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RESPONSE TO GOVERNMENT'S HS2 CONSULTATION

PREFACE

This response to the Government's Consultation on the HS2 proposals is made on behalf of Railfuture (Railway Development Society Ltd). It principally references the following documents:

- HS2 Ltd Report to Government dated March 2010.
- HS2 Government Command Paper High-speed Rail dated March 2010.
- HS2 Consultation document.

Railfuture strongly supports the concept of a planned network of new rail lines across Great Britain provided where they are most needed, to relieve pressure on the busiest routes, and to facilitate provision of much expanded passenger and freight capacity, at a time when demand for transport generally continues to rise, and whose growth is only stalled by the present recession. The railways are now carrying more passengers than in 1928, on a route network substantially reduced by gradual closures since the early 1930's, and more drastically as a result of the Beeching cuts in the early to late 1960's, following substantial increases in car ownership, and a modal switch of freight to road.

Clearly then, it can be seen that Railfuture supports most of the report's analysis of the present transport situation, and the objectives aimed at, principally to relieve the pressure on transport caused by increasing demand, and related need to expand the rail network significantly, especially where it can be demonstrated that these measures will assist in strengthening the nation's economy, particularly in the regions. We also welcome this major switch from previous policies by consecutive Governments to concentrate on motorway and other major road building as an apparent, but largely failed, solution to resolving issues of increasing road congestion, and stagnation of movement, with dire impacts on the financial situation for many businesses particularly afflicted by these problems. Our comments hereafter will therefore be generally confined to areas of concern about or specific opposition to individual conclusions in the consultation, or our rejection of certain assumptions.

Part 1 of the consultation document

1. This question is about the strategy and wider context (Chapter 1 of the main consultation document): Do you agree that there is a strong case for enhancing the capacity and performance of Britain's inter-city rail network to support economic growth over the coming decades?

(Please note that our paragraph numbering in each section of the consultation responses is for clarity in breaking up the text, and possible future reference, and not to tie up with the numbering in the consultation document).

1.1 Primary Requirement for Capacity, Connectivity and Efficiency

Railfuture supports the view that the enhancement of the inter-city rail network's capacity, performance and connectivity is of great importance to the national economy. In the context of a consultation about high-speed rail, speed (especially of the magnitude proposed for HS2) is of lesser importance than capacity, performance and connectivity, in developing a viable rail network addressing contemporary transport, economic and environmental needs. Railfuture believes strongly that the attainment of an enhanced intercity rail network constitutes the primary goal in the development of a high-speed rail network. This enhancement must address in a fully balanced manner sometimes competing requirements for speed, capacity, performance and connectivity.

We note that the plans reveal that the extent of any new high-speed rail system will only reach some of the primary conurbations (i.e. Birmingham, Nottingham, Sheffield, Leeds, Manchester, Liverpool, Newcastle, Edinburgh and Glasgow), and that the other centres such as Leicester, Coventry and Stoke, within the immediate scope of HS2, will remain reliant on the 'classic' network. Such a planned network should also include western cities such as Bristol and Cardiff, and other axes such as from the west and southwest to the Midlands and north.

1.2 Imperative for Integration of High-speed and Classic Networks

This creates a clear need for full integration between classic and high-speed networks, and warrants the establishment of a 'UK-appropriate' model of high-speed rail, tailored to suit Britain's geography, topography and demography. Railfuture is concerned that the multi-billion cost of developing high-speed rail will (notwithstanding the statements of various politicians and of prominent supporters of high-speed rail) have adverse impacts upon necessary investment in the classic network. In the current straitened financial climate, these conflicts of investment priorities appear inevitable, and it seems quite likely that investment in the classic railway will suffer. Noting the fact that the journeys and ultimate destinations of the vast majority of rail passengers will remain on the classic railway, Railfuture consider this situation to be retrograde.

Accordingly, Railfuture believes that the best means of resolving these conflicts is to ensure optimum integration between high-speed and classic railway. In this way, the construction of the new high-speed line will bring maximum benefit to the local railway also. If the new line can be located close to the communities to which these local benefits will accrue, this should also have the effect of reducing opposition to construction.

Another means of resolving these conflicts of competing investment priorities is to minimise the cost of high-speed rail construction through less demanding physical requirements, such as long tunnels, viaducts and deep cuttings, land-take at major terminals/interchanges, and to maximise financial returns through optimising operational efficiency and network value of the entire railway.

1.3 Requirement for High-speed Access to Existing City Centre Hubs

Railfuture considers that the principle of integration between high-speed and classic systems can only practicably be achieved by ensuring that high-speed rail services access the existing rail hubs of the major conurbations such as Birmingham New Street, Manchester Piccadilly (or Victoria), and Leeds City for example. Establishment of segregated high-speed stations such as Birmingham Fazeley Street should be avoided as far as possible, because of resultant poor connectivity and longer interchange times with the nearest classic station. Nevertheless, we recognise that at Birmingham the desirability of running ALL high speed services into New Street may be physically almost unachievable within a reasonable project cost.

The building of parkway stations such as Birmingham 'Interchange' (and probably others on Stage 2 and on the extended network, with no connectivity with the classic network, generally poor bus connections if any, is another feature quite unacceptable to Railfuture. The building of similar types of stations constructed in France, at the insistence of politicians rather than the railway planners themselves, (admittedly with rather infrequent services), have generally been a complete failure, with low footfall rates, and where there has been no connectivity with the classic network, poor or non-existent bus services, and often plenty of unused car parking space. Again railway campaigners in France warned of these probable outcomes but were ignored. By contrast Germany's extensive high-speed network has successfully managed to avoid these local political pressures, and provide only a single parkway station, Montabaur, and again only at the insistence of local politicians.

Railfuture acknowledges that only exceptional circumstances of topography and/or surrounding development might render city centre access impracticable, and instead compel development of a parkway station. This might be considered acceptable if such a parkway, Sheffield Meadowhall perhaps, was well integrated

with the existing local rail and wider public transport network, and centrally located to the wider conurbation that it is intended to serve.

1.4 Opportunities to Enhance Existing Intercity Rail Network

Wherever practicable, high-speed rail should be employed as a means of addressing defects in the existing somewhat "London-centric" rail network, and for developing a more balanced inter-regional network with a common high standard of connectivity between all primary conurbations. This will be vital in planning the rest of the high-speed rail network, and ensuring that its development delivers the intended economic benefits to the UK regions.

1.5 Conflicts Inherent in Achieving High-Speed Access to Heathrow

Railfuture also feels that there are major conflicts inherent in the requirement to create an enhanced inter-city network, and in the additional requirement to achieve improved links to Heathrow Airport (and other regional airports). In terms of simple passenger flows, the 'inter-city' component clearly dominates over the 'airport' component (ref Command Paper Item 7.12, Table 7.1), and this fact should be recognised in the development of high-speed rail in the UK.

This is not to deny the need for improved rail access to Heathrow, and other airports; on the contrary, Railfuture strongly supports the principle of much-improved rail and other public transport access to all airports. However, this must be commensurate with the status of the airport and should address the typical 360-degree nature of any airport's required surface access. In this context, attempting to remedy Heathrow's inadequate surface access with a uni-axial high-speed rail line of limited connectivity is not particularly helpful.

1.6 Alignment of HSR Strategy with Climate Change Objectives

Railfuture feels that the development of high-speed rail should be about more than economic growth. The Government's strategy for high-speed rail should be part of a wider strategy to achieve 80% cuts in CO2 emissions over the next 40 years. HS2's predicted environmental performance (ref HS2 RtG Items 4.2.27-4.2.33), of no meaningful overall reduction in CO2 emissions over the next 60 years, is insufficient. The Government must meet the challenge of rising carbon emissions from land transport modes quickly. The Committee on Climate Change said (in its Advice to Government on the 4th carbon budget in 2010, covering the period 2023-27) that at least a 60% reduction in domestic emissions is needed by 2030, to be on the path to secure a 90% reduction by 2050 (equivalent to 80% once emissions from aviation and shipping are factored in).

1.7 Associated Requirement for Enhanced Rail Network Capacity

Railfuture believes that within the transport sector, the majority of the required cuts in CO2 emissions will come from modal shift, with high-emitting road and air traffic transferring to lower-emitting rail. Around one-third of existing road passenger-kilometres, and almost all domestic air journeys within mainland UK, are potentially convertible to inter-city rail, and this would have the effect of approximately quadrupling rail traffic.

With the rail network already close to capacity on most main line axes, it is clear that quadrupled rail traffic warrants (almost) quadrupled capacity, and the only practicable means of achieving this step-change modal shift is to construct new railways, along all existing main line axes. On particularly busy sections of the network (particularly the southern section from London to the Midlands) there appears to be a prima-facie case for constructing the high-speed line with 4 tracks from the outset, or with passive provision for future 4-tracking. This was proposed in the March 2010 command document, but excluded from the February 2011 consultation document. See also our comments in 2.2. The option of constructing a second northward route from London is worthy of consideration, and deemed by many to be inevitable, but this strategy would of necessity approximately double the notional construction costs, while constructing a wider alignment to facilitate provision of two extra tracks would inevitably add a cost, but proportionally far less than double. We acknowledge that we are not experts on construction costs, which can vary greatly between a built and rural environment, but this seems a logical analysis.

We are mindful of a contribution by a representative of SNCF (French Railways) at the Transport Times Conference on High-speed Rail, held in London in March 2010. She reported that SNCF are now designing plans for a second high-speed line from Paris to Lyon on a different route, because the first route built in 1981, is now full at peak times, and cannot accommodate new services now needed. She added that had they foreseen this in 1981 they would have built a 4-track route at the outset for relatively modest additional cost in comparison to that required now for a new second route. She strongly advised the railway planners present not to repeat this mistake!

1.8 Requirement to Follow Existing Transportation Corridors

Railfuture believes that the environmental imperative, to effect step-change modal shift to rail in the shortest practicable timescale, dictates that the selected high-speed rail routes must be capable of swift implementation, with the minimum of controversy. This requires that the high-speed lines effect on landscapes and communities and any adverse impacts be minimised.

The best means of resolving these issues appears to be through following existing transportation corridors, in particular motorways such as the M1 and M6 which are generally constructed to a sufficiently straight alignment to permit parallel railway construction for 300/320 kmh. The environmental intrusion of the motorway – noise, atmospheric and visual – is already an established fact, and the marginal intrusion of the new high-speed railway will be almost insignificant by comparison. Moreover, the presence and nuisance of the motorway for over 50 years has discouraged adjacent residential development, and this creates the required clear corridor for high-speed rail construction.

An associated advantage is that motorways generally follow corridors of relatively high population, with major communities that might directly benefit from the improved connectivity offered by the high-speed line. Railfuture believes that, with the appropriate model of integration between high-speed and classic networks, an M1-aligned high-speed line, starting from Brent Cross, not far from London Euston terminal, if built to a 4-track specification, could also transform rail journey opportunities for major centres along the M1 corridor such as Luton, Milton Keynes, and Northampton. See our comments on Section 5.

By contrast, the communities along the Chiltern corridor, chosen for HS2, lack the large urban populations and scale to gain any realistic benefit from the new high-speed line, with no apparent justification for any intermediate stations or short branches, and the adverse impacts upon communities, property and landscapes within 'green field' areas, and the Chilterns AONB (Area of Outstanding Natural Beauty) appear severe.

2. This question is about the case for high-speed rail (Chapter 2 of the main consultation document): Do you agree that a national high-speed rail network from London to Birmingham, Leeds and Manchester (the Y network) would provide the best value for money solution (best balance of costs and benefits) for enhancing rail capacity and performance?

2.1 Requirement for National High-Speed Rail System

Not necessarily. A suitable network should be planned for the whole country for the long term and then built up gradually. Once the network is designed it will be clearer which sections should be built first and what the final shape of the network will look like. The precise route does not need to be identified if the fear of resulting "blight" is deemed too sensitive. The route should be shown as broad lines on scale drawn maps, not the straight diagrammatic lines shown in the consultation that are not at all helpful. Logically the first section will probably be the London-West Midlands one, where some of the greatest pressure on present routes exists, but the network does not have to be the particular 'Y' shape as shown in the Government's plans. It could be based on a 'Trident' shaped network, or a Y shaped network splitting at a quite different location

from the one envisaged in the current plans, or a spinal one with a series of branches off it. We feel it would be a mistake to build the first section without clear and popular support for which cities will be served in later stages, and most likely routes to be followed, even if not precisely defined.

However, as noted previously, the purpose of high-speed rail should not simply be to link Birmingham, Leeds and Manchester and other major cities just to London; eventually a carefully identified network should link them all to each other. A national system, eventually delivering equivalent connectivity between the UK's principal conurbations, is considered essential.

The French and Spanish Governments, for example, have major plans for considerable ongoing expansion of their high-speed rail networks, in spite of the massive route lengths they have already completed and brought into use in recent decades. They are also not immune to local concerns and fierce objections about selected routes, once clearly defined, but these routes are generally approximate and vague until the next section chosen for development is subjected to detailed study, routing and cost analysis. These networks are ambitious and cover their entire countries. No time scales are set; each section is picked up once the political go-ahead is given. Admittedly the Spanish network expansion has slowed because of the recession, but it is not abandoned, and anyone who is interested can inspect the "grand plan" and see the logical reasons for each section chosen, even when not contiguous with other sections, possibly for a myriad of reasons. Therefore a network of high-speed lines across the UK should be planned and approximate route plans published now, and certainly before the route of HS2 from London to the West Midlands is finalised.

2.2 Concerns re the Proposed HS2 'Y' Network

Railfuture has major concerns at the apparent assumption on the part of the Government, that the specific 'Y' route selected is the only viable option for configuring a national high-speed network, which seems to have led to any alternative proposals being effectively disregarded. Current inter-city flows from London to Midlands, Northern and Scottish destinations via the three main intercity routes from Euston, St Pancras and Kings Cross amount to around 20 trains per hour, with increases planned already, and this would continue with HS2 becoming the principal conduit for northward intercity services. But 18 trains per hour is also the maximum anticipated capacity of a 2-track line (allowing for anticipated development of signalling systems), if all trains are either non-stop along the route, or else all serve exactly the same station(s) along the route (at a twin-platformed station in each direction). This indicates that HS2's proposed 2-track line does not have the capacity to accommodate anticipated increases in inter-city rail traffic, through increased modal shift from air and road transport, nor to allow any variation in stopping pattern on the

route itself. With HS2 likely to be operating at capacity from the outset with intercity services, it will have no capacity to run additional airport services.

This requirement for proximity to Heathrow effectively dictates HS2's onward route through the Chilterns. Unavoidable environmental damage and intrusion, both in the Chilterns and in rural areas further north, are certain to cause ongoing controversy, and are likely to result in major delays in realisation of the UK high-speed rail project. A further consequence of the adoption of the present 'Y' configuration is that it pre-determines the start point of the next leg of the network, and would be too far west to provide a useful convenient direct route for serving East Midlands cities from London, and misses Leicester altogether. For all the foregoing reasons, the proposed 'Y' configuration of HS2 appears not to comprise the best solution, in either economic or environmental terms.

2.4 Railfuture Consideration of Alternative Network Formats

Railfuture believes that the Government's consideration of options for network development has been too limited, with minimal consideration of alternatives that might offer superior performance, and give better comprehensive rail access to Heathrow. Accordingly, Railfuture is commencing a programme of research, to develop options for a national network of high-speed inter-city railways, in general accordance with the principles set out in Section 1 of this response.

3. This question is about how to deliver the Government's proposed network (Chapter 3 of the main consultation document): Do you agree with the Government's proposals for the phased roll-out of a national high-speed rail network, and for links to Heathrow Airport and the High-speed 1 line to the Channel Tunnel?

3.1 Phased Roll-out of National High-speed Rail Network

Railfuture supports the principle of phased rollout of high-speed rail, but we feel that the segregated/exclusive nature of HS2, with no physical connection to the existing rail network between Old Oak Common and (probably) Water Orton, greatly restricts such opportunities. It will be necessary to construct the full length of the route from London to Birmingham and Lichfield on the West Coast Main Line, before any meaningful benefit can be gained. Much greater opportunities for phased rollout appear to exist for a line constructed along the M1 corridor. See Item 5.

3.2 Viability of Proposed HS2 High-speed Rail Links to Heathrow

Railfuture believes that the HS2 proposals for establishing high-speed rail access to Heathrow do not comprise an appropriate model of airport access, nor do they address the nationwide requirement for comprehensive access to the national

hub airport. The fundamental rationale for high-speed rail is as a means of efficiently addressing high-volume flows between major population centres. However desirable the prospect of a "high-speed link to Heathrow", the primary purpose of a high-speed rail branch cannot be as an airport delivery service, serving relatively small numbers of passengers relative to the much larger inter-city flows. In fact the vast majority of former air passengers are attracted to the alternative rail mode because of the competitive journey times between city centres! Few of them wish to start or finish their journey at an airport; only those air passengers who were previously changing at Heathrow ("inter-lining") to or from a connecting domestic airline service, will be using this rail link, and only for the longest possible journeys on HS2. The relatively low levels of interlining passengers from any particular regional centre to Heathrow (of the order of 1,000 per day from major conurbations such as Birmingham or Manchester) appear inadequate to justify dedicated services.

Proponents may refer to the successful high-speed lines tunnelling underneath Paris (CDG), Amsterdam (Schiphol), and Frankfurt airports, but in all these examples the stations are directly under the main terminal (Heathrow has four), and all the high-speed services run on to other cities, carrying through passengers, as well as airport passengers both boarding and alighting, and others who are just changing between connecting high-speed/inter-city services.

Currently, Heathrow's rail network comprises only links to central London, with Heathrow Express and Heathrow 'Connect' services (as far as Paddington only), and the slow overcrowded Piccadilly Line, making rail journeys to provincial cities difficult, congested and inconvenient. As the UK's national airport, Heathrow requires 360-degree connectivity along all axes, to north, east, south and west, with rail connections facilitated to as many destinations as practicable.

However pressing the need for radical improvements to Heathrow's rail connectivity, it is clear that a uni-axial high-speed railway is not the best way of resolving surface access issues at Heathrow. The connection between HS2 and Heathrow services at Old Oak Common, proposed for the initial phase of development, does not comprise an especially direct or convenient link that will attract many short-haul airline passengers making interlining connections. The Government's own figures indicate that only 2,000 passengers per day would use the high-speed link to Heathrow; yet the proposed links entail an extra 20km of tunnelled railway and perhaps a further 10km of new distributor tunnels within the airport 'campus'. This appears to add up to £3 billion to the cost of the HS2 proposals, and as such would appear to be unsustainable.

3.3 Alternative Strategy Rail Links to Heathrow

Railfuture believes that the aspiration for improved rail access to Heathrow would be far better achieved by means of integration of existing rail systems

such as Heathrow Express, and the planned Crossrail replacement for Heathrow 'Connect' stopping services, with other rail schemes such as Airtrack, 2M's Compass Point, and others proposed by BAA, and those mooted by rail campaigning groups including Railfuture for decades, with further development to comprise a regional network with much improved onward connectivity across all of mainland UK, and not least to residents of London and the greater south-east region. There are concerns, that the necessary step-change improvements to Heathrow's surface connectivity might lead to greater pressure for a third runway and sixth terminal, to which the Government is rightly opposed.

3.4 Influence of Heathrow on Routeing and Configuration of High-Speed Rail Network

The HS2 proposals for a 'national high-speed rail network' are flawed by the degree to which the first section is predicated upon Heathrow Airport and thus neglect the more fundamental priorities of an optimised intercity railway. Heathrow appears to exert a massive 'gravitational pull' on the alignment of HS2, drawing it westwards from other possible alignments and rendering unavoidable the proposed Chiltern alignment. With HS2 emerging from the Chilterns at Aylesbury, around 25km to the southwest of the M1 corridor, there then appears to be no obvious advantage in following a route such as the M1 corridor. Instead, Birmingham and the West Midlands comprise the logical next destination, before splitting to east and west of the Pennines. This effectively determines the route format of the HS2 proposals, and appears to introduce extra costs, compared with an M1 alignment, of possibly several billion pounds.

3.5 Proposals for HS1/HS2 link

Railfuture supports the aspiration for a direct connection to be created between HS1 and any northern-oriented high-speed line. This is considered essential to facilitate future direct rail services from mainland Europe to the UK provinces. This would be part of a wider initiative to achieve improved connectivity to the outlying European regions through a pan-European surface transport system (high-speed or otherwise), lower CO2 emissions than the air transport that currently predominates, and without the total dependency upon fossil fuels.

We are concerned that the HS2 routeing strategy, with a long tunnelled approach to its Euston terminus from the interchange at Old Oak Common, makes the achievement of such a link disproportionately difficult. It appears to compel the construction of a tunnel, extending 6km from Old Oak Common to the North London Line, which presumably for budgetary reasons will only comprise a single track. Railfuture considers that this proposal remains excessively expensive, is operationally fragile, and most certainly very disruptive to the increasingly busy North London Line operations. A much simpler and

shorter direct link can be created between an M1-oriented high-speed line and HS1, which is what we propose instead (see Section 5).

Railfuture would also question the strategic assumption behind the remit for the HS1/HS2 link. This appears to imply that direct services from the UK regions will operate, without a calling point at a central London terminal or location. The only economically viable means of running such services, wherein the trainload, numbering up to 1,100, comprises passengers bound for both London and Continental destinations, with more Continental passengers joining in London as the domestic passengers disembark, appears to dictate the necessity for such a central London calling point. Such an operational model would appear to us to be economically viable to train operators only if the train were to call at a central London terminal or calling point; calling points at outer 'hubs' such as Stratford or Old Oak Common appear insufficiently attractive to draw the necessary 'critical mass' of passengers, and undermine economically the consequent likely service frequency, compared to trains serving a central London terminal/calling point.

Railfuture believes that St Pancras comprises the only appropriate and viable central London terminal to sustain such European services, with current Eurostar international services based entirely at this location since 2007, and DB (German Railways) from 2013. This would accord well with an M1-aligned domestic high-speed line, focussed upon Euston and entering London via the Midland Main Line corridor; European services would simply continue along the Midland Main Line to St Pancras or via a new tunnel alignment as suggested above, before reversing and continuing to Europe. We recognise the complex political, security, and other factors behind introducing such services in the short term however. An alternative option for significant improvements in connectivity could be to reverse some HS2 trains at St Pancras and run on to Kent destinations served by HS1 either by 300m trains, or by splitting 400m trains. These are highlighted to demonstrate the possibilities, rather than as advocacy of definite or specific solutions, and to stimulate further investigation and assessment of desirable and possible outcomes, with serious detailed study undertaken, before expensive and possibly unnecessary construction is undertaken.

Part 2 of the consultation document

4. This question is about the specification for the line between London and the West Midlands (Chapter 4 of the main consultation document): Do you agree with the principles and specification used by HS2 Ltd to underpin its proposals for new high-speed rail lines and the route selection process HS2 Ltd undertook?

4.1 HS2 Principles and Specification

Railfuture supports the general principles of the TSI (Technical Specification for Interoperability), which underpins much of the specification proposed for the HS2 project. The TSI stipulates the size and length of trains (i.e. 400m long and 'Eurogauge' in cross-section) for which the new high-speed rail infrastructure is to be built. Issues of train control and signalling are also covered in the TSI.

It is important to note that the TSI is primarily intended to harmonise infrastructure with rolling stock and control systems, to establish a common technical 'platform' from which it will become possible to operate pan-European high-speed rail services comprising double-decker trains conforming to the 400m long, Eurogauge standard. The TSI makes no controlling stipulation for the speed to which any new network (high-speed or otherwise) might be designed or operated, or for the type of rolling stock that might operate along a particular line. The TSI makes no specification of location or spacing of stations, which are considered to be local issues, to be locally determined to suit local conditions.

Railfuture feels that the specification adopted for high-speed rail in the UK must conform fully to the principles established in the TSI. With all sections of new railway and new station infrastructure designed to accommodate 400m long trains of Eurogauge cross-section, this will allow full interoperability with European high-speed inter-city operations, and will open up the possibility of European services extending beyond London to the UK provinces. But issues of operating and design speed, and location and spacing of stations, are local issues, which must be determined in such a way as to deliver the optimum outcome for the UK railway network. This is the 'bespoke model of UK high-speed rail' that must address the transportation needs of a densely-populated and relatively small island, in which the major conurbations to be served by the new network might be only 50km apart, where capacity and connectivity are of greater importance than achieving the highest possible speeds on such sections.

4.1.1 Segregated/exclusive operation:

Railfuture is additionally concerned that the Government has selected a largely segregated/exclusive model of high-speed rail operation, with little connection to the classic network, and a preference wherever possible to operate 400m long Eurogauge rolling stock. This might deliver significant benefits, in terms of optimised trainload capacity and timetable reliability, for running trains along the high-speed line itself; but these benefits will be significantly minimised if passengers cannot readily access these services from the classic local networks.

The disbenefits of segregation are manifest in the HS2 proposals for stations in Birmingham, for example. The proposed 'central' terminal at Fazeley Street is separate from New Street Station, which is the hub of the local and regional

network and also the rest of the inter-city network. Any high-speed passengers en-route to most suburban or wider regional destinations will be faced with a walk of up to 15 minutes, dependent on personal mobility, and obstructions, ticket barriers, etc, to transfer to other services. This loss of connectivity with West Midlands railway operations focussed upon New Street would negate many of the benefits of high-speed operation, if this model of operation pervades the substantive final network. However we recognise the specific additional physical problems at New Street/Fazeley Street and comment further in Section 5.

Serious connectivity issues also exist with Birmingham's secondary station at Birmingham 'Interchange', located on the HS2 route near Birmingham Airport, and over 1km from the existing more useful Birmingham International Station, served by 3 inter-city trains to London each hour, and 9 inter-city and local trains each hour to Birmingham New Street and the West Midlands conurbation. Aside from the proposed shuttle link (to the NEC, Birmingham Airport and Birmingham International Station) 'Interchange' has no direct public transport links. Instead, it is primarily reliant on motorway links for its connectivity. This would generate a substantial number of new car journeys on roads that are already congested.

Railfuture also rejects the exaggerated claims made in Para 1.77 of the Consultation document, concerning Ebbsfleet and Ashford International Stations on HS1. None of the expected development planned in 2006/7 at Ebbsfleet (parkway) has taken place nor is there any sign of this soon. It is only served by high-speed trains, off-peak patronage is very low, and there is no interchange with the classic railway or Northfleet Station, only 600m away (over 1km by undesignated footpath). Evening and Sunday bus services to the major rail station at Dartford are only half hourly, and thereby connectivity to southeast London suburban train services is poor. There is however a massive surge of passengers at peak hours who drive there to use the 9,000 space car park.

By contrast Ashford International Station has achieved new town development, (in spite of Eurostar unjustifiably reducing calls there from 12 per day to 4 recently). The then Government proposed that the HS1 route should follow the M20 motorway east of the town, with a parkway station. However, the local authority and rail campaigners forced a revised plan and the line was routed instead via the existing Ashford Station in the town centre, with five radiating lines, and excellent connectivity.

It seems clear that the HS2 proposals, if implemented as they stand, will lead to an effective 'two-tier' railway, in which high-speed services remain disconnected from the classic railway. This creates a major risk whereby the advent of high-speed rail will actually blight urban centres, which remain on the classic network, with residual intercity services reduced in frequency and speed as trunk services

migrate to the high-speed line, with consequent commercial development at out-of-town parkway sites, so beloved of many optimistic local authorities.

This is demonstrated in HS2 projections for residual WCML services, with both Coventry and Stoke likely to see main line frequencies to London reduced to one train per hour. This will not help promote either modal shift or improved business performance on rail services to these centres, and the loss of connectivity implicit in these reduced frequencies seems certain to blight development prospects; in the case of Coventry, it is easy to foresee the nearby Birmingham Interchange station becoming the focus for new 'greenfield' development within the 'Meriden Gap'. Loss of green belt land is totally unnecessary, when there are large tracts of brown-field land awaiting regeneration, and the existing Birmingham International station is perfectly located for re-development within its own boundaries.

Segregated operation, especially with 'Eurogauge' trains too large to fit onto the classic network, also leads to significant issues, in that no suitable diversionary routes exist to allow services to be maintained, while essential repairs and maintenance are in progress, or mishaps occur. Railfuture believes that an alternative more holistic strategy, of full integration, is essential to optimise both economic and environmental benefits accruing from new railway construction, and to focus development pressures concentrated upon city centre locations where public transport connectivity can be maximised.

4.1.2 Speed

Railfuture is concerned that a technology-driven desire to run 'the fastest railway in the world' appears to comprise the basic rationale behind HS2's specified 360/400kmh operating/design speed. In the context of Great Britain's size, there does not appear to be any overwhelming need to run trains at such high-speed. We do not believe that the HS2 proposals offer fully reasoned justification, either business or environmental, for the speeds proposed. Extreme speed of this order adds significantly to the cost of construction, demanding less curved alignments and hence heavier engineering on many sections of route. It also imports unnecessary levels of technical risk and energy use (and hence CO2 emissions), and delivers less important benefit to any journeys below about 500km.

Significantly, no other European countries are building high-speed lines capable for greater speed than 350kmh, and none actually run trains faster than 320kmh at present. China has also just abandoned plans to build any more lines capable of 400kmh running, and the new Shanghai-Beijing line built for 400kmh will run at only 300/320kmh on grounds of economy, power usage, environmental concerns, and technical costs, as well as future construction costs.

With energy use and hence CO2 emissions rising with the square of speed, HS2's proposed 360kmh entails 44% higher energy use than the more conventional 'high-speed' of 300kmh; at 400kmh, energy use becomes 78% higher. On a London-Birmingham journey, 360kmh might achieve a journey time faster by 5 minutes, and 400kmh faster by 10 minutes. These benefits cannot sensibly be justified against the far higher energy use, greater CO2 emissions and costs. Railfuture believes that a maximum speed of around 300/320kmh, using fully proven technology, should apply for high-speed rail operations in the UK. At these speeds, it is easily possible to meet the basic business specification for UK high-speed rail, including a less than 1-hour London-Birmingham time and under 3-hour timing for London-Glasgow. Additionally a 4-track construction on the critical section of route from London to the Midlands could allow the application of differing speeds, to optimise environmental and economic benefits.

4.2 Route Selection Process

Very high-speed also tends to reinforce the exclusive and segregated nature of high-speed rail operation, and prevents consideration of more appropriate corridors for thorough scrutiny. Inability to accommodate 400kmh operation is one of the reasons why the Government rejected the M1 corridor. We are concerned that the route selection process employed by HS2 has failed to give proper consideration to the potential of the M1 corridor as the optimum northward route for a high-speed line from London. Furthermore, detailed review of the various official documentation produced either by HS2 Ltd or by the Government, appears to indicate clearly early determination upon the chosen Chiltern-aligned route that is proposed for HS2. These also indicate unwillingness to examine thoroughly other issues, such as development of an optimised terminal strategy for London, consideration of other options for access to Heathrow, and the selection of an optimised configuration for a national network of HS lines.

4.2.1 Remit Issues

Railfuture believes that the core remit for HS2 was flawed, and was apparently set out in early HS2 discussion documents with the following essential targets: (1) Formulate proposals for HSL from London to West Midlands; (2) Consider onward development of national network beyond the West Midlands; (3) Formulate proposals for London terminal; (4) Consider options for intermediate parkway station between London and West Midlands; (5) Provide proposals for 'an interchange station between HS2, the Great Western Main Line and Crossrail, with convenient access to Heathrow Airport; (6) Provide proposals for links to HS1 and the existing rail network. While most of the above items might be in themselves uncontroversial, they do not comprise the balanced specification of requirements from which an optimised national network might emerge.

4.2.2 Item 2: Onward Network Development beyond West Midlands

This infers that the national network should comprise an onward development from the initial stage of HS2, from London to the West Midlands, and implies an assumption on the part of the Government, that any national network must comprise a primary stem, from London to the West Midlands, before spreading to further destinations either side of the Pennines. This indicates an early presumption in favour of the 'Y' network configuration, and therefore prejudices whether due consideration could be accorded to alternative routing formats.

This is confirmed in Items 6.1.11-16 of the HS2 Report to Government, which discuss options for developing a national high-speed rail network. The three options depicted in Figures 6.1c, 6.1d and 6.1e (Inverse A, Reverse S and Reverse E) all show an initial stem from London to the West Midlands. Moreover, specific comment is made in respect of the M1-aligned High-speed North proposals, (just as an example): "With a more central alignment of HS2, the 'Reverse E' would become more akin to the proposal put forward by the 2M group of London Councils (known as 'High-speed North'). As our remit was to consider the development of HS2 beyond the West Midlands, we have not investigated the 2M proposals in detail."

This was one of several alternative proposals submitted to the Government, with an alternative network proposed, apparently interlinking all principal conurbations of the Midlands, North and Scotland and required fewer route miles of new construction. Railfuture would not yet want to single out or support any potential comprehensive solution for taking forward the next stages of the high-speed network, and we would certainly identify our own preferred solution for the next stages, if the Government proposals for these sections also appeared flawed to us. We nevertheless note that no justification has ever been offered as to why any national high-speed rail system must of necessity pass through the West Midlands en route to all communities further north. All the evidence assembled by Railfuture indicates strongly that an M1-aligned route offers a far more efficient and effective solution, with a wider choice of route sections to be added later, and in particular enables a far shorter route between London and Yorkshire/North East, and is also able to serve Leicester and Nottingham far better, regardless of how any north-western route is developed.

4.2.3 Item 5: Proposed Crossrail/Heathrow/GWML Interchange

While Railfuture accepts the ideal requirement for better connections from the high-speed line to Heathrow, and also for onward connectivity to London's local rail network, it seems inappropriate to specify that these multi-purpose connections should be achieved at a single interchange station, or with Crossrail in particular, rather than any other element(s) of the suburban network. Taking all these requirements together, it was inevitable that Old Oak Common

would be identified as the only feasible location at which the specification for 'a single interchange station' might be met. With HS2 drawn as far west as this to achieve the remitted interchange, there was then no realistic alternative exit route from the Greater London area except for the proposed HS2 route following the Central Line corridor as far as Ruislip and then via the heart of the Chilterns.

Early determination upon an interchange station only 10km from the proposed originating point at Euston Station has the effect of deciding the configuration of the entire subsequent national high-speed rail network. Railfuture considers that these different requirements, for airport interchange and suburban distribution, should have been considered separately, and in doing so generate far superior solutions in both respects. Moreover, these local issues should never have been allowed to exert such a dominant influence over national network development, even before the consultation process began.

4.2.4 Short-Listing of Route Options

It is instructive to review the route planning process set out in Section 3.5 of the HS2 Report to Government. The various routes are depicted in Figure 3.5a; Items 3.5.2 to 3.5.6 describe how the 'long list' of route options was reduced to a short list, and the criteria by which particular routes were progressively rejected. The criteria are as follows: Engineering and construction feasibility, cost; environmental, social and spatial considerations; demand assessment, mainly focussed on journey time benefits.

The accentuation upon journey time and speed should be noted. Railfuture consider the following essential aspects of any balanced and integrated proposal:

- Ability to relieve increasing route capacity demands on the existing network;
- Capability to deliver local connectivity benefits to intermediate communities along London-West Midlands axis;
- Opportunities for integration with other railway development proposals;
- Alignment with development of an optimised national high-speed rail network.

It should be emphasised that the M1/M6 corridor has in recent decades comprised the primary transport corridor from London to the Midlands and the north, and then by other routes to Scotland, and it seems reasonable to infer that the same logic might apply for high-speed rail, with a London to Birmingham route deviating from an M1-aligned Anglo-Scottish spine in the Rugby area. The major communities aligned with the M1 corridor, such as Luton, Milton Keynes, Northampton, Leicester and Coventry, are all of a size to benefit significantly from appropriate integrated development of high-speed rail, and could become major hubs in an expanded rail network compatible with wider climate change concerns, especially if a 4-track route is incorporated on the London-Rugby section, to serve the first 3 of these cities.

Instead, an M1-aligned route was rejected at the first stage of consideration, for the following reasons in detailed in Item 3.5.6 of the HS2 Report to Government, because of: greater route length; greater impact on communities and/or requirement for tunnelling. The fact that the M1 route and a route aligned with the Midland Main Line were the only routes to avoid the Chilterns AONB (Area of Outstanding Natural Beauty) is acknowledged, but the benefits are not considered to outweigh the penalties associated with this route.

Further reasons to reject an M1-aligned high-speed route are offered in the Government Command Paper. These are listed as follows: (a) Inability of a motorway alignment to accommodate parallel high-speed rail alignment, with 'islands of blighted land' created between tight curves of motorway designed for 70mph (120kph) operation, and slacker curves of a high-speed railway, (b) incompatibility with any proposal to create a high-speed rail link to Heathrow. Railfuture has had the opportunity to review detailed route alignment diagrams, and in the light of this, considers all of the reasons to reject an M1/M6 high-speed route from London to the West Midlands were inappropriate.

4.2.5 Route Length

An M1/M6 high-speed route from London to the West Midlands is approximately 7km longer than the HS2 route. It is also conceded that the exit route from London following the M1 is significantly more tortuous than that along the Central Line corridor. This might require speed restrictions of circa 200kph, rising to 250kph in the Watford area, and cost another 2 minutes in journey time relative to present HS2 proposals.

Such compromises are readily accepted by other European high-speed rail networks, and we recommend study of such routes' initial exits from major cities such as Paris (all four routes), Brussels, Liege, Lyon Part Dieu, Koln, Berlin, Frankfurt, where the full high-speed is not achieved until generally several km after leaving the platforms. They compromise with sharper track curvature and steeper gradients, realigned as far as economically possible, and shifting suburban station platforms and other structures, mostly achieved within the existing route envelope, if neighbouring land is not available for expansion.

However, in a comparative assessment, the additional journey time accruing from stopping at the Old Oak Common interchange should also be taken into account, as it will add around 5 minutes to all HS2 journey times. On this basis, a London to Birmingham journey via the 'less direct' M1/M6 route would be possibly even faster than via HS2.

4.2.6 Impact on Communities/Requirement for Tunnelling

Railfuture's review of an M1/M6 route from London to Birmingham indicates a generally clear corridor for construction alongside the motorway, with little if any impact on residential property outside London. The presence of the Luton/Dunstable conurbation is certainly acknowledged, but this would require a tunnel of only 4km well beneath the urban settlement. In other areas, 3km of tunnelling would be required at Mill Hill, and 3km to pass under the Hampstead Ridge between West Hampstead and Chalk Farm/Primrose Hill, at the top of the broad incline down to Euston terminus. This establishes a total tunnelled length of 10km as against HS2's overall requirement for 20km between London and Birmingham.

The Government's rejection of an M1-aligned route on grounds of excessive tunnelling appears to stem from a belief that such a route requires to be tunnelled for the full length from a point in West London, after serving Old Oak Common. But we find this assumption disappointing, given the potential for a reserved, mostly surface alignment along the M1 and Midland Main Line corridor, that we have identified. There appears to be no logical explanation for HS2 Ltd to have dismissed the obvious potential of this surface corridor, and to have presumed instead that the full length of HS2's route within the urban area must be tunnelled, even though some sections, though admittedly tight, could be constructed between the M1 and adjacent housing, a common feature of high-speed railway construction, throughout France and Belgium particularly. Double glazing, thicker noise barriers, and adequate compensation (including limited alternative accommodation during construction), are features usually able to accommodate the line, minimise objections, and ultimately save tunnelling costs, especially where the designed route is next to an existing transport corridor.

Journey time savings for the Government's preferred HS2 route over the M1 route would be small, and their case does not appear to be robust enough, from either an economic, engineering or transport standpoint, to declare a requirement for excessive tunnelling on the M1 route, and thus dismiss consideration of the principal feasible London to West Midlands high-speed rail alignment that would avoid the Chilterns AONB, and avoid the additional high cost of a lengthy tunnel under a core section of that route in any case.

4.2.7 Capability of M1 Corridor to Accommodate High-speed Alignment

A high-speed line, designed for any realistic speed aspiration, can be established along the M1 corridor mostly on a 'virtual hard shoulder' alignment, without much deviation. It should be noted that for most of its length between London (near Elstree) and Rugby, the M1 conforms to a broadly straight alignment, with only one significant curve (near Watford Gap) that would cause significant

deviation outside the immediate motorway corridor, and none that would cause unacceptable impact on residential property.

This is true even for a 400kmh design speed, but Railfuture would in any case question this speed for its unacceptable energy use, and unnecessarily excessive targets, compared with the parallel consideration of capacity and connectivity for UK transport needs. At Railfuture's preferred design speed of 320kmh, the required deviations from the motorway alignment would be greatly reduced.

We are puzzled by the Government's stated concerns with respect to 'islands of blighted land' between motorway and high-speed line. In the few instances where such islands of significant size would exist, this land is already effectively blighted, through its current proximity to the motorway, and would appear to offer considerable potential for compensatory development as nature reserves.

Railfuture also considers this stated concern to have a degree of double standards, given the landscape impacts that HS2 is certain to have in the Chilterns, and in the rural areas further north. It should be noted that the railway alignments designed for 400kmh in these areas will require embankments and cuttings up to 22m high/deep, which, at an assumed gradient of 1:2.5, will occupy a ground footprint around 120m wide. Therefore we urge re-examination of these comparative impacts, between unnecessary intrusion of HS2 into unspoilt rural landscapes, and the effects of small deviations between a railway and a motorway alignment along an already blighted corridor.

4.2.8 Incompatibility with proposal for high-speed rail link to Heathrow

Railfuture is concerned that the Government seems to have misunderstood Heathrow's total requirements for surface access, in advancing a uniquely 'high-speed' solution. As has already been clarified in Section 3, Heathrow's true need is for 360-degree, short and long distance connectivity to its entire UK hinterland, and high-speed rail on its own is of minor assistance. Although there is undoubted value in achieving high-speed rail access to Heathrow, Railfuture would not consider such a solution, which ignored the needs of the vast majority of travellers to Heathrow, to be a wise choice.

The 'shuttle' model implicit in the Old Oak Common connection in the proposals for the interim period, requires a change of trains, which may well not be an acceptable alternative for interlining air travellers. The 'loop' model implicit in the second phase 'Heathrow Hub' proposals can only be achieved at disproportionate expense. We could support a similar scheme if it was designed for local suburban or regional trains, or a new north-south through (moderately) high-speed line, to serve nearby major existing railway interchanges or as part of an extended high-speed network, with a route perhaps to Southampton and the southwest. But this is not being proposed by the HS2 plans.

An alternative possibility if our preferred M1 alignment was selected, could be an interchange station at Brent Cross, where major redevelopment has been agreed in principle already. This would still require a change of trains to reach Heathrow, but provides an option avoiding interchange at congested central London stations. There would be journey time penalties inherent in use of the obvious available circumferential route from the triangle near Cricklewood, via Dudding Hill freight-only line, Acton, thence to Heathrow via the Crossrail route. We estimate a journey time of 25-30 minutes, and clearly this is about connectivity not speed. However it would provide a connection off the high-speed route. We only dwell on this issue at all; in order to highlight that alternative journey options may be possible, without the airport's accessibility being an additional reason for rejecting our choice for HS2. We therefore conclude that the rationale for rejecting an M1/M6-aligned high-speed route on account of its incompatibility with its pre-conceived proposals for a high-speed link to Heathrow is misguided.

4.2.9 Further Concerns re Development of National High-Speed Network

Railfuture does not believe that the Government has either made an adequate case for their particular 'Y' route, or has given adequate consideration to the impacts upon UK regions in not achieving symmetrical interregional connectivity. The HS2 proposals strongly imply a segregated two-tier transport system, whereby London enjoys the step-change improvement of a greatly accelerated new high-speed, high capacity railway, while interregional axes remain reliant on the classic system with only minor incremental enhancements. This will have the effect of further concentrating national and hence economic activity upon London, to the general detriment of the Northern regional economy in particular.

Similar considerations apply along the Cross-Country axis, extending from the South Coast, Wales and West Country to the Northwest, Yorkshire, the Northeast and Scotland. The major regional centres encompassed along these broad axes also indicate viable inter-regional services of 'high-speed' quality, and it is disappointing that the Government seems to have paid no heed so far to the needs of this vital corridor, which is focussed upon Birmingham New Street. The proposed segregated 2-terminal solution for Birmingham (i.e. New Street and Fazeley Street) has the potential to damage Cross Country connectivity seriously.

The Government's assessment of various options for development of a national high-speed rail network (Items 6.1.11-16 of the HS2 Report to Government) appear to be completely predicated upon the 'Y' and do not accord alternative configurations equal consideration. We are disappointed with the comparisons, with models that are based upon alignments that appear unfeasible. We urge

further detailed examination of the effects of routeing assumptions that have been made for later stages.

5. This question is about the route for the line between London and the West Midlands (Chapter 5 and Annex B of the main consultation document): Do you agree that the Government's proposed route, including the approach proposed for mitigating its impacts, is the best option for a new high-speed rail line between London and the West Midlands?

5.1 Railfuture Review of HS2 Route Proposals

Railfuture does not believe that the Government has selected a high-speed route from London to the West Midlands that is either the best solution along that specific corridor, or one that optimises the national inter-city railway system and has commented on this in Section 4. We have the following further specific concerns with respect to the proposed HS2 route from London to the West Midlands, covered by this section of the consultation document.

5.2 London Terminal Solution

Railfuture considers that Euston Station comprises the only practicable location for the central London terminal of any northern oriented high-speed line, for most (though not all) of the new services, but St Pancras still offers some usable capacity for some of the new services, possibly for those cities normally served by present inter-city trains from St Pancras anyway. Euston possesses most of the necessary attributes, i.e.: Sufficient ground plan in length and width to accommodate multiple platforms 400m long; Viable 'exit route' to northward high-speed corridors without major requirement for extensive tunnelling; Central location with good road access, and capable of accommodating appropriate high quality architectural solution; Proximity to HS1, facilitating future HS2/HS1 link.

Euston's probable major drawback is its currently limited connectivity to the London Underground and local rail network, with only Northern (via City), Northern (via Charing Cross) and Victoria lines serving the station directly, although Euston Square is close by. If other proposed schemes come to fruition, such as Crossrail 2, (serving Euston on a south-west to north-east routeing), extension of the DLR to Euston proposed by TfL, and the mooted light rail scheme from Camden to south London, then this connectivity would be significantly improved, but none of these schemes are near to detailed development, let alone political and funding authorisation. This "Gateway to the North" is restricted currently by peak hour congestion arising from the large number of commuter services that currently terminate at Euston.

Railfuture is concerned that the Government has chosen not to follow normal railway practice, of improving connectivity at existing main line terminals, and of developing strategies to divert terminating commuter flows, for which Kings Cross and St Pancras might be taken as the prime example, with commuter services diverted onto the 'Thameslink' network. Apparently the Government has no firm plans to make major improvements to Euston's ability to cope with dispersal of passengers from the increased HS2 services.

In its non-central location, Old Oak Common will be primarily reliant upon Crossrail for its local connectivity, and is in a largely rail-locked site to which it will be difficult to provide the necessary road links. Together with Euston, it will give a hybrid London terminal solution in which presumably every high-speed rail journey will be lengthened by 5 minutes to accommodate the extra stop. Although Railfuture generally believes that connectivity should be prioritised over speed, with interchanges created wherever practicable, the Old Oak Common proposal does not appear to comprise a good example of this principle. Railfuture favours an alternative London terminal strategy concentrated principally on the main terminal at Euston, in which speed, connectivity and capacity can be optimised to provide more robust performance.

In the Network Rail London & South East RUS (Rail Utilisation Study) published for consultation earlier in 2011, they suggested diverting most of Euston's existing commuter flows on to Crossrail, by means of a new connection from Willesden Junction to the Old Oak Common area. This would enable these trains to be joined up with other Crossrail train services terminating at Paddington from the east (something which Railfuture always felt was a failure to make best use of Crossrail's £16 billion cost and resources). They will also offer improved commuter journeys from the West Coast Main Line corridor, and will balance the currently highly asymmetric Crossrail proposals. The longest regional services to Northampton and some to Milton Keynes could be retained at Euston. Also London Overground's Watford-Euston service could be diverted to run to Stratford, and TfL appears to support this option. We believe these solutions could greatly reduce pressure on Euston's Underground connections. With buffer stops advanced 120m towards Euston Road, it is possible to accommodate all the 400m long 'high-speed' platforms, without any need to extend the station westwards, with the consequent highly expensive destruction of some 200 homes and other properties, and re-housing and massive compensation costs.

Although the proposed developments at Euston would require some tunnelled construction, this would be a smaller impact compared with the much greater HS2 requirement for tunnelling to facilitate the Government's proposed Chiltern route, for the vast construction implicit in the Old Oak Common proposals, and for the highly intrusive westwards land take proposed at Euston.

However, we also advocate the operation of future East Midlands high-speed services into St Pancras where the present inter-city services run now. They would simply follow the existing Midland Main Line (MML) from near West Hampstead, after diverting near there from our proposed HS2 route to Euston. If the high-speed line were oriented along the axis of the M1, its natural approach to London would follow the Midland Main Line, and require only a short tunnel under the Hampstead Ridge to emerge alongside the WCML at Primrose Hill. From here, or from other possible 'portal positions' along a re-engineered Euston Incline, a much shorter twin-track tunnel could connect either directly to HS1 north of St Pancras, or run into St Pancras station terminal. A cheaper solution, which is our preferred option, would be to run these trains along the existing Midland Main Line into St Pancras, although we recognise that the tunnels could not carry Eurogauge trains. Nevertheless this could be an interim option.

A new interchange station at Brent Cross, referred to in the previous section, (in the context of a possible connection to Heathrow), could be served by some, though probably not all, HS2 services, so that both Euston-bound and St. Pancras-bound passengers could interchange, ideally at the same platforms for the direction of travel. This would also assist greatly passengers wanting to make connections with HS1 at St Pancras, and reduce the inconvenience of having to make their own way between Euston and St. Pancras. This is how we believe the connectivity between HS2 and HS1 can be better achieved.

There is adequate spare capacity on this section, although a new tunnel would be required (4km) if higher speeds were required, or to operate Eurogauge trains. We recognise that re-design of the approaches into St. Pancras would probably be needed to make best use of the total platform capacity there. By this routeing option, it would also be possible to operate through trains to mainland Europe, or even to Kent destinations on HS1. Platforms on the adjacent Thameslink line would also presumably be built if Brent Cross re-development goes ahead, and further wider local and regional network dispersal of passengers could be achieved (as intended by the Government's proposed station at Old Oak Common on their preferred route!).

5.3 Exit Route from Greater London, to North Scarp of Chilterns

As discussed earlier, the Government's proposals involve around 20km of tunnel, and major environmental impacts within the Chilterns AONB, whereas the M1-aligned route preferred by Railfuture requires only 10km, with any associated environmental damage largely mitigated by its close alignment to the motorway.

5.4 Onward Route to West Midlands

Railfuture sees little justification for the Government's proposed direct route through the rural landscapes of Buckinghamshire, Northamptonshire and

Warwickshire. Although we believe this route's capability for future 400kmh operation to be unnecessary and destructive, such capability could be replicated along much of the M1 corridor, if required. We note that any small time penalties associated with the slightly longer M1-aligned route are substantially retrieved for passengers on the next high-speed leg for East Midlands passengers to Leicester, Nottingham and Yorkshire.

The easier terrain along the M1 corridor requires less heavy engineering, a much lower requirement for land-take, with the possibility of shared earthworks between motorway and high-speed line, and generally only marginal additional intrusion beyond that already created by the motorway. An M1-aligned high-speed line, constructed for 4 tracks to address likely future capacity issues on a 2-track route, allows the possibility of a unified rail corridor to match the motorway, with spurs or loops from the high-speed line to create new links created between Luton and Milton Keynes, and between Northampton/Rugby/ and Leicester. These links would be focussed upon the existing main line hubs (on MML or WCML), with only Leicester comprising a unified high-speed/classic hub, to secure northward connectivity for all South-East Midlands centres.

This improved connectivity should deliver major economic and environmental advantages, which should easily outweigh any small additional intrusion through new construction along the motorway corridor. This will also counter the blight issues likely to afflict cities such as Coventry which under HS2 proposals will see intercity service frequencies cut, and journey times increased.

5.5 Birmingham Fazeley Street Issues

Railfuture is concerned that the Government's HS2 proposals for Birmingham, focussed upon the proposed Fazeley Street terminus separate from the existing primary hub at New Street, neither offer the necessary integration with the existing local and regional railway network, nor make the necessary recognition of Birmingham's key position at the heart of the UK intercity network.

The connectivity issues at Fazeley Street can be appreciated from a simple consideration of the local rail networks radiating from New Street, and also Moor Street Station, situated much closer. The New Street network concentrated at a single station, gives direct access to more than twice as many stations within the M42/M6 (Toll) ring, and to the wider regional network, as the adjacent Moor Street's network, with no significant regional network.

It seems reasonable to query whether the HS2 proposals meet the Government's brief, for a high-speed line from London to the West Midlands. From the perspective of achieving the ultimate goal of an enhanced and better-connected nationwide inter-city railway, there are other major concerns. This aim becomes impracticable with two separate stations, New Street and the proposed Fazeley

Street, at the hub of the existing network. It is vital that this functionality is maintained as far as possible in the new inter-city network.

This leaves little alternative but to maintain Birmingham New Street's status as the primary intercity, regional and local hub of the West Midlands. There are obvious problems of course with Birmingham New Street, with its short (less than 400m) and congested platforms, all clearly unsuitable for operation of 400m UK or Eurogauge rolling stock. The current 'Birmingham Gateway' project to rebuild New Street Station, will address the passenger congestion, and there are also major opportunities to rationalise train service patterns and reduce waiting time of trains and occupancy of platforms. However, fundamental issues of platform length or train cross-section cannot practicably be resolved.

This compels the use of shorter 'classic-compatible' rolling stock on high-speed services (which are in any case proposed for use on other HS2 services), and illustrates the point made earlier that there can be conflicts in optimising speed, train performance, capacity and connectivity. In the case of Birmingham New Street, connectivity seems the over-riding consideration, and issues of capacity and train performance can be addressed by a variety of strategies:

(1) Splitting 400m long 'classic compatible' trains into portions serving both central Birmingham and outlying centres such as Walsall, Wolverhampton, or Trent Valley stations. The act of splitting/connecting a train will undoubtedly compromise journey times, but can greatly improve total network connectivity in the greater number of destinations made accessible.

(2) Elimination of train operating patterns involving termination, reversal or 'standing' at New Street, to optimise platform occupancy.

(3) Resolution of capacity and train performance issues on routes approaching New Street, through segregating local and intercity traffic. This might be accomplished by 4-tracking on the Coventry-Birmingham corridor, and by the better use and redesign of other lines nearby, to bypass the congested Stour Valley lines, or by reversal at New Street and departing northwards via Aston and Perry Barr to achieve alternative north-westwards exit routes for intercity traffic from Birmingham New Street.

Thus a coordinated programme of initiatives in the Birmingham area seems capable of resolving the issues of capacity, connectivity and train performance, with Birmingham New Street as a "fit for purpose" interchange, capable of handling high-speed/inter-city traffic on all axes including Cross Country and London-West Midlands-North West routes, plus regional and local traffic.

However, in spite of our clear and fully explained reasons for supporting strongly the maximum use of New Street Station for High-Speed services we do acknowledge that even with such a solution devised for Birmingham New Street, even fully optimised as an intercity/high-speed interchange, a residual requirement will remain for a limited terminating facility at Fazeley Street,

perhaps comprising 2-4 platforms, and capable of accommodating 400m long Eurogauge rolling stock. This land should be retained to address the future possibility of through services from Europe to the West Midlands, and any issues of TSI compliance. But it should not be assumed that this could be the only Birmingham city station for high-speed services. Also any transfer imposed between Fazeley Street and New Street should be of the highest quality, under cover, with travelators and no streets to cross. Railfuture, therefore, advocates further detailed examination of all options, before dismissing increased use of New Street Station. We would indeed suggest the use of New Street as a first stage of development in high-speed services from London.

5.6 Birmingham 'Interchange' Issues

It is necessary to give separate consideration to the proposed Birmingham 'Interchange' Station. This is intended to provide wider connectivity across the West Midlands area to HS2, than might be achieved at a central Birmingham terminal, and also to enhance national connectivity to the National Exhibition Centre and to Birmingham Airport. Railfuture would be supportive of these aims, but believes that disproportionate emphasis is being placed upon achieving a high-speed rail connection to what is essentially an 'out-of-town' development hot spot. This cannot be a primary justification for HS2's routeing strategy (as certain publicity material tends to indicate), since a high-speed line that is routed as proposed cannot practicably serve either Coventry or Leicester, both of which would appear to comprise far more important destinations for high-speed rail.

There is also a clear danger the hub location of Birmingham 'Interchange' will fuel further development pressure in this area (the Green Belt of the Meriden Gap), and consequently blight development prospects in nearby Coventry whose inter-city links will be greatly reduced under the HS2 proposals. Railfuture is concerned that with no worthwhile public transport links to Birmingham 'Interchange', most travellers accessing the high-speed rail network at this point will be using the private car to do so. Therefore we feel that Birmingham 'Interchange' is essentially a poorly connected parkway station, which goes against contemporary principles of planning policy in promoting, rather than deterring car use, but nevertheless strongly supported by developers with no interest in discouraging the proportion of car-borne journeys.

Railfuture believes that parkway stations should only be provided, (and with first-rate public transport connections), where there is no other practicable way to serve urban centres. An alternative site at Water Orton, close to the M42 and at the junction of both the Birmingham-Nuneaton and Birmingham-Tamworth lines, and also with the Sutton Park line (giving potential rail access to Walsall, Wolverhampton, and even Dudley, might offer greater potential. A restored rail route from Coleshill to Hampton-in-Arden might also provide access to

Birmingham International Airport and to the National Exhibition Centre. However we believe that a more urgent short term solution as a means of improving rail access to Birmingham International is to enhance the classic Coventry-Birmingham corridor, with 4-tracking where practicable, (again not easy due to close line-side properties), and to provide eastward connections to an M1-aligned route in the Rugby area, and possibly northwards as part of a high-speed network plan.

This would also deliver major enhancements to the national rail connectivity of both Rugby and Coventry, and would comprise a more proportionate balanced solution than one focussed exclusively upon Birmingham Airport and the NEC.

6. This question is about the Appraisal of Sustainability (Chapter 5 of the main consultation document): Do you wish to comment on the Appraisal of Sustainability of the Government's proposed route between London and the West Midlands that has been published to inform this consultation?

6.1 Railfuture Concerns re Sustainability Issues

Although Railfuture has no specific comment about the detail of the Appraisal of Sustainability, we are concerned that the wider consultation document does not fully address fundamental climate change issues, and the need to ensure that Britain's transport policies are helping meet its required carbon emission reduction targets. The document's prediction that HS2 would only be "...carbon neutral..." over a 60-year period is not attaining full sustainability and is quite unambitious. A network of high-speed lines, related inter-city services, and full connectivity with the classic network, would release capacity to facilitate modal transfer of both car-borne and freight traffic from the congested road network.

Britain has a limited supply of 'unspoilt' rural landscapes, and these should be preserved unless there is an overwhelming imperative to do otherwise. For major transport routes such as HS2, these should be aligned with existing transport corridors (as was HS1's route) where the line will only create marginal additional intrusion on the landscape, and where public opposition will be minimised. The construction of the M40 motorway, forty years ago, in less sensitive times through a similar area of the Chilterns, was another damaging project of similar if not worse magnitude environmentally, and we urge that this type of planning error not be repeated, when clear route alternatives exist.

7. This question is about blight and compensation (Annex A of the main consultation document): Do you agree with the options set out to assist those whose properties lose a significant amount of value as a result of any new high-speed line?

7.1 Railfuture Concerns re Blight and Compensation

Railfuture has no specific comment about the detail of any proposed compensation scheme for property owners or users adversely affected by a transport project such as this. Certainly the Government should be prepared to pay a generous price for their property, related to the market price that would have prevailed before the route was identified. However compensation payable during and after construction, and the number of properties affected by this proposed route, would be far less with a route immediately next to the M1 and M6 motorways and other major roads for later stages of the scheme. Similarly the quantity and length of noise barriers and other mitigation measures will be more costly therefore on the chosen route, than the already blighted M1 route.

Given the likelihood that many of the property acquisitions necessary for the proposed HS2 route through the Chilterns and the rural areas to the north, will be vigorously contested, it seems certain that blight and compensation costs will figure heavily in the Government's expenditure upon HS2.

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