Cabinet 14 July 2011

HS2 Formal Response to Government Consultation

Warwickshire Considerations

Other Issues of Importance to Warwickshire

Aspects of the impact of the proposed route on Warwickshire have been considered and the information gathered is set out below under the headings of:-

1. Natural environment
2. Flood risk
3. Heritage
4. Landscape and visual impact
5. Emergency management
6. Rights of way
7. Existing road network
8. Rail enhancement
9. Agricultural land
10. Minerals
11. WCC Landholdings
12. Coventry and Warwickshire Chamber business Survey

Noise is also recognised as a key issue, and is considered as part of the 51m response to the consultation.

1. Natural Environment

Synopsis of Professional Discipline/field of Comment

1.1 Further work needs to be undertaken as part of Environmental Impact Assessment in order to identify the direct and indirect impact of construction upon the Natural Environment (statutory and non-statutory sites, habitats and species). This work will need to be based on up-to-date ecological data.

Impact of the Proposed HS2 Route in this Area

1.2 Information available through the Warwickshire Biological Record Centre (WBRC), the Local Wildlife Sites (LWS) and Habitat Biodiversity Audit (HBA) partnerships suggest that construction would impact upon 31 LWSs and potential LWSs (pLWSs) and 13 UKBAP and/or LBAP habitat types (60ha). Indirect impacts (hydrological, vibration, noise, light and general disturbance) could include a further 75 LWSs and pLWSs and a total of 21 UKBAP and/or LBAPs (1552ha) plus a further 5 SSSIs. 60 Parish important sites have not been

considered by HS2 at this stage. The proposed route is also well populated with EU, UK and county important species not appraised in this report

Base Line Data and Sources (if available) to Support the Impact Statements

1.3 The HS2 Sustainable Appraisal recognises the importance of EU Legislation (Habitat Regulations, 2010) to protect listed sites and species; UK Biodiversity Action Plan (BAP) habitats and species and Local BAP habitats and species. However, the report only used data that is "readily available" and "no survey work has been undertaken" (MVR1, 7.4). Only Birmingham's and London's Local Record Centres (LRC) having been approached to acquire Local Wildlife Sites (LWS, county important sites) data. WCC's manages the LRC for Warwickshire Coventry and Solihull (WBRC) and this data is readily accessible. Thus in Warwickshire, only nationally important sites (Sites of Special Scientific Interest, (SSSIs), Areas of Outstanding Natural Beauty (AONB)) have been appraised in detail.

Minimum Mitigation and Additional Desirable Actions

1.4 Considerable work remains to be done to identify the significance of the Natural Environment along the route before compensation and mitigation can be assessed. In our opinion this work will need to include a full a habitat survey of the route and a reasonable buffer. It will need to evaluate nationally and county important sites and it will need to survey for European, national and local important species. This data will need to assess direct and indirect impact on species and habitats and there commutability through the landscape either on a daily basis or future expansion or contraction depending upon climate change adaptation principles.

1.5 Government commissioned reports and Planning Policy Guidance request that biodiversity gain is to be favoured within new development proposals. On this principle HS2 should look to provide at least a 2 for 1 approach to habitat loss. HS2 has also agreed to the principle that mitigation "management plans would be drawn up and implemented" (Non Technical Summary 3.1.20).

Other Comments/Observations

1.6 The Impact of the HS2 is to be assessed on the objective of "Maintain and enhance Biodiversity" (Non-Technical Summary (NTS), 5.1.2 Table). It claims that HS2 will "reinforce and enhance biodiversity to form connections between existing barriers" (NTS, 3.1.9), with impacts being reduced by "further detailed design, and management plans [that] would be drawn up and implemented" (NTS 3.1.20).

1.7 The objective "will be monitored as part of the routine project planning process". The impacts have so far been appraised in accordance with European and National drivers both strategic and legislative. These including Government statements to "emphasise significance of climate change, flood protection, biodiversity…" with indicators of "resource protection" (Main Report Vol.1 (MRV1), 6.3), this being strengthen by the Natural Environment White Paper

(Discussion Paper, 2011) which notes the “continued threat to wildlife sites and loss of habitat” (MRV1, 6.3.9). The Secretary of State “recognises the need to ‘work together to find innovative ways to protect and improve these areas’”. The HS2 Sustainable Appraisal recognises the importance of EU Legislation (Habitat Regulations, 2010) to protect listed sites and species; UK Biodiversity Action Plan (BAP) habitats and species and Local BAP habitats and species.

1.8 WCC has commissioned habitat survey work to ensure that its decisions and recommendations relating to HS2 are made using quality, up-to-date data.

1.9 The HS2 report has not specifically appraised and assessed impacts on Geology and Geomorphology other than in hydrological terms. This is contrary to referenced government strategies and policies.

Table 2: Sites indirectly affected by proposed route (1km buffer)

Ecosite	Ecosite Name	Designations	LA District
33/35	River Itchen (tetrad Z)	pLWS	Stratford District
102/35	Poplar Farm Meadow	pLWS	Stratford District
03/36	Welsh Road West, Roadside Verge	ecosite	Stratford District
05/36	Print Wood	pLWS	Stratford District
10/36	Grand Union Canal (Bascote Locks and Canal)	pLWS	Stratford District
12/36	Ufton Hill Farm Quarry	pLWS	Stratford District
14/36	Ufton Fields Nature Reserve (SSSI & LNR)	SSSI, LNR	Stratford District
84/36	Ridge Way Lane	pLWS	Stratford District
85/36	Bascote Heath Wood	pLWS	Stratford District
06/45	Stoneton Manor Moat	ecosite	Stratford District
07/45	Berryhill escarpment	ecosite	Stratford District
08/45	The Tunnel, Oxford Canal (tetrad H)	pLWS	Stratford District
14/45	Lower Radbourn Church Pools	pLWS	Stratford District
19/45	Long Spinney	ecosite	Stratford District
20/45	Windmill Hill Spinney	pLWS	Stratford District
24/45	Hodnell New Lake	ecosite	Stratford District
28/45	Newfield Pool	pLWS	Stratford District
31/45	Ladbroke Fox Covert	pLWS	Stratford District
34/45	Wood nr Berryhill Farm	pLWS	Stratford District
35/45	New Farm Fields	pLWS	Stratford District
38/45	Hall Farm Wood	pLWS	Stratford District
43/45	Ladbrooke' Brook, tributary of the River Itchen (tetrad A + E)	ecosite	Stratford District
46/45	All Saints Church, Ladbroke	ecosite	Stratford District
49/45	St Peters Church, Wormleighton	ecosite	Stratford District
57/45	Hall Farm, Ladbroke	ecosite	Stratford District
71/45	Pond	pLWS	Stratford District
75/45	Windmill Hill Spinney	pLWS	Stratford District
76/45	Ladbroke Meadows	pLWS	Stratford District
77/45	Priors Hardwick Meadows	pLWS	Stratford District

05/46	Stoneythorpe Park	ecosite	Stratford District
05.1/46	Thorpe Rough, Stoneythorpe	ecosite	Stratford District
08/46	River Stowe, Stowe Bridge	ecosite	Stratford District
37/46	Harp Ponds	ecosite	Stratford District
80/46	Trackway south of Southam	ecosite	Stratford District
85/46	Southam Meadow South	LWS	Stratford District
15/27	Stoneymoor Wood & Long Meadow Wood	pLWS	Warwick District
20/27	Rough Knowles Wood	pLWS	Warwick District
21.1/27	Crackley Woods LNR - South	pLWS, LNR	Warwick District
22/27	Kenilworth Common LNR	pLWS, LNR	Warwick District
23/27	Whitefield Coppice	LWS	Warwick District
31/27	Kenilworth to Balsall Railway Embankment (tetrad W + X)	pLWS	Warwick District
35/27	Geological Site, West side of Gibbet Hill	ecosite	Warwick District
57/27	Pool, Camp Farm	ecosite	Warwick District
67/27	Crackley Heath	ecosite	Warwick District
78/27	The Pools Wood	LWS	Warwick District
125/27	Bockendon Grange Pond	pLWS	Warwick District
01.1/36	North Cubbington Wood	LWS	Warwick District
18/36	Rugby to Leamington Railway (Disused) (tetrad T)	pLWS	Warwick District
26/36	Sutton Spinney	pLWS	Warwick District
35/36	Weston Wood	pLWS	Warwick District
41/36	Offchurch Bury Park	ecosite	Warwick District
54/36	Ridgeway Lane & Snowford HIll	pLWS	Warwick District
59/36	Offchurch Churchyard St. Gregory	ecosite	Warwick District
60/36	Cubbington Churchyard St. Mary	pLWS	Warwick District
80/36	Burnt Firs	pLWS	Warwick District
81/36	Coventry Road Verge at Cubbington	ecosite	Warwick District
04/37	Waverley Woods	pLWS	Warwick District
13/37	River Avon (tetrad A + G)	pLWS	Warwick District
25/37	Gospel Oak + Chantry Heath Wood	pLWS	Warwick District
30/37	Dalehouse Lane Meadow	pLWS	Warwick District
32/37	Parkland near Kenilworth	ecosite	Warwick District
45.1/37	John Eastwood Farm (Stone House Farm Pool)	pLWS	Warwick District
45.2/37	Decoy Spinney	pLWS	Warwick District
51/37	Ticknell Spinney	pLWS	Warwick District
56/37	Crewe Farm	ecosite	Warwick District
61/37	Stoneleigh Meadows	pLWS	Warwick District
75/37	Kings Wood	ecosite	Warwick District
82/37	Westley Bridge Spinney	ecosite	Warwick District
83/37	Dalehouse Lane Meadow (II)	ecosite	Warwick District
06/46	River Itchen. Breakneck Field	pLWS	Warwick District
111/37	Kenilworth Road Spinney	LWS, LNR	Coventry District
06/18	Bickenhill Plantations	LWS	Solihull District
33/18	Pendigo Lake & The Rough	ecosite	Solihull District
39/18	Castle Bromwich Hall Site	LWS	Solihull District

43/18	Castle Bromwich St. Mary's and St. Margret's	ecosite	Solihull District
60/18	Blackfirs Lane Hedgerows	ecosite	Solihull District
67/18	Three Spinneys	ecosite	Solihull District
75/18	Hedgerow	ecosite	Solihull District
61/19	Two mature oaks	ecosite	Solihull District
65/19	Castle Hills	pLWS	Solihull District
11/27	Berkswell Estate	SSSI	Solihull District
27/27	Poors Wood	LWS	Solihull District
31/27	Kenilworth to Balsall Railway Embankment (tetrad N)	pLWS	Solihull District
39/27	Meadow at Catchems Corner & Little Beanit Farm	LWS	Solihull District
41/27	River Blythe	SSSI	Solihull District
47/27	Main London to Birmingham Railway Line (tetrad E, J + T)	ecosite	Solihull District
63/27	Ryton End (Bradnock's Marsh)	pLWS	Solihull District
70/27	Brooklands Spinneys	pLWS	Solihull District
72/27	Lavender Hall Lane & Berkswell Road Spinney	pLWS	Solihull District
76/27	Berkeswell Churchyard	ecosite	Solihull District
77/27	Beanit Wood	ecosite	Solihull District
80/27	Big Poors Wood	LWS	Solihull District
81/27	Arnold Farm, Nailcote Farm, Hodgett's Lane Meadow and Ornamental Pond	ecosite	Solihull District
98/27	Balsall Common, St. Philomena Churchyard	ecosite	Solihull District
99/27	Pond at Beech Wood Farm Berkswell	ecosite	Solihull District
134/27	Copse Field off Lavender Hall Road	ecosite	Solihull District
137/27	Balsall Common Woodland	ecosite	Solihull District
143/27	Fields East of Balsall	pLWS	Solihull District
144/27	Pond North of Balsall Common	ecosite	Solihull District
151/27	Wood at Wooton Green	LWS	Solihull District
152/27	Fern Bank Marsh	pLWS	Solihull District
08/28	Siden Hill Wood	pLWS	Solihull District
10/28	River Blythe (tetrad G)	SSSI	Solihull District
22/28	Pool at Mill Farm and Mill Covert	LWS	Solihull District
23/28	Gravel Pit Plantation	pLWS	Solihull District
45/28	Main London to Birmingham Railway	pLWS	Solihull District
59/28	Hampton Grassland	LWS	Solihull District
72/28	Marsh Lane	pLWS	Solihull District
90/28	Marsh Lane Nature Reserve	pLWS	Solihull District
151/28	Ditch & Fields near North Warks Golf Course	pLWS	Solihull District
176/28	Wet Woodland	pLWS	Solihull District
177/28	Marshy Fields	pLWS	Solihull District
08/18	Coleshill Pool and Bog	SSSI	North Warwicks District
23/18	The Decoy	pLWS	North Warwicks District

24/18	Botanical Site, Island over M6 (Damp hollow adjacent to A446T)	ecosite	North Warwicks District
25/18	River Cole (tetrad Y)	pLWS	North Warwicks District
50/18	Green Lane and Hall Walk	LWS	North Warwicks District
54/18	River Cole Flood Meadow	pLWS	North Warwick's District
03/19	Coleshill Sewage Works Grassland	LWS	North Warwick's District
14/19	Moxhull Park and Lakes (The Belfry)	ecosite	North Warwick's District
15/19	Middleton Hall & Middleton Pool SSSI	SSSI	North Warwick's District
18/19	Coneybury Wood	LWS	North Warwick's District
23/19	Land at W Orton Sid'gs by R.Tame	pLWS	North Warwick's District
30/19	Pools at Marsh Lane	ecosite	North Warwick's District
31/19	Cuttle Mill Pools	pLWS	North Warwick's District
34/19	Park Farm Grassland	pLWS	North Warwick's District
43/19	Coleshill Road	ecosite	North Warwick's District
46/19	Dunton Wood	LWS	North Warwick's District
47/19	Roger's Coppice	ecosite	North Warwick's District
49/19	Middleton Parish Church	ecosite	North Warwick's District
58/19	Water Orton (M42 Site)	LWS	North Warwick's District
59/19	Curdworth Paddocks	pLWS	North Warwickshire District
60/19	Jack O Watton Rough Ground	ecosite	North Warwick's District
62/19	Conebury Pond	ecosite	North Warwick's District
73/19	Wet Meadow of Langley Brook	pLWS	North Warwick's District
75/19	Veteran Oak	pLWS	North Warwick's District
76/19	Purple Hairstreak Tree	pLWS	North Warwick's District
01/28	Somers Gravel Pits and Wood	pLWS	North Warwick's District
05/28	Bodymoor Heath - Kingsbury Water Park (River Tame)	pLWS	North Warwick's District

10/28	River Blythe (tetrad B + C)	SSSI	North Warwick's District
25/28	Disused Track & Siding Wood (tetrad B + C)	pLWS	North Warwick's District
26/28	Coleshill Pool, Bog & Wood	SSSI	North Warwick's District
32/28	Packington Gravel Pits	ecosite	North Warwick's District
55/28	Packington Park	pLWS	North Warwick's District
76/28	Hollywell Book corridor to A41	pLWS	North Warwick's District
83/28	Little Packington (redundant) Churchyard	ecosite	North Warwick's District
150/28	Blythe Floodplain	pLWS	North Warwick's District
10/29	River Thame (tetrad A)	pLWS	North Warwick's District
16/29	Sych Wood (Hams Hall)	pLWS	North Warwick's District
93/29	River Cole	pLWS	North Warwick's District

2. Flood Risk

Synopsis of Professional Discipline/field of Comment Detailed Information on the impact of the Proposed HS2 Route in this Area

2.1 It easy to identify the position of the main rivers and associated flood plains. It is assumed that any bridges and other structures will be subjected to Land Drainage Consent from the Environment Agency , so the risk of exacerbating fluvial flooding will be kept to an absolute minimum.

2.2 The proposed route in the South of the County, particularly near Ladbroke does go through an area where there are a large number of natural springs. The design of HS2 should include a full assessment of the impact on the aquifer including the identification of any springs that will subsequently run dry. This could harm local natural habitats, deprive farmers of stock watering facilities, inhibit the irrigation to farm land, and there may be springs drawn off for industrial purposes.

2.3 The cutting through of the aquifers will destroy existing natural drainage paths and create new ones. The impact of the new paths will need to be assessed to ensure that local areas sensitive to ground water flooding are not made worse.

2.4 Where the route is close to Leamington, it passes through an area which is prone to severe surface water flooding, (over 40 properties in Cubbington were flooded in the floods of 2007). This area should be modelled in great deal to ensure that this situation is not made worse by the proposed development.

2.5 In the lower lying areas near Stoneleigh and Kenilworth, some of the areas through which the line is planned, act as a natural soakaway. Any development which may reduce the natural percolation qualities of the area will need to be identified, and appropriate mitigation measures designed and included in the scheme. This will be particularly important where the stations and other buildings and hard areas associated with the scheme are constructed.

2.6 At this stage of the process, it is not possible to identify every potential problem relating to flooding and drainage. However, we would expect that as part of the detailed design stage, a full hydrological model is created, not only to include fluvial flooding, but also surface water, ground water, potential reservoir inundation and possible flooding from canals being breeched.

3. Heritage

Summary

The historic environment the sites affected include:

Medieval Earthworks,

3.1 17th century Dunton Hall, a grade II listed farmhouse at Coleshill, Remnants of a mediaeval settlement at **Stoneleigh,** a mill race, **Stoneleigh Abbey Park and Deer Park** (grade II listed), World War II bridge defences plus 80 sites within 500m of the proposed route.

3.2 A number of unique Warwickshire landscape character types along the route could be adversely affected, altered or lost. The Appraisal of Sustainability report takes no account of any data from the Historic Environment Record for Warwickshire. The Historic Landscape Characterisation has been ignored.

Impact of proposed High Speed Rail Line (HS2) on Warwickshire's Historic Environment

Known Impacts

3.3 Known sites of Historic Environment interest are recorded in the Warwickshire Historic Environment Record (HER). Preliminary appraisal of the published route against HER data indicates that HS2 will have an impact upon a number of sites of Historic Environment significance. These impacts may be direct (where sites are damaged or destroyed by construction works on-or off-line) or indirect (where the works have an impact upon the setting of sites).

3.4 The most significant known impacts upon sites on or close to the line are as follows:-

(i) **Middleton House Farm** moated site. Medieval earthworks, Scheduled as an Ancient Monument. Areas of cropmarks visible on aerial photographs extend to the north and southeast of the Scheduled site; it is not known whether these features are related to the moat or originate from an earlier period of activity. The moated site is within 100m of the centre line.

(ii) **Dunton Hall, Curdworth**. Immediately west of line, adjacent to cutting. Late C17th brick house, said to have been the home of Dr Johnson's maternal grandparents, listed Grade II as is an associated barn and an eighteenth century dovecote. East of Dunton Hall is an area of charcoal burning sites, clipped by the route.

(iii) Archaeological features c.350m northwest of **Newlands Farm, Curdworth**: Ring Ditch (circular ditch around a prehistoric burial mound) and linear features visible on aerial photographs; the area of interest is to the west of the line and clipped by it.

(iv) **Gilsons Hall, Coleshill**. Early C18th farmhouse; Listed grade II. West of, and within 30m of line.

(v) **Coleshill Hall, Coleshill**. Eighteenth century brick house, Coleshill Hall (listed Grade II) with earlier farm buildings to south, on medieval moated site. An enclosure visible as a cropmark on aerial photographs may be associated. Directly on line of route.

(vi) **South Hurst Farm, Stoneleigh**. Remnants of Deserted Medieval settlement and post-medieval shrunken settlement. South Hurst Farm Cottages are listed Grade II. Corner of site is adjacent to north side of line. Site may extend beyond presently known limits.

(vii) **Birches Wood, Stoneleigh**. Rectilinear cropmark of unknown date on line of (vii) route. Remnants of possible sandstone bridge adjacent.

(viii) **Milburn, Stoneleigh**. Site of medieval grange of Stoneleigh Abbey and earthwork remains of associated settlement, depopulated by late C15th. Adjacent to SW edge of line.

(ix)) Dale House Mill. Site of watermill; part of mill race survives. Traversed by line. Dale House Farm is listed Grade II.

(x) **Stoneleigh Abbey Park and Deer Park**. The route passes between the two areas of Parkland (both Registered Grade II), just clipping the Deer Park edge. Stareton Bridge, a Scheduled Ancient Monument and Listed Grade II*, is c.60m northeast of the line; East Lodge, an early nineteenth century cottage in neo-Tudor style, Listed Grade II, is c.50m south west of the line.

(xi) **Stonehouse Farm, Stoneleigh**. Area of quarrying/coal working shown on 1597 estate map; traversed by line.

(xii) **Ridgeway Lane Bridge, Offchurch**. World War II bridge defences on canal bridge, adjacent to South-western edge of line.

(xiii) **Ufton Wood** possible cropmark enclosures of unknown date to north of Ufton Wood, traversed by line.

(xiv) Site of possible **Chapel near Thorpe Bridge, Long Itchington**. c.50m southwest of line.

(xv) **Radbourne** medieval earthworks; site of settlement of Lower Radbourne, with chapel and fishponds. Romano-British material has also been recovered from the site. Site formerly Scheduled as an Ancient Monument; traversed by line.

(xvi) Undated enclosure and linear features visible as cropmarks on aerial photographs, southwest of **Berryhill Plantation, Stoneton**; traversed by line.

NB Some eighty additional sites are recorded within 500m of the proposed route.

Historic Landscape

3.5 Landscape, as defined by the European Landscape Convention (2000), is 'an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors'. Warwickshire's landscape is a product of thousands of years of human activity and there are no areas which humans have not used or affected. The term 'historic landscape' encompasses not just archaeological monuments and historic sites and buildings, but also roads and open spaces, fields, hedgerows, woodland and other habitats.

3.6 Management of change in the landscape requires detailed appreciation of its historic character. Between 2005 and 2010 Warwickshire County Council, with funding from English Heritage, undertook characterisation of Warwickshire's Historic Landscape. This has allowed an appreciation at a broad level of the historic landscape character in Warwickshire, the differences between areas and why the landscape in Warwickshire looks the way it does. Although Historic Landscape Characterisation (HLC) data does not in itself ascribe objective value to particular landscapes, it can be used to inform management and understanding of the historic landscape resource, and the accommodation of continued change within it.

3.7 Detailed consideration of the route in terms of Historic Landscape Character has not yet been undertaken. However, amongst the historic landscape types traversed by the route will be those that are scarce and vulnerable; for example there are relatively large areas of assart (fields created from cleared woodland; rare in Warwickshire) in the northern part of Stoneleigh parish and large irregular fields (also possibly the result of assarting) around Cubbington Wood. Major disconnection of these and other areas of Historic Landscape significance is likely. Mitigatory measures such as screening of the route by tree planting may also have a significant effect upon local landscape character.

3.8 Detailed landscape appraisal, including consideration of historic character, should be undertaken as part of Environmental Impact Assessment.

Appraisal of Sustainability (AoS)

3.9 The AoS 'considers statutorily protected environmental features (of international and national importance), and other relevant non-statutory features where information is readily available' (AoS Main Report Vol 1 p59). Much of the Historic Environment has no formal designation; nevertheless PPS5 Planning for the Historic Environment makes it clear that the absence of designation does not necessarily mean that an undesignated heritage asset is of lesser significance than those that are designated (Policy HE 9.6).

3.10 The AoS is limited in its scope, as noted in the technical appendix (AoS Technical Reports Appendix 5 Landscape, Townscape and Heritage Assessment Methodology). No data has been captured from the Warwickshire Historic Environment Record, nor has Historic Landscape Characterisation (HLC) been interrogated. The 'strategic' approach adopted, based upon the Highways Agency Design Manual for Roads and Bridges Vol 11 Section 3 Part 2 (Cultural Heritage) (2007) should therefore be seen as a first stage in the appraisal process. Preparation of an Environmental Impact Assessment, considering the Historic Landscape at an appropriate level of detail, is essential.

3.11 It follows therefore that considerable work remains to be done to identify and assess the significance of the Historic Environment along the route. This work should view the Historic Environment holistically, considering all elements in terms of significance (defined in PPS5 as 'the value of a heritage asset to this and future generations because of its heritage interest') rather than statutory designation. Existing data held by the National Monuments Record and the Warwickshire Historic Environment Record (which incorporates HLC data) should be incorporated.

3.12 It should also be acknowledged that there will be unknown archaeological sites along the route. Archaeological sites vary in terms of visibility, so that sites consisting (for example) solely of sub-surface deposits will be less readily visible than those consisting of earthworks or structures. A variety of prospection techniques will need to be employed to detect such sites.

Developing Approaches to HS2 for the Historic Environment

3.13 Government policy for the Historic Environment as set out in PPS5 Planning for the Historic Environment is to avoid loss of significance wherever possible, and this aim should guide the approach to HS2. Further detailed assessment of the route corridor is required, using existing sources of data as described above as well as a variety of prospection techniques (including, for example, geophysical survey and remote detection techniques such as Lidar) to identify the historic environment and characterise it in terms of significance and vulnerability.

3.14 PPS5 represents a significant shift in emphasis from its predecessors PPGs 15 and 16, away from the concept of 'preservation by record' towards "contributing to our knowledge and understanding of the past'; PPS 5 also places greater emphasis upon the public benefit arising from such increase in understanding.

3.15 Whilst conserving significance should be the primary consideration, the HS2 project would provide an opportunity to take innovative approaches to the examination and understanding of a transect across central southern England. This will require the development of a route-specific research framework to develop understanding of past human activity and land-use, and its variability between different areas. This will require a consistency of approach along the route, and significant 'front loading' in terms of research design and academic input. There will be lessons to be learnt from previous major infrastructure projects (eg Channel Tunnel rail link, Stansted and Heathrow airports, M6 Toll) to inform such an approach.

4. Landscape and Visual Impact

Background

4.1 This review has been undertaken by a Chartered Landscape Architect with membership of the Landscape Institute, qualified, therefore, to comment on how the HS2 project is likely to affect Landscape Character in Warwickshire and how its Visual Impact will be experienced by those living and working in the County.

Impact of the Proposed HS2 route

1.Impact on Landscape Character

4.2 In the 1990's the Warwickshire County Council and the Countryside Commission (now Natural England) developed a Landscape Assessment process which has was adopted nationally. The Warwickshire Landscapes Guidelines were published in 1993 and have since been adopted as Supplementary Planning Guidance by WCC and used to inform development.

4.3 Landscape character is determined by particular combinations of geology, soil, topography, as well as the pattern of settlement, the shape and size of fields, the straightness of roads, the extent and types of woodland, and the use of the land together with its heritage and culture. Each area has a defined local character, distinctiveness and sense of place.

4.4 The proposed railway will lie in two discrete areas of the County, separated by Coventry, which lies in the West Midlands. These sections of railway fall in three distinctive Landscape Character Areas, that of Feldon, Dunsmore and Arden. The Feldon Landscape Character Area covers the southern part of the route and is typically a very open, flat rural area with extensive views.

4.5 The proposed viaduct near Southam and extensive embankments will have a widespread visual impact on the surrounding countryside. In the Dunsmore Landscape Character Area where there is much woodland, Cubbington Woods would be largely destroyed. In the north of the county, the open, flat river valleys of the Arden Landscape Character Area, presently occupied by a network of major roads and motorways, will suffer further visual intrusion from a series of embankments and viaducts proposed along the route. However, beyond these road corridors there is a fairly remote area, around Middleton, where the

landscape character is likely to be more radically affected but where sensitive mitigation could be undertaken.

Assessing Visual Impact

4.6 There are four different types of locations, known as visual receptors, which have to be considered when assessing the impact of a proposal such as HS2:

(i) Residential properties,
(ii) Public rights of way,
(iii) Transport networks
(iv) Places of work

4.7 The visual impact is assessed according to its significance to the user. These impacts range from a major adverse impact to a major beneficial impact and take into account the following:

(i) Distance from the Intrusion
(ii) Whether views are permanent (as from a property) or fleeting (as from a car or footpath)
(iii) Whether landscape features such as trees and woodland have been damaged/removed
(iv) The angle of the view and most importantly
(v) The scale of any change

4.8 Until an Environmental Assessment is carried out by HS2 Ltd, the scale and quantity of the above impacts cannot be understood.

4.9 Currently the proposals have highlighted the obvious impacts on the landscape, such as the railway line, the cuttings, tunnel portals and embankments. Little mention has been made of the visual impact of the following:

Bridges

4.10 There are many roads which will require minor diversions and the construction of bridges to ensure their continuity. Some of these have been identified as definite, some as possible and some not at all. Statutory Rights of Way will also require new bridges/diversions etc. All will have a visual impact.

Power Supply

4.11 Catenary masts supporting the electric cables would be positioned every 60m on both sides of the track and would be 8m high. Every 30m a feeder station would be constructed to house the electrical equipment linking the overhead cables to the National Grid. The locations of these feeder stations, which cover an area approximately 100m and 100m, have yet to be identified. Their impact could be considerable.

Acoustic Fences

4.12 Although these may be necessary, they will be visually intrusive, in their own right.

Destruction of Vegetation

4.13 Temporary construction compounds and worksites adjacent to the railway line can have a long term visual impact in that they destroy native trees and shrubs which, even if replaced, can take a long time to grow again. Similarly, 'borrow pits' (whereby aggregate is quarried from nearby land, for the railway and spoil is returned to the void) results in a removal of tree and shrub cover and a degradation of the landscape.

Historic Parks and Gardens

4.14 The route passes through the Registered Park and Garden at Stoneleigh Abbey, where the proposed viaduct will have a visual impact.

4.15 It is important to link new areas of planting into the existing green infrastructure for the benefit of plants and wildlife. Green infrastructure is the term given to vegetated areas, such as woodland, hedgerows, street trees, heathland, parks and gardens and other public open space. It forms a network which is vital for the survival of many plant and animal species as well as for leisure pursuits using the footpaths, bridleway and cycleways which contribute to public health and wellbeing.

5 Emergency Management

Summary

5.1 If the high speed rail link is built through Warwickshire provision would need to be made for dealing with any incident as would be the case with any new infrastructure in the County.

5.2 The train operating company would be required to respond to an incident on the rail line. However there would still be a need for the organisations in Warwickshire responsible for emergency management to be involved in dealing with the aftermath of any incident.

5.3 The Civil Contingencies Act 2004 identifies statutory duties for local authorities, the emergency services, Primary Care Trusts, Acute Care Trusts, the Health Protection Agency, Environment Agency and British Transport Police in relation to an emergency on a rail line.

5.4 These are known as Category 1 organisations and there are 15 in Warwickshire. Category 2 organisations include the utilities, airports, rail operators and strategic health authorities.

5.5 Together these form the Local Resilience Forum (LRF) whose geographical area of responsibility matches that of the Police Force in Warwickshire. The LRF

brings the organisations together and they are formed into sub-groups to tackle specific topics.

5.6 New infrastructure such as a rail line requires an analysis of the risks associated with it and a Community Risk Register is developed and made publicly available. The Register includes plans for mitigation of identified risks and the risks are rated as high, medium or low.

Detailed Responses

Fire and Rescue

5.7 Warwickshire Fire and Rescue Service have provided a detailed analysis of the issues. The major risk associated with having a high speed rail link running through the county is chiefly the risk of a major incident as the result of derailment, crash or due to severe weather or mechanical breakdown. They have looked at the impact from construction through to full implementation and have identified three key design aspects which will affect the way WFRS will be expected to respond to any incident on HS2. These are:

(i) **Speed –** trains will be capable of travelling at 250 miles an hour

(ii) **Capacity** - trains will be up to 400m long with up to 1,100 seats and with 14 trains an hour possibly rising to 18.

(iii) **Reducing the Impact on the Environment** - use of high viaducts, deep cuttings, tunnels (1km long) to mitigate the environmental impact but will limit access for emergency services

5.8 WFRS says that a major rail incident would involve dealing with fire, extrication, rescue of casualties and retrieval of fatalities on a large scale and they need to prepare for this through provision of training, specialist equipment, risk information and local intervention strategies.

Tunnels

5.9 The features that will be used in order to reduce the impact on the environment include tunnels. The presence of these would require WFRS:-

(i) To be familiar with the access points, safe havens,
(ii) Access and rendezvous points for emergency services
(iii) Provision of specialist equipment such as Extended Duration Breathing Apparatus (EDBA) and training in the use of EDBA
(iv) Specialist equipment for the extrication of casualties resulting from an incident within a tunnel and training in the use of this equipment
(v) Maintenance of competence in the use of specialist equipment

It is possible that Southam Fire Station which would be the first to respond to an incident would need to be upgraded and it is possible that some of the cover needed could be outsourced.

Deep Cuttings

5.10 Cuttings up to 30m deep will also present issues such as:-

(i) Provision of suitable access points
(ii) Provision of specialist equipment to assist in the extrication of casualties and training in the use of this equipment
(iii) provision for caring equipment over long distances of undulating ground
(iv) maintenance of competence in use of equipment.

Viaducts

5.11 Viaducts will require:-

(i) Provision of suitable access points
(ii) Provision of equipment for working at height and training in the use of the equipment
(iii) Provision of a line/rope rescue team

Generic Issues

5.12 WFRS also identified the following needs:-

(i) Provision of risk information relating to HS2 locomotives, carriages and the line
(ii) Familiarisation with the HS2 locomotives carriages and train line so as to be able to isolate power supplies etc.
(iii) Provision of suitable water supplies
(iv) Development of local intervention strategies and their dissemination to all stakeholders
(v) Provision of regular inter-agency training for incidents

Construction Phase

5.13 WFRS identified the need to be kept informed as the rail line is constructed eg tunnels and viaducts as well as temporary structures so as to be aware of and trained in managing the risks during construction.

5.14 They have also identified as risks arson attacks on the development sites and acts of aggression towards fire fighters responding to incidents.

National Health Service (NHS)

5.15 The NHS recognise the risk of a major incident and would want to be assured that the train operating company has:-

(i) Robust emergency planning procedures in place
(ii) Plans and procedures are shared with relevant local emergency services
(iii) Measures are in place to ensure the welfare of any passengers either affected by an incident or stranded

In the current economic climate these arrangements need to be contracturally in place and not dependent on ad hoc voluntary arrangements.

5.16 A robust risk assessment process should be in place to highlight potential risks.

5.17 During the construction phase it is essential that safety is given a high priority.

5.18 The NHS have highlighted the need for liaison with the utility providers to ensure the integrity of their systems – water, gas, electricity – are not compromised during construction.

District Councils

5.19 The District Councils affected by the line are Stratford District, Warwick District and North Warwickshire. They would be required to undertake risk assessments, planning and resililence work with an increased consideration of major transport accidents, malicious threat responses and tailored welfare and community resilience plans would need to be implemented. There would be a resource implication in providing this.

Military

5.20 The military units in the County believe that there will be no impact on the military community or their ability to respond as part of the LRF although they recognise the need for the LRF risk register needing to reflect the additional risks to Warwickshire. They do not anticipate that it would be a particular target for terrorist attack and the evidence from existing high speed rail is that not only have they not attracted terrorist attacks but they also have good safety records.

Police Warwickshire

5.21 As there will be no Stations within Warwickshire it is highly unlikely that the link, once constructed would have any major impact on Warwickshire Police on a day to day basis.

However, during the construction phase it would have a major impact on Warwickshire Police with regard to traffic management, abnormal loads, public order situations and general local disruption. Warwickshire Police would also be party to any emergency contingency plan formulated by British Transport Police(BTP). It would be impossible for BTP to run a major incident in isolation from the adjacent Police service, albeit they would be the investigating force, because of the impact on the surrounding infrastructure.

British Transport Police

5.22 Warwickshire Police would have no jurisdiction over any incidents or crime on the rail network. These would fall within the remit of British Transport Police (BTP) and they will need to make any comment regarding policing the link and dealing with any occurrences.

6. Rights of Way

Summary

6.1 Warwickshire has approximately 1700 miles of Public Rights of Way spread across the county as a mixture of footpaths, bridleways, restricted byways and byways. In addition there are approximately 70 miles of untarmaced unclassified county road (E roads).

Numbers Impacted

6.2 HS2 will impact directly by bisecting:-
56 paths of which 51 are footpaths, 4 are bridleways and 2 are byways.
Three E roads are directly affected.

6.3 HS2 will impact, within the 1km margin on either side, on:-

219 paths of which 197 are footpaths, 20 are bridleways and two byways.
seven E roads are affected. These figure include those that are bisected.

6.4 Three promoted routes are directly affected and one is affected within the 2km corridor:-

(i) Heart of England Way – once
(ii) A Coventry Way – twice
(iii) Shakespeare's Avon Way – once
(iv) Centenary Way – within 1km.

The impact on the length of each route affected by the Proposed Extent of Works varies between approximately 15m and 166m.

6.5 Warwickshire has 3 'Greenways' in the county. These routes utilise disused rail lines as sustainable transport routes and/or as popular recreation sites for walking, cycling and horse riding. HS2 will affect two of these facilities, the Offchurch Greenway and the Kenilworth Greenway, the latter includes the National Lottery, People's Millions, Connect2 Kenilworth sustainable transport route that is currently under construction. If HS2 gives rise to HS3 it is possible that the route of HS3 will significantly affect Kingsbury Water Park.

Kenilworth Greenway/Connec2 Kenilworth

Description

6.6 Kenilworth Greenway runs between Kenilworth, Warwickshire and Berkswell, in Solihull. The route is wholly owned WCC and is in the process of being fully opened as part of the Connect2 Kenilworth sustainable transport scheme. The connect2 route runs from the centre of Kenilworth to Berkswell Station and from Kenilworth to the University of Warwick. The £1m scheme involves the creation of 10km of traffic free cycling and walking route and includes a new cycling and pedestrian bridge on the Greenway where it crosses the A429 Coventry Road. It features in the University of Warwick Master Plan for expansion of the campus

and their green travel plan. The route will be accessible from the centre of Kenilworth for recreational walking and cycling. The scheme is very high profile within the town and the university and following those sections already built, there is a great deal of expectation for its completion. There is a widely represented Steering Group and a very longstanding Friends of Kenilworth Greenway group that is in the process of achieving charitable trust status.

Impact

6.7 HS2 bisects the Connect2 Kenilworth route between the line of the Greenway and the University campus. The route follows the existing public right of way (public footpath W164 on the Definitive Map from the Greenway, generally northwards to the campus). Note: this public right of way has been legally upgraded to Public Bridleway by means of an Agreement under S25 Highways Act 1980 to enable its use by cyclists and horse riders. No provision is shown for the route and a safe crossing of the HS2 route would be required for pedestrians, equestrians and cyclists.

6.8 HS2 also merges with the line of the Greenway at Burton Green where the Greenway is in a deep cutting. The current HS2 proposal shows the route in a filled tunnel within the cutting. No provision is made for the Connect2 route and unless the route can be placed on top of the filled tunnel, it would be truncated by HS2.

Offchurch Greenway

Description

6.9 Forms part of Sustrans National Cycle Network, Route 41, running between Warwick and Rugby. HS2 will bisect the Greenway at the mid point between the Offchurch crossroads and the Fosse Way, B4455. Both the line of the Greenway and HS2 are in a cutting at this point.

Impact

6.10 The effect of the HS2 route bisecting the Offchurch Greenway (in cutting) would prevent members of the public from being able to use the Greenway. In order for them to be able to continue their journey to Rugby along Route 41, consideration will need to be given for the provision of a bridge or an underpass to provide a safe passage across the proposed HS2 route. It is also noted that currently maintenance vehicles can only access this site from the Fosse Way end of the Greenway therefore access is also required for maintenance vehicles (tractors, etc) to cross HS2 at this point.

HS Phase 2

6.11 If, as suggested by commentators, HS2 is only economically viable if HS3 is completed this may have a very significant impact on one of the county's premier leisure destinations, Kingsbury Water Park. The park attracts >750,000 visitors per annum and hosts a range of businesses, concessions and community ventures as well as acting as a gateway to the Tame Valley and

6.12 Early line drawings for HS3 showed the line running generally parallel to the M42 through the middle of the Water Park and it is difficult to overstate the adverse impact this would have on the site.

Effect

6.13 The effect of those paths directly affected goes beyond just those routes, as in most cases they form links with other footpaths/bridleways which when used in combination are useable as long or circular walks. Thus the actual impact of HS2 on the Rights of Way network and its useablity/amenity is likely to be significantly higher than the raw numbers above suggest.

6.14 Routes that are severed include many which are village to village links and obvious dog-walking routes.

6.15 Warwickshire does not have a high proportion of bridleways (i.e. facilities for horse riders) and HS2 impacts on many of the longer distance bridleways available.

Examples

6.16 In the area surrounding Lower Radbourne, where there are bridleways and E roads affected, the paths affected support a number of horse friendly circuits some of substantial length.

6.17 In Kenilworth, the Kenilworth Greenway has a number of interconnecting links which will be severed by the proposal. One of these is a footpath due to be upgraded to a bridleway which will provide an important link between Warwick University and Kenilworth.

6.18 Most routes, to remain useable and open, will require some consideration of the structures need for them to pass under or over the railway line, depending on how the construction of the railway takes place. It is possible that in some cases that the viaducts proposed could be utilised providing enough headroom was provided (for example the floodplain viaduct near Southam for footpath SM24). In other cases bridges may have to be built, e.g. at Windmill Hill near Ladbroke. In some other cases diverting the path may be more appropriate (e.g. an E road E2413 at Radbourn).

Implication and Threats

6.19 An access road is to be provided alongside the railway. This will have an additional adverse impact on Public Rights of Way.

(i) Will this run at the same level as the railway?

(ii) If it runs at ground level will people be able to cross it even where the railway is not at ground level (i.e will a PROW be able to continue across it?).

6.20 HS2 will be responsible to any structure over/under which a PROW passes.

6.21 Where HS2 needs to be raised (i.e on viaduct), will there be provision for passage underneath it (for pedestrians/horse rider/cyclists etc)?

6.22 Where a PROW passes over a proposed tunnel (green or otherwise) will it be able to remain once HS2 is built?

6.23 Has adequate provision been made for the number of over bridges/under bridges that will have to be provided for the carrying of these routes? It is noted that on the plans that provision has been made for roads but nothing for PROW. An alternative would be to sever the PROW which would have a dramatic, adverse impact on the usability of the network.

There will need to be legal orders made for each of the PROW affected. Has this been considered?

Existing Road Network

Summary

Impacts on the Existing Road Network

7.1 The proposed new high speed rail crosses a considerable number of roads in Warwickshire. It will also affect a number of roads in neighbouring authorities, as well as Trunk Roads and Motorways. The result of this is that it will have a major impact on our present highway network. A considerable number of existing roads will require lifting over the new line, as such will require new bridges to be constructed over the proposed track.

7.2 The published plans reveals that there will be some 25 new bridges that are required to carry existing County Roads over the new line.

7.3 The roads around the new Birmingham International Interchange Station and the Car Park will require major alterations and changes. The roundabout that takes the A446 over the M6 is to be widened and signalised.

7.4 The changes and alterations to roads are just indicative on the plans and there is insufficient information provided at this time to see if the proposals are acceptable to WCC. These proposed changes will require a considerable amount of review and assessment and consultation before final details emerge and become acceptable. Up to now there has been no consultation with WCC as the Highway Authority with respect to the changes to the road network.

7.5 It is not clear how much detail consideration Hs2 Ltd has given to the changes they have proposed to the road network.

7.6 Changes to the road network during construction will need very careful managing to reduce disruption. In particular alteration to a road can have knock on affects to other roads in the area.

7.8 Future development of our road network that cross the line once it is built is almost impossible because of the practicality of building a bridge over or tunnel under the line will be virtually cost prohibitive. As such will it is recommended that any future proposed developments of our road network as a result of possible new developments are considered and taken account in the proposals. eg access to Stoneleigh Park.

7.9 It is essential that the Council protects its interests as a Highway Authority as there are a considerable number of issues that have not been addressed as outlined above.

Construction

7.10 Construction of the rail rack will have an major impact on the road network because access to sites for the construction of cuttings, embankments, tunnels, viaducts etc will all require access from the present road network for construction plant, materials, haulage etc. This could entail the need to strengthen and widen existing roads as well as construction of new accesses from existing highways. The lack of detail that has been provided at the consultation means that it is not possible to access the impact.

7.11 Construction of the road alterations and bridges will take place over a number of years as such it can be expected that a considerable amount of disruption will occur to our road network over a very lengthy period. How this is to be phased appears not to have been considered.

7.12 The construction of the line will have an major adverse impact on the surrounding areas. This will be in terms of noise, visual intrusion and dust etc. as well as traffic disruption as mentioned above. Mitigation measures for this have not been proposed.

7.13 Construction of bridges and viaducts to support the track particularly in the north of the County around Water Orton will be a major piece of civil engineering and will the a particularly disruptive to the area.

7.14 The construction of tunnels at Long Itchington and Burton Green will require a considerable temporary works area at each end of the tunnels. Temporary accesses will be required to these works areas to deliver major plant, equipment and materials.

Route Alignment

7.15 The proposed original line was published in March 2010 and a subsequent refining of the route was published in September 2011. The line of the route through Warwickshire that was published in September 2011 is that which is in the process of consultation.

7.16 In essence the line from the south east of the County up to Burton Green is in a rural setting and is some 30km in length.

7.17 At Burton Green it enters Solihull MBC and after 14km in comes back into Warwickshire as it crosses the M6 Motorway close to Coleshill Highways Depot.

7.18 As it emerges from Solihull it is located in a transport corridor that has the A446, M42 and the M6 Toll Road all in a narrow band. Throughout this length the track is elevated either on embankment or by viaduct. Overall there is some 2km of viaducts and the track is up to 15 m above ground level.

7.19 At the north of the County it is again situated in a rural setting. The length in North Warwickshire is some 12.5km.

7.20 At Water Orton there is a delta junction that will take trains into and out of Birmingham from the South and the North.

7.21 A new interchange station is proposed at Bickenhill close to the NEC. At this station there are 6 tracks and four platforms. From the Station to the deceleration past the delta junction there are 4 tracks. This makes the corridor width greater over this length.

7.22 The alignment of the track is designed based on trains that can travel at 250 mph (400k/m). This means that the line needs to be straight and curvature is kept to a minimum. As such it is not possible to divert locally around properties etc., thus there will be very limited opportunities to propose changes to the line on plan. However it has to be bourn in mind that the DfT have already altered large parts of the line from their original proposal. If the speed of the track is reduced, then there is a greater opportunity to move the track.

7.23 The vertical geometrical design criteria is not as stringent as that for the horizontal requirements. As such it may be possible to consider if it is possible to alter the vertical alignment in places to reduce the visual and environmental impacts. If this is done in accordance with the design criteria it generally will not affect the speed of the trains and will have a good chance of being considered and accepted by DfT particularly if there is good reasons for any changes. Again if the speed of the track is reduced then there is greater flexibility with the vertical alignment.

7.24 At the delta junction the speed of the trains into and out of Birmingham are reduced and the line is designed for 100 mph. This is to allow for the tight curves necessary to take the track into Birmingham.

7.25 A number of feeder stations are required to supply power. The site area for these is some 100metres by 100 metres. The positions of these have not been published. However, these feeder station will require power from the grid as such the will need to be fed by pylons.

7.26 It is clear that the line will adversely affect a consider number of people in the County to varying degrees. It is essential that proposals to mitigate the effects of the new line need to be taken on board at this early stage. If agreed later in the development of the project then there are often limitations to what can be done. Thus all mitigation measures that will reduce the impact of the new rail line need to be submitted in the response to the consultation.

Flood Risk

7.27 It easy to identify the position of the main rivers and associated flood plains. It is assumed that any bridges and other structures will be subjected to Land Drainage Consent from the Environment Agency, so the risk of exacerbating fluvial flooding will be kept to an absolute minimum.

7.28 The proposed route in the South of the County, particularly near Ladbroke goes through an area where there are a large number of natural springs. The design of HS2 should include a full assessment on the impact on the aquifers including the identification of any springs that could potentially run dry. This could harm local natural habitats, deprive farmers of stock watering facilities, inhibit the irrigation to farm land, and there may be springs drawn off for industrial purposes.

7.29 The cutting through of the aquifers will destroy existing natural drainage paths and create new ones. The impact of the new paths will need to be assessed to ensure that local areas sensitive to ground water flooding are not made worse.

7.30 Where the route is close to Leamington, it passes through an area which is prone to severe surface water flooding, (over 40 properties in Cubbington were flooded in the floods of 2007). I would expect this area to be modelled in great deal to ensure that this situation is not made worse by the proposed development.

7.31 In the lower lying areas near Stoneleigh and Kenilworth, some of the areas through which the line is planned, acts as a natural soak away. Any development which may reduce the natural percolation qualities of the area will need to be identified, and appropriate mitigation measures designed and included in the scheme. This will be particularly important where the stations and other buildings and hard areas associated with the scheme are constructed.

7.32 At this stage of the process, it is not possible to identify every potential problem relating to flooding and drainage. However I would expect that as part of the detail design stage, a full hydrological model is created, not only to include fluvial flooding, but also surface water, ground water, potential reservoir inundation and possible flooding from canals being breeched.

7.33 Paragraph 8 of Planning Policy Statement 25 "Development and Flood Risk" requires planning authorities to "ensure that planning applications are supported by site specific Flood Risk Assessments as appropriate". This advice is reinforced by advice from the Environment Agency which urges LPA's not to register planning applications when a FRA is required but not supplied. Indeed the government's own forms make FRA's a requirement in flood zones 2 and 3 (high risk areas). FRA's are not just required when development is located in areas liable to flooding but also outside such areas when the scale of the development means that hydrology is likely to be affected by the development - as is the case here.

7.34 For a development of the magnitude of HS2 a FRA would certainly be required if it were the subject of a planning application and if the project is to be supported by an Environmental Impact Assessment then the EIA should cover this topic from day one.

7.35 In truth flood modelling for the project will be very difficult to do because of the sheer scale of development. The modelling would need to calculate the capacity lost in flood plains (to both built structures and earth mounding etc), the changes to water flows which would result from construction of such features, the effects of water displacement upon areas which currently do not flood, the liability of the line and associated infrastructure to be "knocked out" by flooding and the safety implications of this effect and any compensatory works necessary to make the hydrology work.

Noise

7.36 The noise as a train passes along a track comes from a number of sources:-

(i) mechanical noise from motors, fans and other equipment
(ii) rolling noise from wheels
(iii) aerodynamic noise from air flow.

7.38 There are various ways that noise from trains can be mitigated to reduce the impact at the position of the receptor. Such as noise barriers, earth mounds, locating the track within cuttings etc. There is also the Noise Insulation Regulations that provide for insulation such as acoustic double glazing in properties.

7.39 A Environmental Impact Assessment will need to be carried out to determine the detail effects of noise on communities.

7.40 Where the track follows the path of a motorway such as at Water Orton, the predominant noise would be that emanating from the Motorway. However, in the rural setting of South Warwickshire which is tranquil the noise of the trains will have a significant affect.

7.41 Lowering the track in cutting plus the provision of noise mounds, or noise barriers will reduce the impact of noise considerable. However, where the track is elevated on bridges, viaducts and embankments, noise barriers will help to reduce the impact of noise some what but it will be greater than if the track was lowered in cuttings.

8. Rail Enhancement

Summary

8.1 The construction of HS2 will provide an opportunity to enhance the classic rail network in Warwickshire. A package of classic rail service enhancements and classic rail infrastructure upgrades are recommended to ensure that local benefits are maximised following the completion of HS2.

8.2 The previous Government announced on 11 March 2010 the preferred route for a High Speed Railway (HS2), from London to the West Midlands. The proposal was subsequently endorsed by the Coalition Government. A revised alignment was published in September, followed by an announcement in October of a Y option, to facilitate a future northern extension linking Birmingham to Leeds and Manchester.

8.3 The main justification for HS2 rests on the perceived economic benefits that a link between London and the north will bring to the northern regions, with additional benefits to Birmingham and those areas adjacent to new stations, e.g. NEC and Birmingham's eastside. Other key benefits stated include:

(i) Reductions in journey times between Birmingham and London, of up to 49 minutes;
(ii) Reduction of over crowding on West Coast Main Line (WCML), leading to additional capacity for passengers and freight, all of which have yet to be quantified and costed;
(iii) More capacity on wider regional rail services;
(iv) Supply chain benefits; and
(v) Benefits of £2 for every £1 of government money spent.

8.4 The national and international data available so far, as part of the supporting documents for HS2, recognise that peripheral areas like Warwickshire, do not stand to benefit directly from high speed rail.

8.5 This document explores the ways in which Warwickshire might best benefit from HS2.

Securing Local Benefits Directly from Hs2

8.6 The preferred HS2 proposals currently include the following infrastructure in, or close to, Warwickshire:-

(i) A new station adjacent to Birmingham Airport/ National Exhibition Centre; and
(ii) Around a third of the 150km route.

8.7 The proposed station at Birmingham Airport/The NEC would serve North Warwickshire and, in particular, the area around Coleshill. It would offer significantly faster journey times to London than is presently possible from others stations in or near the North Warwickshire area.

8.8 It is unlikely that a Birmingham Airport station would offer faster journey times to London from south Warwickshire given the requirement to travel away from London to access a train to London.

8.9 Securing an intermediate station on HS2 in south Warwickshire would enable HS2 to benefit the area directly. However, given that the Government has made it clear that it is not willing to consider intermediate stations (it would be very close to the proposed stop at Birmingham Airport) it is highly unlikely that such a station would be supported. Additionally, a south Warwickshire station would

most likely be a 'Parkway' type station which would require good road access. This would probably be near the A46 between Kenilworth and Coventry and is likely to be unpopular. Therefore a station on HS2 is not considered a realistic way to secure local benefits.

8.10 Another possible alternative is for high speed services to use HS2 and then divert onto the classic rail network within Warwickshire. This would enable the classic network to benefit from the faster journey times to London. In Kent domestic high speed services use HS1 before diverting onto the classic network to provide high speed services between London and Kent. It should be noted, however, that there were no high speed lines in Kent prior to the completion of HS1. In contrast, Warwickshire already has two fast rail routes to London – the West Coast Main Line (to London Euston) and the Chiltern Main Line (to London Marylebone).

8.11 It is unlikely that Warwickshire has the population to enable three high speed routes to London to be viable and therefore there is a risk that existing routes to London could suffer from a reduction in services if this option is pursued. Such a proposal would also require a link to be constructed from HS2 to the classic rail network. This link would probably need to be:-

(i) Southeast of Leamington;
(ii) Between Coventry and Kenilworth (near Gibbet Hill); or
(iii) Between Coventry and Rugby.

8.12 Such a link is likely to be unpopular given the requirement for additional railway construction. Therefore, this option is also not considered a realistic way to secure local benefits.

Improving the Classic Rail Network for Classic Services

8.13 The most acceptable way, both nationally and locally, to secure local benefits for Warwickshire from HS2 is to improve the classic rail network for classic rail services. The Secretary of State for Transport, Philip Hammond, stated on 20 December 2010 that 'The released capacity on the west coast main line offers the possibility of commuter-frequency fast services to London from places such as Coventry and Milton Keynes'.

8.14 HS2, and the proposed extensions to the north, has the potential to release capacity on most of the classic rail routes in Warwickshire for improved inter-city, regional and local services by removing longer distance rail travel away from the classic rail network between Birmingham and London.

Issues for the Classic Rail Network in Warwickshire

8.15 The overall trend in the numbers of rail passengers in Warwickshire and the West Midlands region is one of sustained growth with rail travel becoming increasingly important. Commuting and business travel to the West Midlands conurbation, London, the South-East and Coventry form a substantial element of rail travel in the County for people from a wide range of socio-economic groups. Rail commuters now represent 23% of the total morning peak journeys into

Birmingham city centre. Rail journeys for retail, leisure and social activities continue to grow. A considerable number of rail routes are operating at or near capacity as a result of this growth.

8.16 The classic rail network within Warwickshire is also close to Birmingham which is the hub of the national and regional rail network. As a result, it experiences conflicting demands with inter-city, regional, local and freight services competing for limited capacity. Recent increases to the frequency of the faster inter-city services on some routes has not been compatible with other uses and this has resulted in inter-city services being prioritised over local and regional services. It has also resulted in the frequency of local services being constrained on many routes and irregular service intervals at some local stations.

8.17 The classic rail network has the following shortcomings:-

(i) **A lack of through services:-**

(a) From Warwickshire across Birmingham to destinations like Shrewsbury,
(b) Wolverhampton, Walsall and Telford;
(c) Across Coventry between Nuneaton and Leamington Spa; and
(d) Across Nuneaton between Coventry/Bedworth and Leicester;

(ii) No local rail service on some corridors (e.g. Birmingham – Water Orton - Nuneaton, Leamington – Coventry, Birmingham – Water Orton - Tamworth);

(iii) No rail stations at Kenilworth and Kingsbury and therefore limited accessibility to rail for these communities;

(iv) Towns such as Water Orton, Bedworth, Nuneaton, Warwick, Atherstone and Polesworth are poorly served by existing regional and local rail services;

(v) Nuneaton is poorly served by inter-city high speed services to London;

(vi) Rugby is poorly served to destinations in the North-west;

(vii) Irregular local service patterns on the Birmingham – Coventry – Rugby – Northampton – London line; and

(viii) Constrained local service frequencies on the following routes:

(a) London – Northampton - Rugby – Nuneaton – Atherstone – Polesworth – Tamworth – Stafford - The Northwest; and
(b) Birmingham – Solihull - Lapworth - Hatton - Warwick – Leamington Spa.

8.18 These shortcomings are a problem because they constrain the ability of the classic rail network to provide a level of service to people living within

Warwickshire that is a credible alternative to using the car which is important if reducing congestion and pollution is to be achieved in future.

8.19 Service Improvements (enabled by capacity released on existing Classic Network).

8.20 The transferral of some High Speed services from the WCML to HS2 would allow some of the issues in section 4 to be addressed by providing new and more frequent classic rail services that would not need additional classic rail infrastructure. These improvements are supported in the current Local Transport Plan (LTP).

Service Enhancement	Outcomes	Warwickshire Benefits
Regular local service patterns on the Birmingham – Coventry – Rugby – Northampton – London line	Evenly timed departures from Rugby to Coventry, Birmingham International and Birmingham.	More attractive timetable from Rugby to Coventry, Birmingham Airport, NEC, Birmingham and Northampton.
Both CrossCountry trains (Birmingham – Reading route) to travel via Coventry and Birmingham International.	Removal of high speed CrossCountry services from the congested Birmingham – Solihull – Warwick – Leamington line. The capacity released would enable more frequent and evenly timed services between Warwick/Hatton/Lapworth and Birmingham. Additional services between Leamington and Coventry/Birmingham International.	More frequent and attractive timetable at Warwick, Hatton and Lapworth. More frequent and attractive timetable from Leamington to Coventry and Birmingham International.
New local through service across Coventry between Nuneaton and Leamington Spa	New local train service: 1 train per hour: Nuneaton – Coventry - Leamington Spa.	Improved public transport connectivity between north and south Warwickshire. Helps to 'Narrow the Gap'. Better access to jobs. Reduced traffic congestion on North-south corridor.

All day high speed services from Nuneaton to London	New inter-city services: 1 train per hour from Nuneaton to London Euston.	Improved connectivity between Nuneaton and London. Better access to leisure and jobs in London.
All day High Speed services from Rugby to the Northwest/Scotland	New inter-city services: 1 train per hour from Rugby to Preston and Glasgow.	Improved connectivity between Rugby and Northwest/Scotland. Better access to leisure opportunities and jobs in Northwest/Scotland.
Enhanced local services on the Trent Valley section (Stafford – Rugby) of the West Coast Main Line. Footbridge reinstated at Polesworth station and hourly service introduced.	More frequent local train service: 2 trains per hour: London Euston – Milton Keynes – Rugby – Nuneaton – Atherstone – Polesworth* – Tamworth – Stafford – The Northwest. * Hourly at Polesworth	Improved connectivity between Polesworth, Atherstone, Nuneaton and Rugby. Reduced traffic congestion on the A5 corridor. Improved connectivity to London. Better access to leisure and jobs in London.

Service Improvements (enabled by Classic Rail Infrastructure Improvements)

8.21 The transferral of some High Speed services from the WCML to HS2 with some additional classic rail infrastructure would enable the remaining issues in section 4 to be addressed. These improvements are supported in the current LTP.

Enhancement	Outcomes	Warwickshire Benefits
Kenilworth Station*	New station and new regional rail service: Coventry – Kenilworth – Leamington – Banbury – London Marylebone.	Improved accessibility to the rail network from Kenilworth. Improved accessibility to Kenilworth e.g. for tourists visiting castle. Reduced car travel to/from Kenilworth – fewer car accidents, reduced congestion and pollution.

Electrification and double tracking the route between Coventry to Leamington Spa	New local service. 2 trains per hour: Leamington - Kenilworth – Coventry – Birmingham International – Birmingham New Street – Walsall.	More attractive rail travel from Leamington and Kenilworth to Coventry, Birmingham Airport, NEC, Birmingham and Walsall. Reduced car journeys etc.
Fort Parkway (new station in east Birmingham) Castle Bromwich (new station in east Birmingham) Water Orton upgrade (new platform) Kingsbury (new station) New trackwork at Tamworth (new turnback to allow trains to terminate and return).	Two new local rail services: 1 train per hour: Birmingham New Street – Fort Parkway – Castle Bromwich - Water Orton – Coleshill Parkway – Kingsbury – Wilnecote – Tamworth; 1 train per hour: Birmingham New Street – Fort Parkway – Castle Bromwich – Water Orton – Coleshill Parkway – Nuneaton.	Improved accessibility to/from the rail network from Kingsbury. More frequent and attractive timetable at Water Orton, Coleshill Parkway and Nuneaton Improved public transport connectivity between north Warwickshire/Nuneaton and Birmingham. Better access to jobs in Birmingham and Hams Hall. Reduced car journeys etc.
A new 'dive-under' at Nuneaton to allow trains from Coventry to access the Leicester line	Extended local service. 1 train per hour: Coventry – Bedworth – Nuneaton extended to Hinckley, Narborough and Leicester.	Improved public transport connectivity between Coventry/Bedworth and Hinckley/Leicester. Reduced car journeys etc.
Electrification of the Wolverhampton to Shrewsbury route	Extended Inter-city service: London Euston – Milton Keynes – Rugby – Coventry – B'ham Intl – B'ham New Street – Wolverhampton extended to Telford and Shrewsbury.	Improved public transport connectivity between Rugby/Coventry and Wolverhampton, Telford and Shrewsbury. Better access to jobs and leisure opportunities in these areas. Reduced car journeys etc.
Camp Hill cords (New tracks into Birmingham Moor Street) Moor St/Curzon St to New St Pedestrian Link	Use of Birmingham Moor Street by new services or by existing services currently using Birmingham New Street. Clear and easy pedestrian connections between Birmingham New Street, Birmingham Moor Street and Birmingham Curzon Street (HS2 terminus).	The Camp Hill cords would provide a general benefit by releasing capacity, increasing resilience and increasing flexibility of the West Midlands rail network by enabling some services to use either New Street or Moor Street. The pedestrian connection would provide easier interchange between stations making travel easier.

*Assumes Kenilworth station is not already delivered by the County Council.

Conclusion

8.22 The construction of HS2 if it goes ahead could provide an opportunity to enhance the classic rail network in Warwickshire. A package of classic rail service enhancements and classic rail infrastructure upgrades are recommended to ensure that local benefits are maximised following the completion of HS2.

9. Grade 1 and 2 Agricultural Land

Introduction

9.1 In preparing the Appraisal of Sustainability the proposed route has been broken down into sections (which do not align directly with county borders). The table below is a summary of the key route characteristics of the sections relevant to Warwickshire, approx the route length through is Warwickshire is 80.3km.

	Length (km)*						
	Surface or Embankment	Viaduct	Cutting	Tunnel	Total Length *(km)	Green Belt Land crossed	Grade 2 Agricultural land
Brackley (A421 crossing) to Kenilworth /Coventry Gap	12.1	2.8	37.5	2.0	54.4	12.83 (23 per cent of total length for this section)	7.8 (14 per cent of total length for this section)
Kenilworth/ Coventry Gap to Berkswell rail station	0.9	0.3	2.5	0	3.7	3.4 (91 per cent of total length for this section)	0.1 (2 per cent of total length for this section)
Berkswell rail station to Middleton	7.3	4.9	10.0	0	22.2	22.49	1.9 (8.5 per cent of total length for this section)

*all lengths refer to lengths of infrastructure

9.2 The Appraisal of Sustainability Volume 2, identifies grade 1 and 2 agricultural land crossed by surface or cut and cover sections, as well as a length of green belt land crossed by surface sections. No Grade 1 agricultural land is affected in Warwickshire.

9.3 Grade 2 land affected in and around Warwickshire is summarised;

0.85km2 of Grade 2 agricultural land extending over a length of 7.8km would be affected over this route section. This comprises an area near the village of Chipping Warden Northants, and also to the East of Leamington Spa, Warwickshire.

(i) 0.02km2 of land over a length of 0.1km, just north of Kenilworth and south of Coventry

(ii) 0.19km2 of land over a distance of 1.9km would be affected along this route section, predominately in areas south of Berkswell.

9.4 The length of green belt land crossed by surface sections of the route;

(i) 12.83km of green belt between Brackley and Kenilworth/Coventry gap
(ii) 3.4km of green belt between Kenilworth/Coventry gap and Berkswell
(iii) 22.49km of green belt between Berkswell to Middleton

Severance of Farmland and Issues

9.5 There are two aspects of this, there are no holdings owned by Warwickshire County Council along the proposed route. The proposed route passes through a high percentage of farmland unfortunately we do not hold information on these holdings and it is not possible to ascertain the level of farmland severance and the overall impact this might have. It has been suggested that if the element is to be pursued work with National Union of Farmer (NFU) and in particular local branches within Warwickshire could help in preparing a case.

10. Minerals

10.1 It should be noted that the AoS states that for the route through Warwickshire there are no known mineral sites affected. It is understood that in preparing the AoS data was not collated from expected sources. WCC mineral maps show that the proposed route passes through sources of sand and gravel.

11. WCC Landholdings

Summary

11.1 Warwickshire County Council is a significant land owner within Warwickshire, a number of these properties will be adversely affected if plans for HS2 proceed.

Impact of the Proposed HS2 Route in this Area

11.2 The impact of the proposed route on both Offchurch and Kenilworth Greenways has been noted and detailed in the earlier part of this report.

11.3 At least 23 county council properties will be affected ranging from farms to schools. Water Orton is one of number of communities adversely affected. The library and the primary school both fall with the 1km corridor of the proposed route. These facilities and services will be affected by the proposed

development. The primary school playing field boundary is approximately 270 meters from the proposed line and the school building 171 meters.

Other comments/Observations

11.4 It is not possible at this time to comment on the mitigation or compensation necessary to safeguard these and other key community assets.

11.5 All CC land holds will need to be considered in detail, if HS2 proceeds this will form part of mitigation and other considerations, to be discussed with HS2 Ltd and affected parties at the appropriate time

12. Coventry and Warwickshire Chamber Business Survey of Views on HS2, Presented on 18 May 2011 at a Chamber lead delegation with Lord Adonis

Key Survey Findings

12.1 Approximately one-half (54%) of businesses surveyed travel at least once a month to London; Less than 10% travel 6 or more times a month.

12.2 Almost two-thirds (65%) felt the rail network could expand to meet their future business needs.

12.3 Less than one-quarter of respondents (23%) believe that the business case for HS2 has been made, whist nearly two-thirds (65%) believe the case has not been made. The remaining respondents didn't know if the case had been made or not.

12.4 There were mixed views on the affect HS2 would have on their business, 21% felt it would be positive, 30% felt it would be a negative effective but almost half, 48% were unsure.

12.5 The effect on Coventry and Warwickshire's economic growth was also mixed, with almost equal numbers stating 'Yes' and 'No'.

12.6 The final question of do you think "major infrastructure spend is good for UK Plc" received a positive endorsement, with two-thirds of respondents (65%) in agreement with this statement. It is worth noting that this question did not specifically mention HS2 and referred to general infrastructure spend.

The remaining survey replies were freeform text with strongly polarised views for and against HS2 in its current form.

It is the County Council's belief based on this data that the Chamber Membership is in favour of better infrastructure for the UK but is yet to be fully convinced of the case for HS2.

The source data was taken from the Chamber's own research, the survey size was 52 replies. Chamber Membership in Coventry and Warwickshire currently stands at 1278.