally suitable for parallel high speed running with little deviation. • The whole line from London to Birmingham to Liverpool and to Glasgow has been mapped as shown in these last four slides. • This aspect is to GRIP 3 standard. • They are embargoed for publication at the present time so please respect that.
25	<p>High Speed UK Connecting the Nation</p>  <p>Phase 1 & 2 shown in pale green Phase 3 & 4 shown in dark green</p>	<ul style="list-style-type: none"> • Phase 1 & 2 equivalent to HS2 'Y'. • Phase 3 & 4 to complete network. • Alternative non-London-centric phasing possible. • Start with Transpennine section or Edinburgh to Glasgow. • Not possible with HS2.

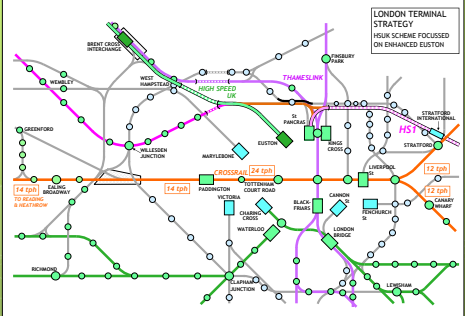
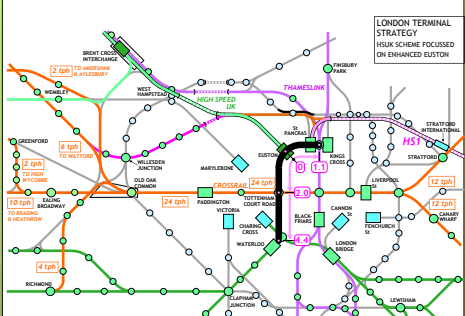
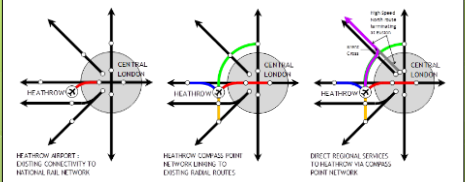
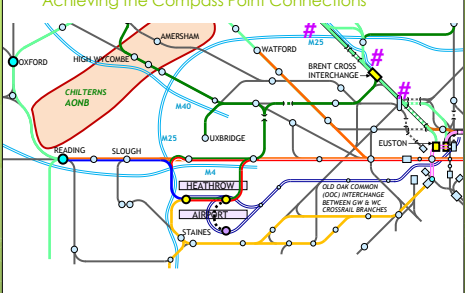
26	 <p>High Speed UK <i>Extending services onto the classic network</i></p> <p>Most longer distance journeys between second tier cities benefit by using HSUK for part of the journey</p>	<ul style="list-style-type: none"> • HSUK services extending onto existing network replicate & enhance functionality of existing network. • High speed line analogous to motorway, existing line to trunk road. • Integrated rail journeys start on existing line, transfer to high speed line & back to existing line. • Just like typical road journey on trunk road/motorway/trunk road.
27	 <p>HSUK in Scotland</p>	<ul style="list-style-type: none"> • All regions must benefit from Government's high speed rail initiative.
28	 <p>High Speed 2 <i>HS2 and Existing Scottish Network</i></p> <p>❖ HS2 services unlikely to extend off the HS2 Network ❖ 'Carstairs' connection to provide a 32 minute Glasgow Edinburgh journey time</p>	<ul style="list-style-type: none"> • HS2 project west-sided route to Edinburgh & Glasgow. • Viability of route via Shap & Beattock – requiring long 'base tunnels' questionable. • No likelihood of high speed services extending to northern Scottish cities. • HS2 can only offer the opportunity for Edinburgh-Glasgow high speed link with a 32 minute journey time.
29	 <p>High Speed UK <i>HSUK Integrated with the Scottish Network</i></p> <p>❖ HSUK services able to continue onto the rest of the Scottish Network ❖ Direct Glasgow to Edinburgh will provide an 18 minute journey time</p>	<ul style="list-style-type: none"> • HSUK east-sided route via Newcastle & Edinburgh to Glasgow offers efficient interregional links. • Direct Edinburgh-Glasgow high speed link with an 18 minute journey time. • Fully integrated services extending across Forth Bridge to northern Scottish cities. • Reopened routes allow accelerated regional services to compete with road. • New 'Inverse T' primary Scottish network.
30	 <p>High Speed UK <i>Edinburgh Airport Linkage</i></p> <p>❖ 9.1 million passengers used Edinburgh airport in 2012 ❖ Forecast to grow to 12.3M by 2020 and 20.5M by 2040 ❖ With the proper design of airport rail link many of these passengers will be prefer to access the airport by rail</p>	<ul style="list-style-type: none"> • Edinburgh Airport at hub of new system. • Direct links to most major Scottish communities.

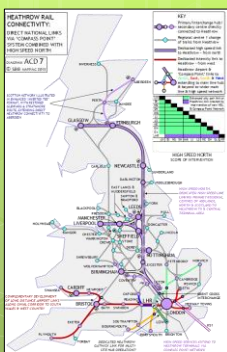

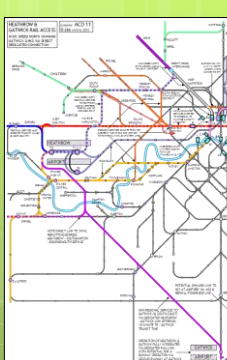
31	 <p>High Speed UK Edinburgh Airport Rail Links</p>	<ul style="list-style-type: none"> • EIA passengers in 2012 – 9.1million, forecast to be 12.3M by 2020 and 20.5M by 2040 • Circa 4km of new railway required to integrate Edinburgh Airport with Scottish rail network. • Services to/from Edinburgh to all principle conurbations to the north and west can stop directly under Edinburgh airport terminal building. • Why hasn't this been planned before?
32	<p>High Speed UK across the Pennines</p>	<ul style="list-style-type: none"> • Transpennine connectivity (or lack of it) is the key issue for northern communities.
33	<p>High Speed 2 Trans-Pennine non Connectivity not improved by HS2</p> 	<ul style="list-style-type: none"> • HS2 does nothing for Transpennine connectivity. • Northern Hub and electrification via Huddersfield only proposed improvements. • These will not offer standard of intercity comfort, connectivity and journey time reduction comparable with high speed services to London.
34	<p>High Speed UK Woodhead Route Restoration</p> 	<ul style="list-style-type: none"> • Abandoned Woodhead corridor offers by far the best Transpennine high speed route. • Also works best as London-Manchester high speed route. • Optimises rail connectivity for Manchester & Liverpool. • Some new construction in Peak District National Park essential. • PDNPA approval required. • Compensatory local benefits essential.
35	<p>High Speed UK M1 to M60 Lorry Shuttle</p> 	<ul style="list-style-type: none"> • New construction for high speed passenger trains permits operation of lorry shuttles. • Lorry shuttles proposed to link M60 to M1 combined with an HGV ban on the A628 Woodhead Pass, the A57 Snake Pass and other trans-peak roads. • Essential to relieve HGV congestion in Longdendale and avoid extending the M67. • No realistic/acceptable road alternative (Transpeak motorway logical conclusion).

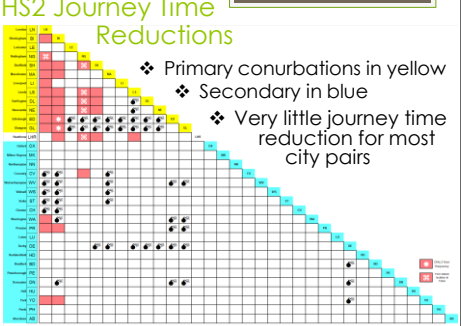
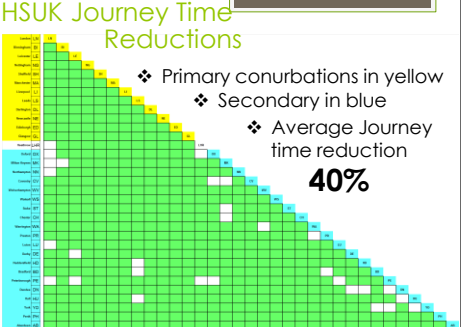
36	<p>High Speed UK Woodhead Route Local Passenger Services</p> 	<ul style="list-style-type: none"> • Opportunity for new local passenger services across Pennines. • Essential for buy-in from local communities.
37	<p>High Speed UK Trans-Pennine Container Route</p> 	<ul style="list-style-type: none"> • New route also comprises optimum corridor for Transpennine rail freight. • Port of Liverpool connected to Yorkshire. • Immingham/Hull/Teesport connected to Manchester/Liverpool. • Possibility for coast-to-coast 'land bridge' 
38	<p>High Speed UK HS Services extended onto existing Routes</p> 	<ul style="list-style-type: none"> • High speed route following M1 through Yorkshire better aligned to access isolated Pennine communities. • Direct high speed services to Huddersfield, Bradford & East Lancashire. • Building Bradford CrossRail to join Bradford Exchange to Bradford Forster Square (just 700 metres of new railway) will revolutionise journeys in the region.
39	<p>High Speed UK Birmingham and the South Midlands</p> 	<ul style="list-style-type: none"> •
40	<p>High Speed UK HIGH SPEED RAIL: LONDON TO BIRMINGHAM HS2 PROPOSALS AS PER 2011 CONSULTATION</p> 	<ul style="list-style-type: none"> • HS2 requires over 70km of tunnel for London-Birmingham route, including Heathrow connection & HS2/HS1 link. • Major additional engineering required to address local environmental issues.

41	 <p>HIGH SPEED RAIL: LONDON TO BIRMINGHAM HIGH SPEED UK DEDICATED NEW LINES</p> <p>13km TUNNELLED LENGTH</p>	<ul style="list-style-type: none"> • HSUK route, closely following M1/M6, requires 13km tunnel. • Minimised impact on communities.
42	 <p>HIGH SPEED RAIL: LONDON TO BIRMINGHAM HIGH SPEED UK INTEGRATED WITH EXISTING NETWORK</p>	<ul style="list-style-type: none"> • M1 corridor route passes close to major communities e.g. Luton, Milton Keynes, Northampton, Coventry & Leicester. • All will be fully linked to new high speed network. • 4 track HSUK will dramatically release capacity on the existing WCML & MML. • National rail connectivity transformed. • On-line hub station at Leicester.
43	 <p>HIGH SPEED RAIL: LONDON TO BIRMINGHAM HIGH SPEED UK: NETWORK FOCUSED UPON LUTON & MILTON KEYNES</p> <p>KEY TO S.E. MIDLANDS HIGH SPEED INTENSITY & REGIONAL SERVICES</p>	<ul style="list-style-type: none"> • Major opportunity for new services possible with HSUK & East-West Rail combined. • Leicester, Coventry, Luton, Milton Keynes & Northampton become major network hubs. • Chiltern communities directly connected to high speed services. • Also direct links to Heathrow.
44	 <p>HIGH SPEED RAIL: LONDON TO BIRMINGHAM HS2 PROPOSALS: LINKS TO EXISTING NETWORK</p>	<ul style="list-style-type: none"> • HS2 passes through Chilterns and rural areas to north with no connection to the existing network for over 100 miles. • Only connection shown as #. • Hence of no benefit to local communities to compensate for disruption and intrusion. • Like building a motorway without interchanges!!
45	 <p>HIGH SPEED RAIL: LONDON TO BIRMINGHAM HIGH SPEED UK LINKS TO EXISTING NETWORK</p>	<ul style="list-style-type: none"> • HSUK frequently linked (shown as #) to existing network. • This is essential to provide local benefits.

46	 <p>44km TUNNEL LENGTH</p>	<ul style="list-style-type: none"> • HS2 Ltd say they've looked at the M1 route. • But this is nothing like the HSUK scheme. • HS2 Ltd version of 'M1 route' via Old Oak Common and Birmingham Airport. • No need for OOC or Birmingham Airport to be on trunk route – much greater priorities elsewhere. • All advantages of following motorway lost through needless lengths of tunnel and rural intrusion.
47	<p>High Speed UK The London Interconnector</p>	<ul style="list-style-type: none"> • Old Oak Common is not an appropriate strategy to connect HS2 to London's local rail network. • HSUK must offer alternative solution.
48		<ul style="list-style-type: none"> • London's main line stations mostly comprise termini. • Termini mostly reliant on the Tube for onward connectivity. • Thameslink & CrossRail offer major improvements. • But Euston is remote from Thameslink & CrossRail, and has only mediocre Tube links.
49		<ul style="list-style-type: none"> • HS2 offers no improvements at Euston. • Supplementary terminal at Old Oak Common required to disperse passengers to CrossRail and Heathrow. • All HS2 trains must stop at Old Oak Common because of the capacity constraint of a two track line. • Old Oak Common stop adds at least 4 minutes to every HS2 journey.
50		<ul style="list-style-type: none"> • CrossRail2 now under active discussion to improve HS2 connectivity at Euston. • CrossRail2 will increase HS2 costs by over £10 billion.

51	 <p>LONDON TERMINAL STRATEGY HSUK SCHEME FOCUSED ON ENHANCED EUSTON</p>	<ul style="list-style-type: none"> • HSUK will be able to offer direct connection with Thameslink at Brent Cross Interchange. • Not all trains will need to stop at Brent Cross as HSUK is a four track Railway • HSUK primary London terminal at Euston. • Euston poorly connected to Tube network. • Strategy required to improve connectivity to local rail & Tube network
52	 <p>LONDON TERMINAL STRATEGY HSUK SCHEME FOCUSED ON ENHANCED EUSTON</p>	<ul style="list-style-type: none"> • Passenger dispersal strategies required. • Divert WCML commuter traffic to CrossRail. • Heathrow passengers routed direct to airport via Compass Point network. • Construct Kings Cross-Euston-Tottenham Court Road-Waterloo interconnector. • 4.4 minute journey time to Waterloo!! • Old Oak Common becomes western hub of CrossRail, spurring major development.
53	<p>High Speed UK Heathrow and Gatwick</p> <p>Passengers in 2012</p> <p>Heathrow 70.0 M Gatwick 34.2 M 50.0% of all UK Airline Passengers</p>	<ul style="list-style-type: none"> • Better rail access to Heathrow is essential for international connectivity to UK regions. • Major passenger flows sufficient to support rail flows to regions.
54	<p>High Speed UK Heathrow Compass Point Connections</p>  <p>HEATHROW AIRPORT: EXISTING CONNECTIVITY TO NATIONAL RAIL NETWORK</p> <p>HEATHROW COMPASS POINT: HEATHROW LINKING TO EXISTING SUBURBAN BUSSES</p> <p>DIRECT REGIONAL SERVICES: TO LATHAM VIA COMPASS POINT NETWORK</p> <p>In addition the Piccadilly Line links all 5 terminals with central London</p>	<ul style="list-style-type: none"> • Yet Heathrow only connected to central London. • Hence most regional connections to Heathrow via inadequate Piccadilly Line. • Heathrow connectivity could be revolutionised by Compass Point proposals. • Direct connections to HSUK at Brent Cross • Direct services from all major conurbations to Heathrow terminals (T1/2/3 & T5).
55	<p>High Speed UK Achieving the Compass Point Connections</p>  <p>CHILTERN'S AONB</p> <p>HEATHROW</p> <p>ALBANY</p> <p>STAINES</p> <p>OLD OAK COMMON (OOC) INTERCHANGE BETWEEN GW & WC CROSSRAIL BRANCHES</p>	<ul style="list-style-type: none"> • Compass Point uses existing Heathrow Express tunnelled infrastructure. • Requires just 6km of new railway from Northolt Junction to Hayes. • Also a short connecting chord line at Neasden. • Avoids the capacity constraints of the GWML via Ealing. • All other route elements of Compass Point (Airtrack & Western Link) already planned.

56	<div></div> <div><h3>High Speed UK</h3><p>Compass Point Connections for Heathrow</p><p>Direct Services from large parts of the UK will be able to access Heathrow directly (T1/2/3&5) without changing trains</p></div>	<ul style="list-style-type: none">• Heathrow direct services spread to all primary regional cities.• No need for feeder flights to Heathrow.• Alternative 'hub & spoke' aviation model possible – with rail as spokes.• Pressure to expand Heathrow is reduced.																																																																																																						
57	<div><h3>High Speed UK</h3><p>Connecting Heathrow with Gatwick</p><ul style="list-style-type: none">• Heathrow has 2 runways and Gatwick has 1• An extra runway is needed and at Gatwick there is reserved space and plans for it</div>	<ul style="list-style-type: none">• Heathrow's 2 runways predicted not to be sufficient for future expansion.• A second runway can be provided at Gatwick where the space is already reserved and available from 2019.• This is the multi-site hub operation previously known as 'Heathwick'• Unprecedented – but practical.																																																																																																						
58	<div><h3>High Speed UK</h3><p>Connecting Heathrow with Gatwick</p><ul style="list-style-type: none">• Trains on a high speed link from Heathrow T5 could reach Gatwick in 15 minutes• Two types of train could run on the link• Land side rail services as part of the access services to both airports• Air side services allowing passengers to transfer between terminals LHR 1/2/3 and LHR 5 and LGW South Terminal• DfT are well aware of this proposal• High Speed UK has resubmitted the idea to the Airports Commission in July 2013</div>	<ul style="list-style-type: none">• Heathrow-Gatwick high speed rail link required.• It would give LHR T5 to LGW journey times of just 15 minutes.• Direct regional services to Heathrow extend to Gatwick.• Dedicated 'airside' shuttle services for transit passengers / luggage / cargo.• Proposal submitted to Davies Commission																																																																																																						
59	<div></div> <div><h3>High Speed UK</h3><p>Connecting Heathrow with Gatwick</p><p>It is most unlikely that anyone at DfT has seriously considered the Heathwick inter-connector as an integral part of a national high speed rail network</p></div>	<ul style="list-style-type: none">• 'Heathwick' idea has been dismissed by DfT and aviation industry.• But high speed rail link between Heathrow and Gatwick was never considered in the context of a national high speed rail network.																																																																																																						
60	<div><h3>HSUK Journey Time Reductions</h3><p>Before calculating Journey Time reductions a specimen timetable for the whole network has to be created</p><table><thead><tr><th>Speed km/h</th><th>HSUK route</th><th>Time (min)</th><th>HSUK gain</th><th>Time (min)</th><th>HS2 route</th></tr></thead><tbody><tr><td>400</td><td></td><td></td><td></td><td>61.9</td><td>London - OOC - M'hall</td></tr><tr><td>360</td><td>London - M'hall direct</td><td>57.3</td><td>7.7</td><td>65</td><td>London - OOC - M'hall</td></tr><tr><td>320</td><td>London - M'hall direct</td><td>60.8</td><td>8.7</td><td>69.5</td><td>London - OOC - M'hall</td></tr><tr><td>280</td><td>London - M'hall direct</td><td>66.6</td><td>9.7</td><td>76.3</td><td>London - OOC - M'hall</td></tr><tr><td>400</td><td></td><td></td><td></td><td>78.1</td><td>London - OOC - M'hall - Leeds</td></tr><tr><td>360</td><td>London - M'hall - Leeds</td><td>75.1</td><td>6.2</td><td>81.3</td><td>London - OOC - M'hall - Leeds</td></tr><tr><td>320</td><td>London - M'hall - Leeds</td><td>78.5</td><td>7.8</td><td>86.3</td><td>London - OOC - M'hall - Leeds</td></tr><tr><td>280</td><td>London - M'hall - Leeds</td><td>84.2</td><td>9.7</td><td>93.9</td><td>London - OOC - M'hall - Leeds</td></tr><tr><td>400</td><td></td><td></td><td></td><td>67.1</td><td>London - OOC - Manchester</td></tr><tr><td>360</td><td>London - Manchester direct</td><td>75.6</td><td>-4.5</td><td>71</td><td>London - OOC - Manchester</td></tr><tr><td>320</td><td>London - Manchester direct</td><td>79.3</td><td>-3.1</td><td>76.2</td><td>London - OOC - Manchester</td></tr><tr><td>280</td><td>London - Manchester direct</td><td>85.3</td><td>-1.7</td><td>83.6</td><td>London - OOC - Manchester</td></tr><tr><td>400</td><td></td><td></td><td></td><td>46.6</td><td>London - OOC - Birmingham</td></tr><tr><td>360</td><td>London - Birmingham direct</td><td>46.3</td><td>2.1</td><td>48.4</td><td>London - OOC - Birmingham</td></tr><tr><td>320</td><td>London - Birmingham direct</td><td>48.4</td><td>2.4</td><td>50.8</td><td>London - OOC - Birmingham</td></tr><tr><td>280</td><td>London - Birmingham direct</td><td>51.9</td><td>2.7</td><td>54.6</td><td>London - OOC - Birmingham</td></tr></tbody></table></div>	Speed km/h	HSUK route	Time (min)	HSUK gain	Time (min)	HS2 route	400				61.9	London - OOC - M'hall	360	London - M'hall direct	57.3	7.7	65	London - OOC - M'hall	320	London - M'hall direct	60.8	8.7	69.5	London - OOC - M'hall	280	London - M'hall direct	66.6	9.7	76.3	London - OOC - M'hall	400				78.1	London - OOC - M'hall - Leeds	360	London - M'hall - Leeds	75.1	6.2	81.3	London - OOC - M'hall - Leeds	320	London - M'hall - Leeds	78.5	7.8	86.3	London - OOC - M'hall - Leeds	280	London - M'hall - Leeds	84.2	9.7	93.9	London - OOC - M'hall - Leeds	400				67.1	London - OOC - Manchester	360	London - Manchester direct	75.6	-4.5	71	London - OOC - Manchester	320	London - Manchester direct	79.3	-3.1	76.2	London - OOC - Manchester	280	London - Manchester direct	85.3	-1.7	83.6	London - OOC - Manchester	400				46.6	London - OOC - Birmingham	360	London - Birmingham direct	46.3	2.1	48.4	London - OOC - Birmingham	320	London - Birmingham direct	48.4	2.4	50.8	London - OOC - Birmingham	280	London - Birmingham direct	51.9	2.7	54.6	London - OOC - Birmingham	<ul style="list-style-type: none">• Speed not the priority for HSUK.• But let's suppose that it is.• HSUK timings from London to key cities compared with HS2.• HSUK has superior timings to all cities except Manchester.• Reason: extra HS2 stop at Old Oak Common and circuitous route to east-sided cities.
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61	<h3>HS2 Journey Time Reductions</h3>  <ul style="list-style-type: none"> ❖ Primary conurbations in yellow ❖ Secondary in blue ❖ Very little journey time reduction for most city pairs 	<ul style="list-style-type: none"> • The 33 primary and secondary cities (includes LHR) form this matrix of 528 city pairs. • HS2 reduces journey times between 34 city pairs with hourly frequency services or better (red) – just 6.5% of the city pairs. • HS2 actually worsens journey times or adds an additional change between 52 city pairs (🔴*) – 9.8%. • HS2 has no impact on 442 city pairs – 83.7% • Service data – new KPMG report pages 91/2
62	<h3>HSUK Journey Time Reductions</h3>  <ul style="list-style-type: none"> ❖ Primary conurbations in yellow ❖ Secondary in blue ❖ Average Journey time reduction 40% 	<ul style="list-style-type: none"> • This diagram shows the same 528 city pairs • HSUK reduces journey times for 498 city pairs at hourly frequency or better (green) • That is 94.3% of the city pairs • The average journey time reduction for the 498 city pairs is 40%. • More time is saved on inter-regional rather than London-centric journeys. • HSUK fails to reduce journey times for just 30 city pairs (white) – e.g. Doncaster / P'boro.
63	<h3>HSUK Capacity Enhancements</h3> <p>To fully exploited HSUK a number of capacity enhancement works required</p> <ul style="list-style-type: none"> ● Coventry to Birmingham 4 tracking ● Soho to Grand Junction Line ● Bradford Crossrail ● Nottingham Grantham speed up ● Reinstate Bottesford to Newark ● Reinstate Derby GNR route 	<ul style="list-style-type: none"> • Enhancements to existing network required to enable high speed flows through existing hub stations.
64	<h3>HSUK and the Environment</h3> <p>More work is required in the following areas</p> <ul style="list-style-type: none"> ● Impact of Construction ● Impact of continued presence ● Protection of archaeology ● Results from Magic (Defra web site) 	<ul style="list-style-type: none"> • Impact of construction greatly reduced along existing corridors. • Impact of continued presence similarly reduced. • Compensation for neighbouring communities from improved connectivity. • Archaeology along historic existing corridors must be considered. • SSSIs and Ancient Woodlands less prevalent along existing corridors.
65	<h3>HSUK and Emissions</h3> <p>More work required in the following areas</p> <ul style="list-style-type: none"> ● HS2 seems to be trying to compete with internal aviation. ● CO₂ emissions reductions HS2 100Mt (million tonnes) HSUK 600Mtonnes over the project lifetime ● HSUK expected to achieve 5 times the modal shift 	<ul style="list-style-type: none"> • HS2's carbon-neutral performance not compliant with 2008 Climate Change Act. • CO₂ savings derive principally from road to rail modal shift. • HSUK is far more able to compete with road traffic and will generate greater modal shift. • Hence HSUK has far greater potential to reduce transport sector CO₂ emissions.

66	<h3>HSUK / HS2 Route length comparison</h3> <p>HSUK / HS2 Comparison of Route Length - km</p> <table> <tr> <th></th><th>HS2</th><th>HSUK</th></tr> <tr> <td>Ph 1 + 2</td><td></td><td></td></tr> <tr> <td>Open country km</td><td>446.6</td><td>417.8</td></tr> <tr> <td>Tunnel km</td><td>99.9</td><td>45.7</td></tr> <tr> <td>Total length km</td><td>546.5</td><td>463.5</td></tr> <tr> <td>Ph 3+4</td><td></td><td></td></tr> <tr> <td>Open country km</td><td>457.0</td><td>473.1</td></tr> <tr> <td>Tunnel km</td><td>79.1</td><td>28.9</td></tr> <tr> <td>Total length km</td><td>536.1</td><td>502.0</td></tr> <tr> <td>Total Route Length km</td><td>1082.6</td><td>965.5</td></tr> <tr> <td>% in tunnel</td><td>14.5</td><td>7.7</td></tr> <tr> <td>km in tunnel</td><td>180.0</td><td>74.6</td></tr> </table> <p>This is the essence of why HSUK is cheaper</p>		HS2	HSUK	Ph 1 + 2			Open country km	446.6	417.8	Tunnel km	99.9	45.7	Total length km	546.5	463.5	Ph 3+4			Open country km	457.0	473.1	Tunnel km	79.1	28.9	Total length km	536.1	502.0	Total Route Length km	1082.6	965.5	% in tunnel	14.5	7.7	km in tunnel	180.0	74.6	<ul style="list-style-type: none"> • HS2 'Y' and HSUK equivalent compared for route length and tunnel length. • HSUK's more efficient configuration requires shorter route length. • HSUK's east-sided routeing and alignment with existing corridors requires circa 50% less tunnelling.
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67	<h3>HSUK / HS2 Route Construction Cost Comparison</h3> <table> <tr> <th></th><th>HS2 £B</th><th>HSUK £B</th></tr> <tr> <td>Ph 1 + 2</td><td>29</td><td>23</td></tr> <tr> <td>Ph 3 + 4</td><td>27</td><td>19</td></tr> <tr> <td>Total</td><td>56</td><td>42</td></tr> </table> <p>HSUK will be 25% cheaper to build</p>		HS2 £B	HSUK £B	Ph 1 + 2	29	23	Ph 3 + 4	27	19	Total	56	42	<ul style="list-style-type: none"> • Shorter route and tunnel length correspond to lower cost. • Lower design speed and easier topography also result in lower costs. 																								
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68	<h3>Call on Government</h3> <ul style="list-style-type: none"> • To abandon work on the HS2 Hybrid Bill immediately and stop wasting £13M of taxpayers money per month • To evaluate the High Speed UK fairly • To appoint KPMG to make the same benefit assessment of HSUK as they have of HS2 • To ensure that the ideas underlying High Speed UK are properly understood by engaging directly with High Speed UK 	<ul style="list-style-type: none"> • There is no logic for Government to pursue the HS2 proposals. • HSUK can deliver every output promised for HS2 – and much more besides. • HSUK will cost 25% less than HS2. • With full mapping and network design already undertaken, and with easier & less controversial routeing, HSUK can be delivered in a much shorter timescale. 																																				
69	<h3>Please Sign Our Petition</h3> <ul style="list-style-type: none"> • If you agree with our evaluation of HS2 revealing its complete lack of merit as a scheme then please sign our petition on our web site www.highspeeduk.co.uk • On the web site you will find detailed information about the High Speed UK proposals and an invitation to contribute to our fighting fund 	<ul style="list-style-type: none"> • 																																				
70	<h3>Contact Us</h3> <ul style="list-style-type: none"> • Final details to be decided 	<ul style="list-style-type: none"> • 																																				

Thank you for your attention

Any Questions?

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