

HS2: Draft Environmental Statement Consultation for Phase 1

Submission by HS2 Action Alliance

11 July 2013

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1. Introduction

HS2 Action Alliance is a voluntary not for profit organisation which opposes the Government's decision to proceed with a new high speed rail network known as HS2. HS2 Action Alliance is a member of the AGAHST federation.

We have over 90 affiliate organisations – mainly local action groups – that support our work through feedback, endorsement of our reports and promotion of our findings. Thousands of people from communities across the country have registered as supporters of HS2 Action Alliance.

Our focus on all issues is to take an evidenced-based approach, concentrating on whether HS2 is in the national interest, and in particular:

- Whether there is a business case justification for HS2
- Whether environmental issues are being properly taken into account by HS2 Ltd in coming to their decision
- Whether there are fair compensation arrangements for those affected by HS2.

HS2AA have not engaged on route specific issues.

On both environmental issues and the case for HS2 in general, we studied the materials published by HS2 Ltd and DfT, reviewed papers produced by academics and other professionals specialising on the specific issues and those produced by or for high speed rail supporters. We have sought clarification on a range of issues, met with experts, made requests for information in correspondence, and under Freedom of Information legislation.

Some requests from ourselves and our affiliated groups that relate to environmental issues (eg on noise) remain unanswered – some outstanding, others refused, and others have simply received unsatisfactory responses.

Since April 2010, we have issued numerous draft reports for comment by affiliate organisations and independent experts, and developed our position in the light of feedback. These have covered:

- The business case for HS2
- Alternatives
- Environmental impacts of HS2
- Compensation options, current schemes and consultation proposals

We have drawn the attention of HS2 Ltd and DfT to areas where we feel that their position – and that of four successive Government Ministers – has been inaccurate, misleading, or prejudicial to a fair consultation, with a view to this being corrected. On the environment we detailed in an 18 page letter (of 3 June 2013) why we felt the Draft Environmental Statement consultation was deficient and at minimum the consultation period should be extended, have known errors corrected and permit other ways in which those affected could ask questions.

In our view the evidence drives any reasonable assessment of HS2 to conclude that it is not in the national interest, and that the environmental price tag is simply too high.

Our submission to this consultation is a product of the evidence that we have assembled. It draws on the information we could obtain which has been developed with the help of numerous supporters who have submitted suggestions and comments.

Our response demonstrates how the current draft is deficient on many grounds and is not yet fit for the purpose of consulting on, or even to call a Draft Environmental Statement. Much is left to the final version which on page count alone will be 10 times longer (50,000 pages compared to 5,000).

The Draft Environmental Statement does not suggest that HS2 Ltd or the Department for Transport are serious about mitigating the effect of HS2 should the project proceed. We would urge both parties to start a real process of engagement and discussion with impacted communities, local authorities and environmental groups before it is too late.

This document therefore represents our submission to the Phase 1 Draft Environmental Statement Consultation. The response is broken down as follows:

- Section 2: Executive Summary
- Section 3: Defective Consultation Process for the DES
- Section 4: Draft Environmental Statement- Strategic Issues
- Section 5: Review of Non Technical Summary
- Section 6: Volume 1: Draft ES Overview
- Section 7: Volume 2: Community Forum Reports
- Section 8: Volume 27: Route Wide Effects
- Section 9: Draft Code of Construction Practice

There is an Appendix on noise.

Should you require any more information about any of the issues raised in this document we will be pleased to provide it.

HS2 Action Alliance
11 July 2013

2. Executive Summary

The Draft Environment Statement (DES) published by HS2 Limited attempts to record the environmental effects should the current plans for Phase 1 of HS2 proceed. The DES and accompanying consultation are the principal means by which interested parties are able to review the detailed route proposals, the consequent environmental impacts and provide comments before plans for Phase 1 are finalised.

There has always been a reasonable expectation that this document would closely resemble the final Environmental Statement (ES), given the anticipated timing of the submission of the ES to Parliament and the limited opportunity for the public to consult on that document.

It is therefore surprising and disappointing that the DES represents little more than an incomplete 'snapshot' of work undertaken to date by HS2 Ltd on the environmental impacts of Phase 1, with the document lacking substantive information in many areas and containing significant omissions. It lacks the level of detail required to allow informed comment on key matters and much of the information contained in it is based on incomplete surveys or relies on modeling which is yet to take place.

The DES fails to address a number of crucial matters – such as HS2's contribution to climate change; considerations of spoil usage; local-specific socio-economic analysis; and the extent to which places and people will be exposed to peaks of noise. There are also obvious examples of misrepresentation that suggest bias.

Rather than levelling with the communities which are facing significant upheaval and damage should HS2 proceed, the theme throughout the DES is to minimise the portrayal of the environmental impact of HS2. The DES appears to be an extension of previous "spin" in favour of the scheme, which seriously undermines confidence in the independence of assessments and the resulting judgments contained within it.

It is also unexpected that a document published by HS2 Ltd, with the level of importance as the DES, appears to contain so many basic errors. While HS2 Ltd may be promoting HS2 it is in no one's interest to misrepresent the environmental facts. Many of these errors could no doubt have been corrected had more time been available to complete this document before publication. If the work and necessary quality checks for the DES had not been done, as appears to have been the case, the publication of the DES and the related consultation should have been deferred until a proper draft was ready.

HS2AA's concerns about the DES include:

- There is a failure to assess Cumulative Impacts - i.e. Phase 2 or the likely development to occur at the stations located on Phase 1 of HS2 or along the line of Phase 1 does not appear to have been dealt with by the DES;
- There are Direct Effects arising from the proposals to construct Phase 1 of HS2 that have not been assessed in the DES- examples include not assessing construction and traffic impacts (both temporary and permanent); nor HS2's visibility, nor the contribution of light pollution
- Impacts on protected habitats/species have not been fully explored in the DES;
- Whether controls (known as the EMRs e.g. the draft Code of Construction Practice) will be sufficient to oversee and mitigate any likely significant effects-the wording of the DES suggests not;
- No guarantee is provided that any necessary mitigation assessed as required in the DES will be provided;
- Assumptions on which assessments in the DES were carried out are not clear and it is also not clear how the project as consented will be tied to the assumptions. Without this clarity there are clearly risks of significant impacts (direct and indirect) not being properly picked up by the ES;
- There is little detail provided on the assessment methodology used including matters such as timing and adequacy of surveys or the inability to access land to carry out surveys;
- There is no adequate assessment of all greenhouse gas emissions and potential carbon impacts relating to the construction and operation of HS2;

- There are technical points/errors regarding rejected alternatives; and
- Whether the Parliamentary process fulfils the EIA Directive's objectives.

HS2AA believe the DES, the related consultation and the proposals for the future publication of a finalised ES and consultation raises three important issues:

- (i) Given the DES has many omissions and errors, so that it presents a very incomplete picture of the environmental impacts of constructing and operating Phase 1 of HS2 - there are serious concerns that the ES will have similar errors and omissions;
- (ii) The period for consultation on the DES has been insufficient, given the complexity and importance of the subject matter with which this document deals; and
- (iii) The proposed process for publication and consultation set out in the DES on the ES is inadequate for effective public participation and is likely to be defective given the consultation period will close only a matter of weeks prior to the Second Reading of the Hybrid Bill.

Taken together, these issues raise severe doubts as to whether the legal duties HS2 Ltd and the Department for Transport are subject to concerning public participation in environmental decision making are being met. It would appear certain that there will be insufficient opportunity for public participation on the environmental impacts of Phase 1 of HS2, given the amount of information which will need to be completed in the finalised Environmental Statement and the short period subsequently permitted for consultation. HS2AA would urge HS2 Ltd and the Department for Transport to review the proposed arrangements in this area to ensure they comply with the law and principles of basic fairness.

3. Defective Consultation Process for the DES

HS2 Ltd state in the DES that believe they do not need to consult at this time. Whether that view is correct in law or not, HS2 have decided to consult. Indeed a clear commitment that a DES will be published and that this will be subject to public consultation has been recognised as being necessary throughout the ‘engagement’ process commenced by HS2 Ltd following the Government’s decision to proceed in January 2012.

Volume 1 of the DES describes the Hybrid Bill procedure and confirms that the public will be consulted on the ES after the Hybrid Bill has been deposited. These are antithetical statements. Consultation implies an opportunity to shape outcomes. This will be extremely difficult after the ES has been deposited in Parliament.

With such limited opportunity to consult and respond on the ES, the public are therefore reliant on an effective consultation on the DES. HS2AA believes a review of this consultation indicates this requirement has not been reached.

Our views are based on the following:

- **Insufficient Period For Consultation**

The Government provided an eight week period of consultation for consultees to provide views on the DES meaning consultees had a large volume of detailed material (almost 5000 pages) to consider. HS2AA believe this period was insufficient given the time needed for consultees:

- To gain access to, and properly consider, the materials needed to form an informed view;
- To request and receive more information, for example so that consultees know what (if anything) underpins the claims of higher cost that are the mainstay of HS2 Ltd’s dismissal of alternatives; and
- To have omissions and misrepresentations corrected, with extra time for consideration of any corrected information.:

This short period was particularly challenging for consultees because:

- Some of the material is highly technical – and some of it requires expert advice to interpret – eg noise contours, which are given as average effects, a measure that is inappropriate as it is an incomplete basis for an intermittent sound source;
- Maps are confusing– the roads in particular are difficult to identify; and different maps for the same area can differ. Most consultees will not have been Community Forum attendees and will never have seen them before;
- The on-line Plan and Profile maps do not have legends – only by further searches can they be found; and
- People have many questions, and apart from the roadshow events (where there was little additional information available), the main opportunity to ask additional questions has been through the FOI process. But it takes 4 weeks for a single FOI to be answered meaning response times are not appropriate for this consultation period.

On June 3 2013 HS2AA wrote to HS2 Ltd asking for an extension to the consultation period. HS2 Ltd refused this request to extend the consultation. As a result, many consultees were without the relevant materials for much of the consultation period, or reasonable access to them, and with many attending the eight events that were scheduled in the first two weeks, only getting the documents to read weeks later.

The short period for consultation was particularly challenging for the 172,000 households within 1 km of the proposed route which have owners that will personally suffer financial loss, on top of the impact it will have to their community and environment. For many the cost of blight will be unaffordable – a loss, which on average, is 20% for properties within 1km of the line. They are left trapped unable to afford moving home for the next 15 years. It would therefore have been reasonable to enable these

consultees to be given longer to:

- Assess the implications of the DES for them personally;
 - Understand the overall impacts, particularly during construction; and
 - Get expert advice to estimate whether HS2 will be audible or visible from their property and how obtrusive it will be, as HS2 Ltd have declined to provide the promised peak noise contours.
- **Incomplete Information**

HS2 Ltd frustrated the purpose of the consultation by withholding information crucial to consultees understanding of the significant environmental impacts and publishing sufficient detail of the assessments they have undertaken. There are many issues in the DES which are flagged as incomplete or where key information is missing (eg baseline data).

- **Dissemination of Information**

While 'digital by default' may in normal circumstance be perfectly reasonable, for a scheme that has such a huge impact on people's lives, and particularly in the rural areas that HS2 has been deliberately designed to impact, it is hard to see how the consultation process passes Government requirements for 'rural proofing'.

Some key consultation materials were only available on line, specifically the Plan and Profile maps. This is unacceptable, as a number of individuals in proximity to the line are elderly and not internet users. These Plan and Profile maps were the principal means of communicating the route with the 2010 White Paper, the 2011 consultation, and the subsequently revised route. To comply with duties under the Equality Act duty to make special efforts to include this group, HS2 Ltd should have ensured these materials were available in hard copy – to both individuals and libraries.

- **Access to materials**

Many individuals and organisations found access to the materials problematic. HS2 Ltd clearly had administrative problems in providing the correct information to libraries and responding to individual requests for information through their information line. Some libraries serving areas on the route were not supplied with any information; many were supplied with materials for the wrong area. This was a particular problem with the mapbooks.

We also understand that HS2 Ltd only supplied libraries with materials pertaining to its own Community Forum Area (CFA), and the one either side. However this can exclude materials where that area is considered as an 'alternative' for a development that is in another area for the preferred HS2 plan. This then denies consultees the opportunity to comment on the 'alternative', which may be preferred by those in the area affected by HS2 Ltd's preferred choice.

An example of this is the maintenance loop/siding at Stoke Mandeville (CFA 11), where 'alternative' sidings are considered in the Central Chilterns (CFA 9) and Colne Valley (CFA 7) areas. The libraries in CFA 9 and 7 will not however have the CFA 11 report to be made aware of it. Those looking at the location specific materials for these areas (ie 7 and 9) will be unaware that they are the 'alternative' that may be promoted by consultees in the Stoke Mandeville area.

- **Advertising and timing of events**

The consultation was supported by a number of local events, where HS2 Ltd personnel were available to address people's concerns and questions. HS2 Ltd undertook to advertise these events in local newspapers. In some instances the events were:

- Advertised in the wrong local newspaper, eg Chalfont St Giles event twice appeared in Warwickshire newspapers despite being in Buckinghamshire – a 170 mile round trip;

- Not advertised at all eg Great Missenden event was twice missed out, Kenilworth three times; and
- Not deferred, despite adverts containing printing and poster errors (Camden).

Furthermore organising one third of the events in the first two weeks of the consultation period, and the last four events for the last week of June (leaving 8 working days in July to respond) was unreasonable given:

- The sheer scale of the materials, text and maps for study; and
- The time needed to formulate questions, get feedback, and discuss with others.

In addition, a number of events were scheduled during school half term week when a large proportion of people, in particular those with young children, were away and therefore unable to attend.

- **Rushing the consultation**

HS2 Ltd justified their decision not to extend the consultation process by more than eight weeks as based on needing to meet the deadlines imposed by the hybrid bill programme. In our view it was unfair to cut short consultation on the DES, so depriving consultees of a proper opportunity to participate in decision making on the environmental aspects of HS2, for this reason.

In the light of previous consultations on HS2 it is difficult to understand the basis on which the a period of eight weeks for consulting on the DES can be argued to be proportionate and realistic, given:

- The length of all the other consultations, particularly in the light of the quantum of materials and its obvious complexity. There have been 5 previous public consultations relating to HS2 – ranging from 14 – 21 weeks in length. 8 weeks is the shortest of the consultations and whilst extensions had been granted in relation to previous consultations an extension was refused in this case;
- The need for reasonable time frames and advance notice of events;
- The practical issues that emerged with this DES; and
- The potential impact on communities affected, wildlife, carbon emissions and even many consultees personal finances.

HS2AA Key Conclusion 1

HS2AA believe it was unreasonable to expect consultees to do the enormous quantity of work to understand and respond to such defective and incomplete consultation materials. Nor is it reasonable to interpret an inability to respond as acquiescence to the views that HS2 Ltd promoted in the consultation. HS2 Ltd and the Department for Transport are required to consult in a fair and lawful manner.

HS2AA believe public bodies, which are required to comply with the obligations set out in the Aarhus Convention, must discharge their responsibilities to ensure effective public participation in decisions which have an environmental impact. It appears, for the reasons outlined above, this consultation has not met these requirements.

4. Draft Environment Statement-Strategic Issues

HS2AA believe a review of the DES (Volumes 1 and 2) raises a range of broad concerns about the information presented for consultation. An outline of these points is set out below, these comments should be read as applying to the entirety of the DES. Further examples of all the points raised below are set out in Section 7

- **Incomplete Information**

Whilst we acknowledge that the DES is a work in progress, there are many references to matters which will be “*assessed and reported in the final ES*”. This means that details of effects and proposals for mitigation are lacking and information is incomplete. Such lack of detail makes it difficult to formulate an informed reply to the consultation as a whole. Reviewing the DES indicates that important areas have not been dealt with at all (including matters such as climate change, waste and materials, cumulative effects, residual significant effects, transport assessments, explanation of movement of surplus material, visibility and light pollution) or dealt with in an inadequate manner (such as socio-economic impacts, noise).

- **No Baseline Information**

The DES does not contain any published baseline data for any of the EIA topics, e.g. baseline traffic flows, baseline noise levels, baseline ecological surveys. This means the usual process for mitigation and environmental assessment cannot be completed. HS2AA would expect to have seen the findings from the following process having taken place:

- (i) Take baseline measurements (e.g. traffic data)
- (ii) Develop a forecast baseline 'without the scheme' (for example the traffic baseline would be expected to increase slightly over time)
- (iii) Develop a forecast 'with the scheme' (so add the traffic associated with the scheme to the forecast baseline)
- (iv) Make assessment of the difference between (ii) and (iii) and this is what needs to be mitigated.
- (v) Assess whether the mitigation proposals bring the situation back to (ii)

The DES shows none of this - what mitigation that is set out in the DES is therefore speculative.

One example of this problematic approach is the socio economic baseline which has not been based on local surveys and analysis. Without such analysis it is impossible for consultees to understand the impacts, for example, on local employment – instead generic materials are presented as if they are locally relevant. The baseline position of roads in rural areas where HS2 passes is portrayed simplistically and without reference to objective factors eg in CFA 9 (where the statement “*all roads in the area are busy*” is patently incorrect, as is the reference to aircraft noise in CFA 15). Local consultees will know this but it raises broader questions as to quality of other materials provided in the DES.

The absence of baseline studies means they have been ignored for landscaping proposals-making it impossible to determine on what basis HS2 Ltd have decided which parts of the route will receive landscaping mitigation measures and which will not.

- **Minimal Assessment of In-Combination Impacts**

There are numerous references to the potential effects during construction of “in combination impacts.” However, there is no description of what the impacts or effects are or might be. Without these descriptions or clarity on how the in combination effects may be mitigated, it is not possible to assess the likely effectiveness of any proposed mitigation or the effect of “in combination impacts” on the environment.

- **Lack of Objectivity**

The DES would be expected to be an impartial document, setting out the environmental impacts of HS2 and the likely mitigation measures. Instead it contains omissions, assertions which conflict with the evidence and misrepresentations-which are all designed to bolster the case for HS2 and minimise attention on the likely level of environmental harm the project will cause. This approach is particularly troubling given interpreting the materials in the DES requires expertise that most consultees will not have and consultees cannot be expected to compensate for biased commentary.

Example of this approach include:

- **Local Mitigation Proposals**

The DES is inconsistent in how it assesses the merits of local mitigation proposals. One example is the manner in which the DES deals with tunnel options for the CFA 9 and CFA 10 areas. Here the advantages and disadvantages of tunnel options are not fairly presented eg the fact both CRAG's Chilterns AONB deep tunnel options would avoid two viaducts being built is omitted, and emergency facilities required with one of the tunnel options are even cited as a disadvantage without mentioning such a feature would be less obtrusive than the viaduct it would replace.

- **Carbon Assessments**

Nothing material is provided in the DES about the carbon impacts of the construction work or operation of HS2. Given carbon impacts are an important environmental consideration, and a major issue of public policy, this absence is startling.

HS2 Ltd's claims of beneficial effects and the Department for Transport's assertion of carbon neutrality are widely disputed. It is a major failing of the DES that it excludes analysis of the carbon effects of HS2, even in the contexts of lower design and operating speeds. The previous work in the Assessment of Sustainability ignored a number of sources of additional carbon emissions – eg the carbon emissions of additional journeys to access HS2, the embedded carbon from construction and miscalculated others (taking average rather than marginal electricity generation). The deficiencies in regard to an absence of discussion of CO₂ must call into question the validity of the DES as a basis for public participation.

- **Alternatives**

The DES contains statements on costs and other reasons for rejecting alternatives (notably tunnels), but with no detail whatsoever, and what is said is sometimes inconsistent with what the applicable Community Forum were told. For example:

- CFA 9 states that a number of Chiltern tunnel options were considered in 2012 but found to be more costly than the preferred option (at para 2.6.3 to 2.6.7). The Community Forum (CF) was however never made aware of this work and its conclusions were not available to the CF to question or examine. Other correspondence suggested the work had not even started.
- CFA 13's request for a cut and cover tunnel at Chetwode is rejected on grounds of the need for a lower alignment (para 2.6.24) with no discussion of the possibility of using spoil to create the depth needed, as had been previously discussed with the CF.
- An HS1 link tunnel option had initially been rejected on grounds of track alignment and although the engineers accept this is not now the case – it is not mentioned in the CFA report. It appears work is being done on the option but it missed the publication cut-off date for DES.
- CFA 17 refers to four tunnel options “resulting from stakeholder engagement” for Offchurch and Cubbington yet only the second and third (at para 2.7.3) were put forward by the CF (and one is misdescribed). At the previous CF, costs were only provided for unsolicited options
- CFA 14 expected detailed costings for the Turweston tunnel options, but they are dismissed as more expensive (para 2.6.2 – 2.6.10), with no opportunity to question or challenge. This all suggests the consultation is premature at this stage, and more development is needed. Clearly affected individuals will wish to consider the evidence of higher engineering cost,

partly because in some cases it seems to be unlikely to be correct, but also because engineering cost is not the only consideration – but must be weighed against other benefits.

It is unacceptable for HS2 Ltd to assert that an option is more expensive, without explaining how and why it is. The attempt to put HS2 Ltd decisions beyond dispute by claiming that its costing basis is commercially sensitive – as has happened – is inimical with open government and fair consultation.

- **Lack of scheme overview**

The detailed plans set out in the DES are unsupported by over-views that explain what the overall effect of the proposals will be. For example, the DES provides data on the bringing-in of materials and staff with the consequent number of lorry and other vehicle movements for each worksite. But these are not aggregated, so that the cumulative impact of such movements can be understood by consultees for specific roads. Given this is how additional traffic impacts on an individual living in the area, the data should also be presented this way.

The consultation documents are also less than clear that the vehicle movements exclude spoil movement. The reasoning apparently is that HS2 Ltd have not decided what they will do with the spoil (perhaps using it for creating bunds). This is highly misleading, the more so as HS2 Ltd object to lowering the alignment – and justify raising it from the 2011 consultation proposals in a number of instances – on the basis that it creates a greater need for spoil removal.

Similarly, while the dislocation caused by severing specific roads and accesses are cited, the overall effect of the dislocation and congestion in terms of limiting access to transport, schools, shops and other community facilities is not given. This will be exacerbated by the traffic servicing the work sites. Consultees will have considerable – if not insurmountable – difficulty in understanding what the resultant situation will be. It may well be that for months or even years it will be impracticable to travel to work or school at any normal time due to road congestion. However none of this is clear from DES.

- **Refusal to Provide Important Information**

There are a number of examples where local groups have requested detailed documents and plans from HS2 Ltd as part of efforts to determine whether further or better mitigation may be possible. These requests have not been complied with, or only provided pursuant to a formal request made under the Freedom of Information Act or Environmental Information Regulations, with related time penalty.

One example of this approach is the response of HS2 Ltd to requests from groups in the Hints area (CFA 21) to understand alignment issues in more detail. The reference works were refused after three months of delay. It is unreasonable that consultees should have information withheld from them, given the material and lasting impact it will have on their lives and the environment.

- **Research**

The DES contains numerous references to research to support its assumptions that there will be substantial improvements on current established technology in the period before the new line begins operating (eg reduced noise from pantographs), but supplies little evidence to support these conclusions. The ES should make clear what sources of research HS2 Ltd have relied on in coming to conclusions about future changes in technology which are relied on in connection with assumptions made about the environmental impact or mitigation of HS2.

HS2 Ltd gives no undertakings that if the assumptions it makes about future technology prove incorrect, (ie that trains will emit 3db less than current proven technology, that noise barriers will be effective at mitigating pantograph noise, which are assumed collectively to provide a ten-fold reduction in noise) that it will introduce alternative mitigation proposals– through measures such as lowering the alignment. HS2AA believe HS2 Ltd must commit as part of its mitigation strategy to a comprehensive program of testing to ensure these assumptions are sound.

- **Trade-offs**

It is clear that HS2 Ltd have taken numerous decisions throughout the DES where there is a trade-off between direct engineering cost and reducing harmful environmental impacts. It is unclear what criteria have been used to determine this trade-off (and no reassurance is given that it's not just the least engineering cost which has driven decision making).

HS2AA Key Conclusion II

A review of the information provided in the DES indicates that it is incomplete in material respects. In addition, it is clear that many decisions which could have a permanent impact on the environment have simply been made by HS2 Ltd, are not subject to scrutiny, and which could turn out to be incorrect. Much greater detail on the reasons behind the decision making used by HS2 Ltd in assessing key aspects of the route must be provided in the ES. Similarly HS2 Ltd must commit to formulating alternative mitigation plans in the event its current proposals don't operate as envisaged.

5. Review of Non-Technical Summary

The non-technical summary (NTS) has an extremely superficial assessment of the environmental impact of HS2. A consultee reading this document and nothing else would get no sense of the level of environmental damage which even other parts of the DES states would occur. There is also a biased appraisal of the alternatives and no reference to the fact that the economic and environmental benefits of high speed rail are, at a minimum, highly controversial.

The NTS also fails to set out the complexity and national significance of the habitats being damaged due to the requirements of constructing a train line capable of running trains at 400 kph. There is no link made to the methodology in HS2's business case, which ascribes an unrealistically high value for time savings, and this unprecedented level of environmental damage.

The NTS also makes claims which are clearly misleading. For example, it states that 'at present there are no route-wide significant effects on habitats' when this is clearly not the case given the national significance of ancient woodland is recognised in the National Planning Policy Framework. The individual Ecological Assessments that form part of the NTS are inconsistent with only one recognising that ancient woodland habitat cannot be re-created.

Despite the length of the NTS, key information for consultees is not provided-for example no information is provided on pass-by sound figures, despite the recommendation of the World Health Organisation. There are also insufficient details of costs and alternatives so consultees can take their own view of the correctness of the assessment and conclusions reached. Given HS2 Ltd's poor track record on forecasting, benefits and costs, it is unreasonable to require unquestioning acceptance of HS2 Ltd's opinions on these matters.

The NTS references various legal and policy statements which set high standards for the protection of the environment, but makes no attempt to argue that they will be delivered.

Construction Code of Conduct summary in the NTS does not make clear that the proposed arrangements in this area will be entirely self-policing, affording massive scope for discretion and undermining any undertakings given prior or during the passage of the Hybrid Bill.

HS2AA Key Conclusion III

HS2AA considers that the NTS does not provide an accurate and unbiased overview of the HS2 project and the environmental impacts which will result should the current plans for Phase 1 be implemented. The document simply does not convey the depth of environmental damage which will be created by the project, the level of controversy (from organisations across the political spectrum) about the justification for HS2 and how key decisions around mitigation have been arrived at.

6. Review of Volume 1

This section of HS2AA's consultation response sets out our primary concerns with each section of Volume 1 of the DES. For ease of reference, the page references for each section are provided.

4.1. Overview of HS2 (Pages 8-10)

The DES states the Government's vision is for *"a transport system which is an engine for economic growth, and which is safer, greener and improves the quality of life in our communities"*

HS2AA believe HS2 does meet these goals-as is set out in detail below, evidence suggests it will not provide significant stimulus for economic growth, cannot be accurately described as carbon reducing and will have a highly negative impact on wildlife and fauna, so would struggle to fit the "greener" objective, and due to its highly negative effects on the areas through which it passes, would also not appear to pass the test of improving quality of life in communities.

4.2. Hybrid Bill Procedure (Page 11)

This section of the DES confirms that the Government intends to obtain the legal powers necessary to construct and operate HS2 by means of a Hybrid Bill. If passed, the bill would provide the broad powers necessary for the construction and operation of HS2.

HS2AA has significant concerns about the plans by the Government to utilise the Hybrid Bill process to obtain planning permission for HS2. Planning permission provided pursuant to such a bill would entitle HS2 Ltd to operate without reference to usual planning requirements as well as enabling key legal protections (including environmental protection measures) to be bypassed during the construction phase.

The Government's decision to use the Hybrid Bill approach for HS2 is more surprising given the 2008 Planning Act set out a new process for nationally significant infrastructure projects. The 2008 Planning Act process is also compliant with the provisions of the EIA. These new measures were specifically designed to deal with concerns that the planning regime was too complex and unwieldy for large scale projects, whilst ensuring planning decisions were still made in an equitable and lawful manner.

We believe relying on the Hybrid Bill procedure raises the following concerns:

- **It is an easier way of obtaining planning consent for HS2**

HS2 is would be unlikely to survive in its current form if subjected to the degree of independent and detailed scrutiny which a process undertaken under the 2008 Planning Act envisages. By contrast, the passage of the Hybrid Bill for HS2 can be forced through via whipping of Members of Parliament, no matter how significant the problems with the project's business case or environmental impact. The Government confirmed in the judicial review proceedings in December 2012 that it intended to whip the vote on HS2.

- **It avoids difficult questions**

Preparations for HS2 have seen many fundamental questions about the scheme's environmental impacts-including noise, impact on wildlife, impact on health either ignored or minimised in the enthusiasm to progress the project. It is unlikely these issues will be picked up or looked at in detail in the Parliamentary process. The time allotted for debate will be limited, Members of Parliament will lack the expertise in this area and there will be significant Government pressure to progress the

approval process as quickly as possible.

- **It limits debate on HS2**

A Hybrid Bill is far quicker than the normal planning process for a project of this size and complexity. It is also far harder for any planning decision made by Hybrid Bill to be challenged in the Courts. The Hybrid Bill process means that once there is an initial vote in favour of the project, the Select Committee looking at the bill cannot consider the principle of the project and is only able to deal with mitigation related matters.

- **It gives wide powers to HS2 Ltd, with minimal oversight**

The Hybrid Bill, when passed, will provide far wider powers to the Government and HS2 Ltd to construct the line than would be the case with a standard planning permission. These powers can be exercised without reference to any other planning authority. For example, when the Hybrid Bill was passed to construct HS1, Kent County Council was obliged to accept, and could not challenge, significant additional road construction even though this was not mentioned during consideration of the Hybrid Bill.

HS2AA Conclusion IV

There is significant doubt that the Hybrid Bill process complies with provisions of European and international law designed to ensure public participation in planning decisions which impact the environment. HS2 Ltd and the Department for Transport should seek to address these concerns as soon as possible.

4.3. The need for an EIA and the role of an Environmental Assessment (Page 12)

The EIA Directive is designed to ensure that the likely effects of new development on the environment are fully understood and taken into account before development is allowed to proceed. To achieve this goal, the EIA Directive describes a procedure that must be followed for certain types of project before they can be given 'development consent'. The procedure is a means of drawing together, in a systematic way, an assessment of a project's likely significant environmental effects. This helps to ensure that the importance of the predicted effects, and the scope for reducing them, are properly understood by the public and the relevant competent authority before any development decision is made.

It is common ground between the Government, HS2 Ltd and opponents of the scheme that the EIA Directive applies in the case of the HS2 project. In order to secure passage of the Hybrid Bill, HS2 Ltd is required to complete the detailed design of the route for Phase One, and to carry out an Environmental Impact Assessment or Environmental Statement, as required by the EIA Directive.

It appears clear that the DES does not meet the standards required by the EIA Directive. Annex IV to the EIA Directive specifies the following information which should be provided in an ES :

1. "A description of the project, including in particular:

(a) a description of the physical characteristics of the whole project and the land-use requirements during the construction and operational phases;

(b) a description of the main characteristics of the production processes, for instance, the nature and quantity of the materials used;

(c) an estimate, by type and quantity, of expected residues and emissions (water, air and soil pollution, noise, vibration, light, heat, radiation, etc.) resulting from the operation of the proposed project.

2. An outline of the main alternatives studied by the developer and an indication of the main reasons for this choice, taking into account the environmental effects.

3. A description of the aspects of the environment likely to be significantly affected by the proposed project, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors.

4. A description of the likely significant effects of the proposed project on the environment resulting from:

(a) the existence of the project;

(b) the use of natural resources;

(c) the emission of pollutants, the creation of nuisances and the elimination of waste.”

5. The description by the developer of the forecasting methods used to assess the effects on the environment referred to in point 4.

6. A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.

A non-technical summary of the information provided under headings 1 to 6.

An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the developer in compiling the required information.”

A footnote to paragraph 3 states that the description referred to therein:

“should cover the direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the project.”

Whilst Article 5 makes clear that the degree of information to be provided under these headings may vary depending upon *“the stage of the consent procedure”, “the specific characteristics of a particular project or type of project and of the environmental features likely to be affected”,* and *“current knowledge and methods of assessment”,* some information under each of the Annex IV headings must still be provided.

HS2AA has identified a number of areas of non-compliance should the ES reflect the approach set out in the DES:

(i) Cumulative effects

Volume 1 of the draft ES states at paragraph 4.3.2:

“Cumulative effects are not described in this draft ES, but will be included in the formal ES. The cumulative effects that will be described in the formal ES comprise:

- *A number of individual environmental impacts on a single receptor (e.g. noise, dust and traffic) that, in combination, have a significant effect;*

- *The effects of other developments in the vicinity of the Proposed Scheme (which are under construction or have been consented), which when combined with the effects of the Proposed Scheme may have an incrementally significant effect; and*
- *The cumulation of individual effects on a receptor which, when assessed together (including in a regional context or across the Proposed Scheme), result in a significant environment effect.”*

The “Proposed Scheme” is defined in the preface of Volume 1 as *“the first section of the proposed HS2 rail network, i.e. between London and the West Midlands”*.

There can be no question that Phases 1 and 2 of HS2 will have a range of in-combination effects on the environment.

It is far from clear from paragraph 4.3.2 that the assessment of cumulative effects will examine the cumulative effects of Phases 1 and 2 taken together. The only reference to the formal ES for Phase 1 assessing the impact of Phase 2 is at Volume 1 para. 1.1.1 of the draft ES which states that environmental effects from train operations have been assessed using the expected post Phase 2 operations which are likely to be greater than the initial Phase 1 operations. It is inconceivable, however, that this will be the only cumulative effect of Phase 1 and Phase 2 taken together – and there has been no suggestion by the Secretary of State or HS2 Ltd that this is the case.

In order for the assessment of cumulative effects of Phases 1 and 2 taken together to be meaningful, the formal ES will need to provide a sufficient level of detail about the environmental impacts of Phase 2. There is no suggestion in the draft ES that this will be done.

(ii) Climactic factors

Volume 2 Chapter 5 of the Draft ES acknowledges that the assessment of the climactic impacts of Phase 1 turns upon an assessment of its greenhouse gas emissions. As that Chapter acknowledges, however, to date no such assessment has been provided. In order to comply with the requirement under the EIA Directive to consider cumulative effects, such an assessment will need to analyse not only the contribution of Phase 1 to greenhouse gas emissions but also the cumulative contribution of Phases 1 and 2 taken together. As Chapter 5 acknowledges, this assessment will also need to consider the carbon footprint not only of the running of the trains but also a whole range of other carbon contributing elements of HS2 including the materials used for its construction, the transportation of those materials, labour and plant, the conversion of woodlands etc. into developed land, the production and maintenance of trains, the stations, tunnel ventilation.

Given that HS2 is a long term project, it will also be necessary to base any comparison with other modes of transport by reference to how those modes are anticipated to evolve over the same period as opposed to their current carbon footprint (e.g. an allowance should be made for increased uptake of electric cars).

It is surprising that, despite the necessary analysis of HS2’s contribution to greenhouse gas emissions not yet having been undertaken, Section 2.5 of the Non-Technical Summary tells the public that one of the purported advantages of HS2 is *“Controlling greenhouse gas emissions”* by *“encouraging a shift to modes of transport with lower carbon emissions”* (an assertion reiterated at para. 2.6 of Volume 1). There appears to be no evidential basis in the draft ES for this statement.

It is troubling that the authors of the draft ES appear to have jumped to a conclusion as to HS2’s impact in relation to greenhouse cases prior to having undertaken the necessary assessment.

(iii) Mitigation measures

The Draft ES seeks to comply with Annex IV para. 6 of the EIA Directive by describing a number of mitigation measures (one of many examples being the package of construction management

measures described at Section 4.2 of the Non-Technical Summary) which it is said would prevent, reduce and/or offset the environmental impacts of Phase 1 of HS2.

What is not at all clear is how these mitigation measures will be tied to the grant of development consent for HS2 so that they can be legally secured and if necessary enforced.

It is well established that in order for an ES to comply with the duty to describe the development and the proposed mitigation measures, the development and mitigation measures as described must be tied to the grant of permission. The point being that unless the description given in the ES reflects the parameters of what the development consent allows and requires to be done, it is meaningless.

The draft ES does not suggest any mechanism whereby the proposed mitigation measures will be tied into the grant of development consent for Phase 1 of HS2 so that they will be legally secured and enforceable.

Paragraph 1.4 of Volume 1 sets out the concept of ‘Environmental Minimum Requirements’ which the Secretary of State would establish *“in order to ensure that the environmental effects of the Proposed Scheme would not exceed those in the ES”*. At para. 1.4.3 it is stated that, during the passage of the Hybrid Bill, the Secretary of State will *“make a commitment to Parliament to take the steps he considers reasonable and necessary to secure compliance with them [i.e. the EMRs] when they are not directly enforceable against the Nominated Undertaker”*. No explanation is given of whether and if so how this will include provision for the mitigation measures described in the ES to be tied to the grant of development consent and enforceable in the event that they are not complied with. Unless such provision is made, the ES will suffer the same deficiency as those in *Tew* and *Elmbridge*, namely a failure to ensure that the description given in the ES is tied to the grant of permission.

(iv) *Description of forecasting methods used*

This is a specific requirement of Annex IV para. 5 of the EIA Directive. Yet the draft ES is silent on the issue and, unlike in relation to cumulative effects, does not promise that the formal ES will plug the gap. Notably, the list of requirements of the EIA Directive at Volume 1 para. 1.3.3 of the draft ES misses out this requirement altogether.

These issues are explored in more detail in the submission below. Included in the submission (at Appendix 2) is an independent assessment of the key themes in the DES. This assessment provides further confirmation of the gaps in the DES.

Hybrid Bill

HS2AA believe the Government has stated an intention to follow a course of action through the Hybrid Bill process which will not achieve the objectives of the EIA Directive. Specifically, the EIA Directive details various minimum requirements which apply to any body making planning decisions which impact the environment. These requirements apply because Parliament, in a Hybrid Bill context, is operating as the body giving planning consent for a particular project, much as a local authority’s planning committee would consider a routine planning application.

In particular its proposed process is contrary to Articles 6(4), Articles 8 and Article 9 of the EIA Directive.

Article 6(4) of the EIA Directive provides:

“The public concerned shall be given early and effective opportunities to participate in the environmental decision-making procedures referred to in Article 2(2) and shall, for that purpose, be entitled to express comments and opinions when all options are open to the competent authority or authorities before the decision on the request for development consent is taken.”

Article 8 requires that:

“The results of consultations and the information gathered pursuant to Articles 5, 6 and 7 shall be taken into consideration in the development consent procedure.”

Article 9 provides that, where a decision to grant or refuse development consent has been taken, the competent authority or authorities shall make available to the public:

“The results of consultations and the information gathered pursuant to Articles 5, 6 and 7 shall be taken into consideration in the development consent procedure.”

There are particular problems with the following aspects of the Parliamentary process in complying with these requirements:

- There is no adequate mechanism within the Hybrid Bill procedure to define and constrain the development and proposed mitigation measures in a sufficiently precise and definitive manner so that the works ultimately constructed are not materially different from what is assessed in the Environmental Statement.
- Although Standing Order 27A requires an Environmental Statement to be deposited in the office of the Clerk of Parliaments, the rules on locus standi in Standing Orders 96-101 are inherently inconsistent with the requirement in Article 6(4) of the EIA for the “*public concerned*” to be “*entitled to express comments and opinions when all options are open to the competent authority*” since only those individuals whose property or interests are directly and specially affected will be entitled to express comments and opinions on the ES to the Select Committee. Other individuals and NGOs will be excluded.
- The Select Committee which is considering the Hybrid Bill will do so after the principle of the Bill has been voted upon by the House of Commons at Second Reading. The Select Committee’s terms of reference will exclude further consideration of the principle of the Bill. The Committee will therefore be unable to decide whether in the light of the Environmental Statement, consultation responses, and other environmental information, the project should continue, and/or whether there are better alternatives to the scheme set out in the Bill. Its remit will be limited to considering mitigation measures, including only relatively minor route changes. These decisions will be even further constrained due to the decision by the Department for Transport to implement Safeguarding Directions, which mark out a precise strip of land for the entire route of Phase 1. Deviating from this area will, for practical purposes, be impossible. Therefore the requirement under Article 6(4) for the public to be able to express their comments and opinions while “all options” are still open to the decision maker cannot be met.
- Whilst the principle of the Bill will be subject to a vote on the floor of the House of Commons at Second Reading, it is highly unlikely if not unfeasible that the decision-makers (namely the MPs who vote at Second Reading) will have read the ES let alone considered all the environmental information in its entirety including all public responses. The issue is further exacerbated by the fact that the outcome of the debate will be subject to a party whip and that further environmental evidence will emerge as part of the Bill process following Second Reading yet the principle of the Bill will have already been determined. Therefore the requirement under Article 8 for the environmental information and the consultation responses to be taken into account by the decision-maker prior to granting development consent will not be satisfied.
- The Standing Orders do not require Parliament to give reasons for granting development consent by means of a Hybrid Bill. Accordingly, the legislative procedure is incompatible with Article 9 of the EIA Directive. Even if, as in the case of Crossrail, a Command Paper were to be published containing a purported statement of reasons, that would not be sufficient since the reasons given in any Command Paper are those of the Government, not Parliament.

- The requirements of Article 11 of the EIA Directive cannot be met since there is no means by which members of the public will “*have access to a review procedure before a court of law or another independent and impartial body established by law to challenge the substantive or procedural legality*” of the Hybrid Bill if enacted into legislation.

In the recent case before the Court of Appeal, counsel for the Secretary of State assured the Court that this issue would be looked at again to ensure the Hybrid Bill process was in line with the EIA Directive. In late June 2013 revisions were made to the Standing Orders which would apply to the Hybrid Bill process. It is unfortunate that these changes were not subject to consultation or input by the public and other interested groups.

The principal changes that the amendments sought to make was to

- Provide an opportunity for comments on the ES to be made and summarised before a vote is taken on the principle of the Hybrid Bill at Second Reading
- Provide an opportunity for any further information to be made available prior to Third Reading; and
- Provide a mechanism by which reasons for the decision on the bill can be provided in order to seek to comply with Art 9 of the EIA Directive.

These changes do not, however, resolve the issue of compliance of the Hybrid Bill process with the EIA Directive and the provisions of the Aarhus Convention that it transposes into directly effective EU law (which has primacy over UK law including legislation).

Fundamentally, the Government is relying upon the debate at Second Reading to give equivalent effect to the requirement in Article 6(4) for an “*early and effective opportunity to participate in the decision-making procedures... when all options are open*” and in Article 8 for the ES and the results of consultations to “*be taken into consideration in the development consent procedure*” (since the Select Committee will not be considering the principle of the Bill). The fundamental objection remains that a debate on the floor of the House, particularly one that is subject to a three line whip, is not going to give effect to these requirements. That would require all MPs (or at least those who vote in favour of the Bill) to conscientiously appraise themselves of the full details of the ES and consultation responses with an open mind before deciding to accept their party whip and vote on the Bill. That is not realistic and indeed it is not what would be expected by the Party whips.

The suggestion advanced by the Government's legal team that representative democracy is a sufficient substitute for direct public participation, since people can vote out their MP at an election, is no answer because:

- The European Court of Justice in *Linster*, *Boxus* and *Solvay* has made consistently clear that the legislative exemption from the EIA Directive only applies when effect has been given to the substance of the requirements of the EIA Directive (and that the Court needs to examine the legislative process in detail to satisfy itself that this is the case).
- In any event, many of those who have rights under the EIA Directive and Aarhus - e.g. NGOs and EU Citizens from other member states - do not have a vote in a General election.
- The number of MPs representing constituencies on the line is far outweighed by the number of MPs whose constituencies are far away from the line and who can follow the party whips without any fear of reprimand from their constituents.

HS2AA Conclusion V

The proposed amendments to the Standing Orders and the explanatory memorandum do not suggest that there will be no party whipping or that the Select Committee will be able to consider the principle of the Bill or that the rules on locus before the Select Committee will be widened to include all those who would have a 'sufficient interest' under the EIA Directive. HS2AA believe it therefore does not come close to meeting the fundamental objections outlined above.

4.7. Environmental minimum requirements (Page 12-13)

The section dealing with Environmental Minimum Requirements (EMRs) indicates that there are significant problems in this area which must be resolved prior to the commencement of the Hybrid Bill process.

The document confirms that the EMRs would not be directly enforceable against the undertaker (ie HS2 Limited)-this is simply not acceptable. This section of the report also confirms that it will be the responsibility of the Secretary of State to assess the scope of the EMRs and for him to determine the “*steps he considers reasonable and necessary to secure compliance with them*”

These vague commitments mean it is highly likely that HS2 Ltd will not be subject to oversight in connection with the construction of the project. In light of the numbers of people impacted, the numerous wildlife, heritage and other assets which the DES confirms will be impacted by the construction of HS2, this cannot be right.

Combined with the concerns raised above about the absence of any adequate mechanism within the Hybrid Bill procedure to define and constrain the development and proposed mitigation measures so that the works ultimately constructed are not materially different from what is assessed in the environmental statement, it's clear there is a significant risk of a worse set of environmental outcomes than those described in the DES.

HS2AA Conclusion VI

HS2AA believe it is vital that significant additional work is undertaken before the publication of the ES which set out how independent oversight or scrutiny will be available following passage of the Hybrid Bill to ensure that HS2 Ltd comply with any agreed EMRs.

4.8. HS2 and sustainability (Pages 13-14)

This section of the document provides a brief overview of HS2 Ltd's commitment to sustainability, referencing four key principles set out in the UK's 2005 sustainability strategy, Securing the Future. This section of the DES makes no claims as to how HS2 aligns with these principles.

HS2AA believes HS2 fundamentally contradicts each of the sustainability principles outlined in this section of the DES.

Principle 1: Reducing Greenhouse gas emissions and combating climate change

Table 2 – Source of trips of passengers using HS2 services on the Y Network by mode

Passengers using HS2, 2037 (forecast)	
Switch from classic rail	65%
New trips	24%
Shift from air	3%
Shift from car	8%
Total	100%

HS2 Ltd’s projections (see Table 2) show that just 11% of HS2 passengers will transfer from more carbon intensive modes of transport. Projections also confirm nearly a quarter of trips will be new journeys, something which is deeply unsustainable as well as millions of journeys transferring from existing “classic rail”, which uses much less fuel and carbon, to high-speed trains.

HS2AA believe HS2 Ltd’s approach to decarbonisation of electricity generation is highly questionable. In examining HS2’s impact on carbon emissions, the average level of decarbonisation for all generation has been utilised. This is an incorrect approach to assessing whether to proceed with HS2, as it is the incremental effect of the choice that is relevant. As an increment to daytime demand to be met by an increment to daytime generation, this will not be decarbonised any time in the near future. Furthermore, not all demand has the same impact: electric cars with batteries are essentially based on a storage technology. As Denmark has explored, such a technology can work harmoniously with renewable energy, as charging can take place when the wind blows and other demands are low. This is not the case with HS2.

Greengauge21 contend that conventional intercity rail and HSR have similar levels of energy consumption per passenger km. This depends on adjusting the assumptions – like train load factor. It may be inconvenient, but the case that HS2 contributes to a low carbon future– on a fair consideration – is unsupportable. Conventional rail is, but HSR is not.

HS2’s carbon impacts extend further than the operation of the new line. HS2 Ltd’s forecast for emissions from construction and use of materials is unconvincingly low. It doesn’t even incorporate the findings of a July 2007 Booz report for the Department for Transport “*Estimated Carbon Impact of a New North — South Line*” which found that embedded CO2 production would be greater than the entire motive carbon savings from a new Birmingham — Manchester high speed railway.ⁱ

On car use, HS2 Ltd has ignored short and long-term factors, which undermine its claims of carbon reduction. HS2 Ltd plans edge-of-town parkway type stations for Birmingham Airport. Such stations are heavily dependent on car use and encourage development in adjacent rural areas. Over the longer-term, HS2 Ltd has also ignored the findings of the Climate Change Committeeⁱⁱ, which envisages that, by 2030, 60 per cent of new vehicles will be electric or plug-in hybrids. These cars will typically be charged overnight, when energy demand and carbon intensity is low. This changes the relative “greenness” of commuting by road and rail.

Similarly, if the shift from air stopped some domestic flights, the released short-haul slots would be reused for more profitable (and more carbon-emitting) medium and long-haul flights.

Because the emissions from domestic aviation are an extremely small proportion of overall emissions from the transport sector, as the chart (above) demonstrates, even if the UK was able to eliminate its entire domestic aviation activities (not something anyone claims for HS2), it would result in a mere 1.6% per cent decrease in carbon emissions.

The Department for Transport’s own analysis supports these conclusions-it stated in 2007

Higher speed is not the only or best way of cutting journey times. Nor is it without cost. Increasing the maximum speed of a train from 200 km/h to 350 km/h means a 90 per cent increase in energy consumption. In exchange, it cuts station-to-station journey time by less

than 25 per cent and door-to-door journey-time by even less.

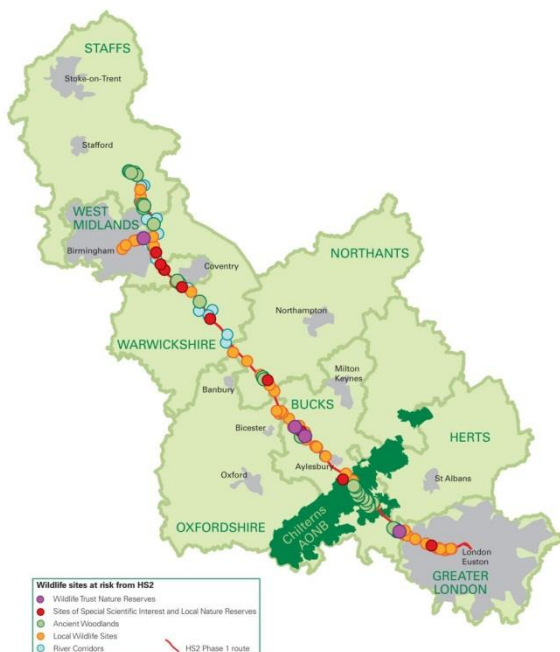
Principle 2 Protecting natural resources and enhancing the environment, including the cultural as well as natural environment

HS2 will be hugely destructive to the natural environment, as it takes an entirely new route through tranquil countryside, ancient woodlands, and the Chilterns Area of Outstanding Natural Beauty (AONB) and the Green Belt which divides Birmingham from Coventry- all areas that are irreplaceable.

The Wildlife Trusts estimate four Wildlife Trust reserves, 10 Sites of Special Scientific Interest (SSSIs), more than 50 ancient woodlands and numerous local wildlife sites lie in the route of the proposed High Speed Rail HS2 route. Such severe impact on landscapes will fragment populations of butterflies, bats and birds and compromise the natural movements of large mammals such as badgers that cannot cross the concrete and steel barrier of railway infrastructure.

This comes at a time when the Making Space for Nature report called for integrated, connected

landscapes to link up and extend habitats for rare and endangered species. HS2AA believe the very last thing we should be doing is creating new linear barriers to the movement of wildlife. HS2AA believe it important to provide a breakdown of the environmental cost of HS2. These impacts will be felt along the entire line: the Wildlife trusts have broken down the effects by region, as follows:



London Area

18 wildlife sites will be affected including Perivale Wood, established as a nature reserve in 1902 and noted for its bluebells.

Middlesex Area

The proposed railway will cross the Mid-Colne Valley SSSI on a viaduct bisecting Broadwater Lake nature reserve. The 80 hectare site is renowned internationally for the diversity of breeding wetland birds and the numbers of wintering waterbirds such as gadwall, shoveler

and great crested grebe, and summer moult gatherings of tufted duck.

Buckinghamshire and Oxfordshire Area

As well as the destruction to large parts of the Chilterns AONB (a 6 mile long section is currently not tunnelled), 56 wildlife sites in Buckinghamshire and Oxfordshire will be impacted to varying degrees. Of these 29 are of county importance for wildlife and four are of national importance, the very best in the UK. The route cuts right through Weedonhill, Lotts and Pipers Woods, ancient woodland near Amersham; replacing mature trees and established plants with concrete, steel and gravel of a sterile railway. The route will plough through Calvert Jubilee a former clay pit now a nature reserve for vast numbers of waterfowl. Woodland birds, rare butterflies and beautiful orchids depend on the special grassland habitat around the lake which will be devastated by the railway.

Northamptonshire Area

In south Northamptonshire, the route could destroy at least eight wildlife sites of county importance including ancient forests, medieval parkland and limestone grassland. It will damage an important SSSI, and threatens the rare and declining small blue butterfly. A further ten important wildlife sites lie within 500m of the route.

Warwickshire Area

Up to 90 sites of wildlife importance could be adversely affected by the direct and indirect impacts of the HS2 route as it cuts through Warwickshire and Solihull. At least 80 sites are of county importance. Five SSSIs are vulnerable to impacts from construction, hydrology or fragmentation. The route goes across numerous major watercourses, ancient woodlands and wildflower meadows, with subsequent effects on their associated species.

Birmingham & the Black Country Area

The route will have a significant impact on the Wildlife Trust's Park Hall nature reserve, a Site of Importance for Nature Conservation at Water Orton. More than 600 metres of viaduct will split the reserve in two, create cuttings through ancient woodlands, realign 1,600m of the River Tame and remove access to the reserve.

Staffordshire Area

17 small sites of ancient woodland, including wet woodlands, will be affected as the route goes north to Lichfield; railway infrastructure could damage the hydrology of this unusual habitat. The Tame valley wetlands, part of the River Living Landscape area, will be damaged resulting in disturbance to protected species such as water voles and great crested newts.

The Woodland Trust, the UK's leading woodland conservation charity, has also completed an analysis of the environmental effects of HS2 and has demonstrated that the preferred routes for both phases of the project will cause loss or damage to at least 67 irreplaceable ancient woods home to 256 species of conservation concern.

Principle 3 Creating sustainable communities

HS2 is already severely disrupting communities from London to Staffordshire. Should construction begin these impacts will be even more severely felt. To date HS2 Ltd has appeared unwilling to deal with the reality of property blight or the social impacts of its proposals.

Principle 4 Promoting sustainable consumption and production

The details provided above on the carbon implications for HS2 set out why the proposed line should not be reviewed as carbon reducing. Almost 90% of HS2 users will create more emissions, given the predicted number of brand new journeys (24%) and those switching from existing services (65%). Any freed-up runway capacity from any shift from air will be re-used for more polluting longer haul flights – say BAA.

Taken together HS2AA believe HS2 contradicts the core principles of sustainability-which should lie at the heart of all Government policy making. Indeed so deep are the problems with HS2 HS2AA believe that HS2 should be cancelled on sustainability grounds alone.

4.9. Background to HS2-Introduction (Page 15)

This section of the DES makes no reference to any suggestion that HS2 may not be in the national interest and that there is a broad based coalition of groups which argue that HS2 has some major problems.

It also ignores evidence that indicates high speed is **not a priority** for rail travellers. Annual Passenger Focus studies and the Eurobarometer survey of European Countries show the UK has a higher satisfaction (92%) with journey time– second highest in Europe – and it is the highest scoring factor for satisfaction with rail travel in the UK.

The UK – unlike Europe – has had a fast national railway system for a long time. As Sir Rod Eddington said in his 2006 Transport Review: ‘...with [rail] journeys between London and other UK major cities performing particularly well relative to journeys from other European capitals.’

The UK also have routes capable of 200km/h (125mph) – and still have quicker rail journey times between the capital and the five largest cities than in other major West European countries, with journey times averaging 145 minutes in UK as compared to

- 151 minutes in Spain
- 184 minutes in Italy
- 221 minutes in France
- 244 minutes in Germany

Even Frankfurt/Cologne, which is a comparable distance is more like our intercity: it halved its journey time but to only a little less than the fastest train currently running from Birmingham to London.

4.10. Evolution of the Proposed Scheme and Phase Two (Pages 15-17)

The summary of the development of HS2 is inaccurate as it does not reflect the conclusions of the Eddington Review, and the consequent determination by the Department for Transport not to proceed with high speed rail.

On the case for new very High Speed Lines, the Eddington report stated:

Significant momentum has built behind the case for a new network of very high-speed rail lines in the UK. [...] The business case is often argued to rest on the transformational impact of such a network on the UK's economic geography. However, new high-speed rail networks in the UK would not significantly change the level of economic connectivity between most parts of the UK, given existing aviation and rail links. Even if a transformation in connectivity could be achieved, the evidence is very quiet on the scale of resulting economic benefit, and in France business use of the high speed train network is low.

Faced with such arguments, supporters of HSLs point to the capacity increases such new lines would deliver in London and selected urban areas by removing some or all interurban trains from commuter and freight lines. Such benefits are likely to be both real and substantial. Crucially though, these goals could be achieved by other solutions, and perhaps at much lower cost. The range of policy measures would include fares pricing policy, signal-based methods of achieving more capacity on the existing network, and conventional solutions to capacity problems e.g. longer trains. Indeed, in keeping with a non-modal approach, the measures assessed should include improvements to other modes that support these journeys (e.g. motorway, bus, and urban access improvements).

New lines – including new very high-speed lines – should take their place within this range of policy measures, and each should be assessed on their merits before selecting the option that offers the greatest returns on investment.

Professor Overman, of the LSE, stated that “Comparing the figures for HS2 with those for projects that the Department for Transport had on its books at the time of Eddington suggests that HS2 is, at best, in the bottom quartile in terms of returns (and indeed, might be closer to being in the bottom 10%).”

The description of events after 2008 is also muddled and selective. Again there is no reference to the evidence suggesting HS2 did not represent value for money, or the significant changes in the scheme's cost benefit ratio in the period since 2010 which has reduced its predicted benefits by around half.

4.11. The need for High Speed 2 (Page 17)

This section of the document sets out the Government's case for HS2-it ignores many of the inconvenient truths which show that the basis for this scheme is fundamentally flawed.

A key omission is any discussion of the facts which indicate HS2 is very poor value for money. Latest Government figures value it at near to half what it was, with a base Benefit to Cost ratio (BCR) falling from 2.40 to 1.40 for Phase 1. Phase 1 in 2010 White Paper started at £2.40 of economic and welfare benefits (£2.70 with wider economic impacts (WEI)) for every £1 of subsidy – by August 2012 it is £1.40 (£1.70 with WEI). These figures have worsened again following the Secretary of State's June 2013 announcement that the total cost of the project is now over £42 billion in 2011 prices (to £1 for Phase 1 (£1.30 with WEI) and £1.40 for Phase 2 (1.9 with WEI) for every £1 of public subsidy.

Even £1.40 worth of benefits figure for Phase 1, has been heavily distorted:

- Some 55% of HS2 benefits depend on the 'hotly contested issue'ⁱⁱⁱ of valuing time savings. The Department for Transport assume all time spent on board trains is wasted, so a minute off the journey time is a minute extra productive time, and this effects the reliability savings too. Despite widespread recognition (by the Department for Transport too^{iv}) that time is not wasted as plainly people work on trains and the Department for Transport's commissioned research that shows its value should be halved^v the Department declare their 'simplifying' basis as 'fit for purpose'^{vi} and resort to a flawed sensitivity test. But:
 - The Department for Transport use 11-year old data (earnings equivalent to £70,000 earnings for rail business users) that is not robust to major (six-fold) increases in rail business travel. The Department for Transport have known this since June 2010^{vii}, but they persisted with an old figure – one third too high.
 - DfT's own experts (ITS at Leeds) say^{viii} that the business value of time used is 20 to 50% higher than other Northern European countries.

The Department for Transport argue if they do alter their basis it has little effect on the benefits. But this is because the halving (for the fact people do work on trains – which will be overly conservative for the HS2 assessment period) is counterbalanced by an unrealistically high level of 'crowding benefits' ascribed to HS2^{ix}. The Department for Transport did not apply the sensitivity tests recommended by ITS in their peer review which would have taken this into account. Including 'crowding benefits' would make the rail alternatives even better value for money, and despite the Transport Select Committee's recommendation^x the Department for Transport failed to re-evaluate them.

- Applying revised GDP deflators in the latest economic update, which increases the value of time benefits. As this results from a technical adjustment (rebasings RPI which is the basis for deflation), to increase forecasts of long term productivity and hence the value of time benefits, is questionable^{xi}.
- Persistently using and justifying the use of an outdated rail forecast model (PDFHv4.1 and not v5.0) even though it substantially overestimated long distance rail growth on WCML. This is despite:
 - The rail industry having adopted the later model in August 2009;
 - The Department for Transport having had compelling research evidence for last two years that discredits the basis^{xii}
 - The Department for Transport adopting this aspect of PDFHv5.0 in August 2013 (when it issued its latest business case for HS2)
 - The Department for Transport using PDFHv5 values for WCML bid evaluation in 2012.
- Bias in the demand forecast. Planet Long Distance rail model and the forecasts generated for 2010, 2011 and 2012 are inconsistent with history and exaggerate demand. The 2012 forecast contains unexplained distributional bias to North-Western and West Midlands routes-the flows which HS2 deals with.

- Exaggerating the cost savings attributed to HS2 from the conventional rail network. They treat them the same way as new costs and even increase them for optimism bias^{xiii}. Applying optimism bias to increase savings acts in the opposite direction from the intended manner set out in the Department for Transport's own guidance ie to prevent underestimates of costs – not inflate savings.
- Using a rail demand model that ignores price competition between different ways of making the same rail trip^{xiv}. Not only are no premium fares assumed for HS2 but no account is taken of Chiltern Railways and London Midland providing cheaper alternative services on the London/Birmingham corridor, which attract custom from the Virgin express services. Contrary to the Department for Transport's modelling, the post-Evergreen 3 Chiltern Railways services have been a success, winning customers from the West Coast Main Line^{xv}.
- Ignoring the plans for improvements to the existing railway that will be in place by 2019^{xvi}, some of which encroach on the benefits attributed to HS2 eg electrification of MML, improvements to ECML, new Great Western link to Heathrow. These should be included in HS2's comparator base case.
- Despite being a social cost benefit analysis, some of the social disbenefits are being excluded including:
 - Devaluing the impact of HS2 on the countryside. The 2012 business case changed how the effect of HS2 on landscapes would be valued. The impact is valued at far less than the original estimate (now just under £1bn), and is not included in the latest business case. This is achieved by misapplying a 60yr project life to changes in perpetuity without incorporating a restoration cost
 - Most blight costs are excluded. Only the £1.3bn compensation scheme element is included. The full cost should include the uncompensated loss borne by individuals (£3/£6bn).
- Costing the alternatives (of improving the existing railway) on a less favourable basis than HS2. Using a more expensive basis for costing the extra rolling stock^{xvii} and give no credit for it being implemented incrementally in stages – only if and when demand requires it^{xviii}.
- Not complying with the cost of financing HS2 in accordance with the Department for Transport's own Webtag guidance note^{xix}

Despite these actions which work to improve the case for HS2, on the Government's own assessment there are better value for money alternatives than HS2 that do meet even the own estimates of a doubling in long distance rail demand:

- Atkins (for the Department for Transport) developed an alternative of improving the existing network (Rail Package 2) which in Jan 2012 they assessed at over twice the value for money of HS2 (over £4 benefit per £1 of subsidy)
- 51m developed an 'Optimised Alternative' (OA) that improves on DfT's best alternative, with very limited work on the infrastructure (at just three locations), but longer trains (12 and 11 car instead of the planned mix of 11 and 9 car) and one first class car reconfigured to be standard class. It provides all the capacity needed to serve all the flows that HS2 addresses, at under 10% of HS2's build cost (about £2bn compared to £32.8bn^{xx}) and in Jan 2012 assessed at three times better value for money (even on the less favourable costing basis used) – giving £5.2 (or £6.1 with WEI) per £1 of subsidy^{xxi}. Subsequently Network Rail decided to implement the largest of 51m's infrastructure components making it subsidy-free.

The benefits of the alternatives are more robust – they are not relying on the exaggerated value of journey time savings, but are directed at achieving the needed capacity not journey time reductions.

HS2AA believe that if these assumptions are corrected there is no case for HS2: its BCR falls below 1 –with 40p of benefits for every £1 subsidy on Phase 1.

4.12. Enhancing Capacity (Pages 18-19)

A core justification for HS2, as set out in this section, is the alleged increase in demand for long distance railway services. Paragraphs 2.4.1 to 2.4.4 set out the Government's view that demand is increasing for long distance rail traffic stating "*The Network Rail work in 2008-9 concluded that the WCML, Midland Main Line (MML), ECML and Chiltern Main Line (CML) would be at or near capacity by 2020*"

These statements do not appear to reflect available data:

- Currently WCML is far from full. Network Rail's own data shows Euston the least busy domestic long distance service station - just 60% capacity in 3 hour morning peak (64% in busiest hour) compared to Paddington and Waterloo over 100% in peak hour. 2011 official figures released only as part of recent court proceedings show the West Coast Main Line is just 52% full in the 3-hour peak (35% in first).
- The Euston figures in both reports were taken before the recent delivery of extra carriages—providing 51% more standard class capacity.
- On winning the abortive WCML franchise First Group announcement to the Stock Market stated that there is 'considerable unused capacity' on the West Coast Main Line and 11-car trains will be '35% loaded' when they were scheduled to take over.
- Government have re-based their demand forecasts (to 2011) to take account of the recent growth in rail traffic as a result of the massive service improvement that accompanied the completion of the £9bn WCML Route Modernisation and the December 2008 timetable – with faster more frequent services and the restoration of reliable weekend services. But this ignores the fact that the growth was concentrated in the off peak services – which requires no additional capacity to accommodate it.
- The latest rail statistics show that even demand for rail travel has abated, with a year on year reduction in each rail sector (London and the South East, regional and intercity) for the latest quarter.

HS2AA are not alone in doubting official forecasts on these matters, the open letter that included 34 transport professors as signatories recently questioned DfT's assumptions on demand growth.

Paragraph 2.4.5 acknowledges improvements to existing lines would be possible but concludes that "*even very major enhancement packages on the WCML would not meet the expected demand over the coming decades*" This statement is not correct-it is clear that it would be perfectly possible to proceed with a program of enhancements to existing lines, which would be capable of meeting even the aggressive forecasts in passenger growth which the Department for Transport have forecast. The Rail Package 2 and the OA options which deal with this point are discussed above.

It is worth noting the Transport Select Committee, Atkins (for the Department for Transport) and Network Rail all accept the OA can deliver this intercity capacity and Network Rail also say the illustrative timetable demonstrating its feasibility is sound.

The OA is entirely based on existing technology, unlike HS2. The only criticism made by Network Rail of these proposals was that the OA would not deliver the capacity needed for forecast growth in suburban demand into Euston. But inner suburban demand was not the problem that the OA addressed, nor did Government's own alternatives consider it. It is a new issue raised because OA is overwhelmingly superior to HS2. No one would seriously suggest a new high speed line just to relieve suburban commuter overcrowding.

If rail demand doesn't grow as predicted, as HS1 found (at just over a third of original forecast), then:

- Because HS2 is an all or nothing project, we would have a new railway running at a large loss, requiring an even larger subsidy for generations to come.

- In contrast, the alternatives can be implemented quickly and in stages, with more capacity only created – and paid for – if it is needed. It also addresses commuter overcrowding long before 2026.

The 400 km/h design speed used by HS2 Ltd is also not dealt with in this section-after all even if all the demand forecasts were correct and valid reasons existed for dismissing the OA, it would be perfectly possible to construct a new railway which ran at a lower speed. HS2 Ltd's claim that "*The only environmental improvements delivered by a lower maximum design speed would be a marginal reduction in noise impacts*" is misinformation. Higher speeds generate non-linear increases in noise, energy consumption, carbon emissions, and track damage.

Dispensing with the 400 km/h maximum would undermine the entire HS2 concept, because if 250 km/h were substituted, it would be possible to use existing transport corridors and derive substantial environmental benefits.

4.13. Section 2.5 Engine For Growth (Page 19)

This section of the document makes various claims about the wider economic benefits the Government claim will result from the construction and operation of HS2. Each of these claims do not appear to be supported by the available evidence.

Paragraph 2.5.2 states "*Because of its high inherent capacity, its ability to provide centre-to-centre routes and the wide range of connections it offers with other modes of transport, rail is a particularly effective means of moving large numbers of people over a range of distances*" Whilst this may be true-HS2 won't offer a wide range of connections or many city centre routes.

Phase 1 of HS2 simply links four stations and just two conurbations together. The preferred location for a new station in Birmingham, at Curzon Street, is poorly sited for onward journeys from New Street Station. The benefits of "Classic Compatible Trains" for onward journeys appear doubtful-both in terms of their capacity and their likely slower speeds than existing trains.

Paragraph 2.5.3 states "*The potential for high-speed rail to facilitate improved economic growth is an important consideration for the Government. Phase One and Two will link the majority of Britain's biggest cities, increasing the productive potential of regional economies and providing an opportunity to increase their contribution to the UK economy. In addition, investment in new high-speed rail stations has the potential to boost local economic growth in the short term and may facilitate longer-term benefits by acting as a catalyst for local regeneration.*" The potential for economic growth from HS2 is largely unproven-there is no academic quality, peer reviewed, analysis showing a compelling case for jobs and growth from HS2. It is noteworthy that the in combination economic effects are discussed, but the environmental impacts of both Phases are ignored.

Paragraph 2.5.4 states "*The Y network reflects the Government's objective of ensuring that the regional economic benefits of high speed rail travel are distributed as widely as possible. The two interchange stations proposed as part of the Proposed Scheme are intended to ensure that the connectivity benefits are spread beyond London and Birmingham.*" Again the economic benefits of the Y network are referred to, but the environmental impacts of both phases are ignored. Similarly, research which indicates high speed rail is damaging for regional economic growth are ignored.

Paragraph 2.5.5 states "*In addition, the Proposed Scheme includes a link to HS1, allowing access to the Trans-European Network. This connection would enable HS2 to reinforce access to external destinations and markets, thereby supporting economic growth.*" HS2 would only reduce the Birmingham-to-Europe rail journey time by just over half an hour, so it's unlikely such trains could run without heavy subsidies or attract significant custom.

Paragraph 2.5.6 states “As a major infrastructure project, HS2 would also generate growth in its own right through the employment and supply chains it would sustain throughout the construction period and once it is operational, for example, through maintenance work, provision of train sets etc.” The total numbers required to construct Phase 1 of HS2 are limited. More broadly, the decline of British manufacturing industry has been particularly acute in the rail sector meaning Britain has only one limited-capability assembly plant (Bombardier Derby). So, like the Intercity Express Programme, Crossrail and Thameslink, HS2 is likely to be heavily reliant on foreign suppliers and contractors, with many of its “supply chain” beneficiaries being located overseas.

The available evidence, in HS2AA’s view, on this area is that HS2 will create few jobs and rebalance the economy in favour of London. HS2AA is not alone in this view, with many experts doubting there is valid evidence for the claimed transformational benefits. The academic studies of Europe’s experience^{xxii} of the impact of high speed rail (HSR) find ‘compelling reasons to doubt whether HSR will contribute to rebalancing the economy’^{xxiii} For example:

- Despite business creation there is no evidence the TGV led to decentralisation from Paris
- The TGV to Lyon caused some business headquarters to relocate to Paris and the net impacts were negative for Lyon
- On the Paris Rhone Alps route passenger growth in trips *to Paris* was three times greater than *from Paris* and for intra-organisational trips it was eight times greater
- Unemployment in Lille rose against the French national average, with the arrival of the TGV
- HSR in Spain is associated with a strengthening of Madrid at the cost of regional centres.

Academic experts say if HSR connects to a dominant capital city, the capital city benefits most- a point made in their evidence in 2011 to the Transport Select Committee and expect High Speed Rail to re-enforce London’s dominance. More recently, 34 leading planners and transport economists (including advisors on HS2) wrote to the Secretary of State for Transport in Jan 2013 (‘Transport Strategy – where are we heading’) expressing concern that the evidence base for the link between major infrastructure projects and economic growth can no longer be relied upon.

This section also makes no reference to the job forecasts made by HS2 Limited for Phase 1. These predict just 9,000 temporary jobs to construct HS2 (Phase 1) and 1,500 new jobs to operate it (before taking into account the job losses from reductions to conventional services). A further 30,000 jobs are expected in the vicinity of new stations. But there is no evidence that these would be new jobs, rather than a relocation of existing retail jobs to HS2 stations, and they are likely to be at the cost of other locations in the area. In any event the jobs at new stations are predominantly (73%) in London.

4.14. Section 2.6 Controlling Greenhouse Gases (Page 20)

This entire section makes no detailed arguments as to why HS2 could form part of carbon reduction commitments. our concerns with HS2’s high speed, high energy use and impact on emissions are detailed above. The DES itself in this section states that there is a role for transport “in helping to combat climate change by encouraging a shift to lower carbon modes” but acknowledges that “a high speed line many not necessarily be the lowest carbon solution it is considered to offer the optimum balance between carbon reduction and economic benefits.” However no description is provided as to how such an optimum balance was determined and what factors were taken into consideration in achieving this “optimum balance”.

4.15. Section 2.7 Managing Local Impacts (Page 20)

This section acknowledges that “*The Government acknowledges that constructing a new railway in the UK will lead to adverse local impacts*” but declines to describe them in any detail. It also states

that “However, in developing the route between London and the West Midlands, HS2 Ltd has sought to reduce such impacts as far as reasonably practicable.” But this is simply not borne out by the facts.

The acknowledgement in Paragraph 2.7 that they “were weighed against their cost-effectiveness and against any implications they might have for journey time and thereby the wider economic benefits” shows in stark terms the relationship between the unprecedented level of environmental damage and the flawed methodology in the scheme’s business case concerning the valuation of time. A small reduction in speed would permit a vastly more sustainable project to be put forward-but this is prevented by the flawed methodology used by HS2 Ltd and the Department for Transport in this area.

4.16. Section 2.8 Policy and Legislative Context (Pages 20-23)

This section simply lists some of the legal and planning requirements relevant to Phase 1 of HS2.

There is no mention of the Strategic Environmental Assessment Regulations-which we presume is an acknowledgement that the Government’s position has now changed and it has not achieved substantial compliance with these particular requirements. HS2AA believes that the HS2 scheme required the completion of a Strategic Environment Assessment.

This section also references various environmental protection measures, but provides no detail on how they impact the HS2 project and what has been done to comply with these requirements.

The reference to broader planning and sustainability requirements (such as “Securing the Future” and the National Planning Policy Framework) are vague and no definitive information is provided as to how the requirements set out in these documents have been complied with.

Paragraph 2.8.12 references the UK’s carbon reduction commitment, but makes no reference as to how the HS2 project will help achieve these goals.

Similarly, policy statements which appear to pose significant challenges for the HS2 project are ignored. One example is Defra’s recent Forestry Policy Statement which states: ‘England’s 340,000 hectares of ancient woodlands are exceptionally rich in wildlife, including many rare species and habitats. They are an integral part of England’s cultural heritage and act as reservoirs from which wildlife can spread into new woodlands’. It states categorically that “Protection of our trees, woods and forests, especially our ancient woodland, is our top priority”.^{xxiv}

4.17. Section 3-The Proposed Scheme (Pages 24-53)

This sections sets out the characteristics, route and infrastructure of Phase 1 of HS2.

Comments as follows

Paragraph	HS2AA Comment
3.2 (Generic Objectives)	<ul style="list-style-type: none"> • Safety - no details provided as to risk assessment posed by running trains at the speeds indicated in the DES. • Capacity - HS2 classic compatible trains may have less capacity than the current Pendolino models • Interoperability - European gauge high speed trains (so called captive trains) will not be able to operate on other north-south lines. In case of accident, engineering problem or similar disruption these trains cannot be diverted onto other lines. • Services - significant technical challenges need to be overcome to enable trains to travel at high speed on dedicated track and then transfer seamlessly onto “classic lines”. • Sustainability - for reasons set out above, HS2 cannot be described as sustainable.

<p>3.3 Services and Operating Schedule</p>	<ul style="list-style-type: none"> Extended running hours, with maintenance work when trains aren't running will have severe and negative environmental effects on wildlife, fauna and communities near line. There is no reference to further works required to existing railway system or stations to accommodate "Conventional Compatible" trains-if HS2 Ltd do not believe any such works are required this should be confirmed in the ES. No discussion on technical challenges of running a 14 train per hour or 18 train per hour service, even though FOI confirms 18 trains per hour may not be technically feasible. Running trains at 400 kph is a key design feature of the route and a direct contributor to the environmental impacts set out in this document-but there is no discussion as to why this speed was chosen, the likelihood of trains operating at this speed and who would decide to increase the speed of operation to 400 kph.
<p>3.3.9 (Commissioning)</p>	<ul style="list-style-type: none"> The commissioning process has the potential to raise significant additional environmental effects. These require full consideration in the ES.
<p>3.3.12 (Interfaces with other public transport modes)</p>	<ul style="list-style-type: none"> Euston - details should be provided on how HS2 Ltd proposes to deal with onward journeys on London Underground. The recent judicial review saw counsel for the Department for Transport admit this issue had not been resolved. HS1 - given proposed service pattern the ES needs to set out exactly how the link to HS1 will be used. Given concerns from TFL on the impact on existing North London Line services more detail is required as to how the connection with HS1 will operate. If there are not sufficient numbers of train paths for services to HS1 this should be sufficient to cancel plans for this link. Curzon Street Station - details of how a link to Moor Street Station will be provided is required. Currently these two sites are separate.
<p>3.3.13</p>	<ul style="list-style-type: none"> Details of any works required to accommodate conventional compatible trains on the existing rail network should be provided-this would appear to constitute an "indirect effect".
<p>3.4 (Proposed Scheme Description)</p>	<ul style="list-style-type: none"> Details of how Euston would be expected to deal with onward passenger movement and dispersal should be provided. Details for Crossrail connection to Old Oak Common should be provided. Details of impact on North London Line of current proposals for link between HS1 and HS2, and the assessment of Transport for London of how these proposals will impact the North London Line should be provided.
<p>3.5 (Principal features and infrastructure)</p>	<ul style="list-style-type: none"> Type of fencing is clearly critical for visual amenity impacts on local communities through which line will run.
<p>3.5.5 (Earthworks)</p>	<ul style="list-style-type: none"> Little detail provided as to design parameters used to determine how earthworks will be used. Raised embankments clearly pose significant noise related issues-again no discussion on how this will be mitigated. Reference to an "integrated landscape strategy" but no discussion of what this will consist of.
<p>3.5.9 (Track)</p>	<ul style="list-style-type: none"> No reference to challenge of building and maintaining track able to deal with intensive use by very high speed trains. What type of design considerations have been applied in this area and what confidence to HS2 Ltd have that the design will be suitable?

	<ul style="list-style-type: none"> No reference to “Rayleigh Wave” risk or other vibration problems from trains entering or existing tunnels at high speed.
3.5.10 (Tunnels)	<ul style="list-style-type: none"> No reference to advances in tunnelling technology from Crossrail experience which suggests tunnelling can now be undertaken faster and more cheaply than has previously been the case. What review has HS2 Ltd undertaken of these tunnelling advances and what does it mean for the tunnel proposals which do not feature in current plans for Phase 1? Design of headhouses - will these be subject to Local Authority prevailing planning guidance? More generally the engineering costings used to reject tunnelling options are questionable and lack detail or substantiation and the full environmental benefits, and local costs (blight, congestion, dislocation) are not taken into account. There appears to be a failure to articulate a justifiable basis for balancing short term cost savings against long term environmental costs (less spoil versus permanently greater visual and noise pollution). There is also a failure to mention adverse visual effect of lighting for maintenance purposes (once railway operational) and lighting from trains, as light pollution would be visible and be obtrusive from considerable distances during hours of darkness – ie from wherever the railway is visible
3.5.22 (Stations)	<ul style="list-style-type: none"> What arrangements are being made in each station for Phase 1 for passengers who will use the link to HS1 to travel to Continental Europe? Are segregated facilities for international passengers forming part of design spec for stations. On-site development - this is a direct effect of the plans for Phase 1 of HS2 and to comply with EIA requirements details of what is proposed in this area are required.
3.5.26 (Oversite Development)	<ul style="list-style-type: none"> This clearly represents a “direct effect” of the proposals for Phase 1 of HS2. The letter from the Secretary of State for Transport to HS2 Limited of 28 June 2013 makes an explicit request for HS2 Ltd to include as part of its role the maximization of commercial benefits from stations. The environmental impacts of such development are not dealt with in the DES and must be included in the ES. There is no reference to the likelihood of future development on sites adjacent to the track-there is clear precedent when new transport infrastructure is constructed that local planning decisions change. This is a clear concern in the area around Birmingham Interchange Station, which is located in Green Belt and has been referenced by HS2 personnel as being a key area for future development.
3.5.31 (Power Supply)	<ul style="list-style-type: none"> This section is generally silent on the environmental impacts of the proposed power supply arrangements. How much power will HS2 require during day time running hours? How will this compare to existing demands for electricity from the rail sector? Have the National Grid indicated any concerns or problems which will need to be resolved for this supply to be provided? The local environmental impacts of the overhead line contact system and related equipment (eg bird strike) are not referenced-there is virtually nothing provided on this important topic.
3.5.41 (Stabling)	<ul style="list-style-type: none"> No discussion on environmental impacts of stabling

	<p>arrangements required at places outside Phase 1 route-if there will be no environmental impacts this should be made clear.</p>
3.5.45 (Train Control and Communication)	<ul style="list-style-type: none"> The additional antenna will mean significant visual intrusion and undermine attempts to mitigate the visual effects of the line. What consideration has been given to less visually intrusive systems? Can the antenna be incorporated into existing overhead equipment?
3.5.47 (Drainage)	<ul style="list-style-type: none"> The visual issues raised by balancing ponds are not covered. The DES states that “where possible” balancing ponds would be designed to have a naturalised appearance-what criteria will be used to make this determination? Will the local community be consulted? How will drainage requirements interact with strategies for managing flood risk at those points on the proposed route where this is a concern?
3.5.51 (Noise Barriers)	<ul style="list-style-type: none"> This is a critically important issue for the communities impacted by HS2. It is surprising and disappointing that the subject merits simply two paragraphs in the DES. The design of noise barriers and where they are sited will make a huge difference to the lives of thousands of people. Further discussion is required on why a design height of 3 metres was chosen, what reference design has been used (in different European countries designs for noise barriers differ significantly) and why fences on viaducts will only be 1.4 metres-thereby substantially worsening the noise impacts in these areas .
3.5.53 (Roads and Rights of Way)	<ul style="list-style-type: none"> The additional roads needed to facilitate the requirements set out in this section are not quantified. The ability for HS2 Ltd to build further roads in accordance with their evolving plans during construction is also not mentioned. The commitment to construct new roads, paths, bridleways is unclear, and where such replacement features are to be built, HS2 will only commit to construction “to the appropriate standard for each location” Similarly, permanent highway diversions, which have the potential to significantly change communities and worsen quality of life, the commitment in the DES is that these “would be design, as far as reasonably practicable, to blend into the surroundings and retain the existing character of the road”-again this is a vague and essentially meaningless commitment.
3.6 (Construction)	<ul style="list-style-type: none"> The description of processes used is high level and lacks detail. HS2 Ltd doesn’t commit to any particular approaches to construction which will provide confidence to local communities that effects will be mitigated-the overall impression is that HS2 Ltd is trying to ensure it has maximum flexibility to construct HS2 in the manner it chooses. For example, in Paragraph 3.6.4, HS2 Ltd cannot even commit to keeping stockpiles of earth away from sensitive historic and natural features or at 3.6.5 cannot commit to tree removal outside bird nesting season. Section (g) which deals with viaducts makes no mention of the sound mitigation measures to be adopted on these stretches of the line. Section (k), which deals with utilities, is startling for the scale of omission. There is no commentary on the principal utilities to be moved, the costs of this exercise and what problems can be expected in terms of operational disruption.
3.6.38 (Construction)	<ul style="list-style-type: none"> This is likely to be a direct effect of the works under

interfaces with the conventional rail network)	consideration. Much more detail of what impacts will occur on the existing rail network are required.
3.6.43 (Construction site compounds)	<ul style="list-style-type: none"> • Vague information provided on criteria used for where these will be sited, what ability HS2 Ltd will have to move or expand camps. • No commitment to minimise visual and environmental impact of such camps. • No reference to impact on local public services from such camps (particularly those camps with residential quarters) including no commitment to work with local stakeholders on this issue.
3.6.49 (Controlling Impacts During Construction)	<ul style="list-style-type: none"> • See section on the Construction Code of Practice

4.18. Section 4-Environmental Impact Assessment (Pages 53-60)

HS2AA's comments on this section are as follows:

4.1.3 (Baseline Studies)	As referenced above, the DES is notable for the near absence of baseline studies, making judgments on environmental impacts and mitigation difficult, if not impossible.
4.1.7 (Engagement and Consultation)	Consultation throughout this process has been poor and there is little evidence that HS2 Ltd has sought to listen or adapt its plans to take account of issues raised. It would appear from the outset that the decision has been taken to marginalise concerns raised by individuals and groups, and instead rely on "spin" as the key approach to community engagement. HS2AA's concerns with the community forums are detailed below.
4.1.8 (Environmental Statement preparation)	The process outlined in this section is vague and avoids any precise commitments. It states the DES has "taken account" of relevant policies, but does not claim to comply with them. The acknowledgement that " <i>future baseline conditions and cumulative effects are not addressed in the draft ES, because the necessary predictive work is continuing. This will be included in the formal ES.</i> " Is a recognition that much of the information expected to be contained in the DES is simply not present.
4.2.5 (Geographic Scope)	Examination such as limiting noise contours to a strip 1km from the proposed line indicates that HS2 Ltd is seeking to avoid consideration of the environmental impacts of HS2-which will unquestionably be felt in a wide area, particularly in rural or suburban areas. This issue must be clearly resolved in the ES.
4.2.11 (Impacts and effects)	<p>There appears to be some confusion between major/moderate and minor effects and "significant" effects in this paragraph. Wording should be clear on assessing the adverse impacts throughout the ES.</p> <p>It is also not clear that when a determination of 'significant' environmental effects is noted what criteria has been applied in making such a determination. Those directly impacted will have a different appreciation of what is a "significant" effect is. The public might say it's a "significant" effect if it reduces the amenity of their home or community. Therefore these judgments need to be clearer.</p>

4.3 (Cumulative Effects)	It is noted that despite the importance of this area, Cumulative Effects are not described in the DES and nor is a list of projects which may have a Cumulative Effect in combination with Phase 1 of HS2. This is simply not acceptable, given their importance and undermines significantly claims of appropriate public participation in the HS2 Phase 1 approval process.
4.4 (General Assumptions and Limitations)	No discussion in this section on any difficulties experienced by HS2 Ltd in accessing land and whether this has impacted any data used in the DES. The section confirms that the DES has significant gaps in it with the statement “As explained in the Preface, the draft ES has been prepared whilst the design and assessment process continues. It is therefore a provisional document in several respects, and should be read as such.”
4.5 Consultation	<p>The DES references the Community Forums as one of the mechanisms for community engagement. These bodies were created by HS2 Ltd as vehicles for community engagement shortly after the announcement by the Secretary of State of her intention to proceed with HS2 Ltd in January 2012. HS2 Ltd stated the purpose of these forums is as follows:</p> <p style="padding-left: 40px;"><i>As part of our ongoing engagement with local people and organisations on the London-West Midlands route we have set up community forums and planning forums.....</i></p> <p style="padding-left: 40px;"><i>The community forums enable local participation, facilitate ongoing discussions and build relationships, allowing us to identify local priorities and explore opportunities for further mitigation and local community benefits.</i>¹</p> <p>These meetings were supposed to provide a structure for engagement on mitigation and related issues but the reality has been very different. In particular:</p> <p>Lack of Clarity on Areas of Responsibility</p> <p>The Community Forums began their meetings without agreed terms of reference, any details on the roles and responsibilities of these meetings and its participants. In addition, no information was provided on how points raised in Community Forums concerning mitigation would be assessed by HS2 and what criteria will be applied by HS2 Ltd for them to be deemed worthy of being included in HS2 Ltd’s final mitigation strategy.</p> <p>There is also a lack of information on how Community Forums relate to other engagement activities being undertaken by HS2 Ltd. The minutes for the Colne Valley Forum of 13 June 2012 contain a commitment that HS2 Ltd would provide a document on this issue after these meetings have been up and running.</p> <p>HS2 Ltd have met with individuals and community</p>

¹ <http://www.hs2.org.uk/consultation-engagement>

	<p>groups in so called “bilateral meetings” at the same time as the Community Forums are being undertaken. HS2 Ltd claimed these meetings were a further part of its engagement process, but it is not providing any information on the outcome of these meeting to the Community Forums. As a result Community Forums were unable to maintain an accurate picture of commitments made by HS2 Ltd on mitigation in these meetings, and how they fit with other environmental priorities for a particular area.</p> <p>In the absence of these fundamental points being resolved, it has been virtually impossible for participants in Community Forums to have an accurate picture of the role of the Community Forums and provide meaningful input to the stated goal of community engagement on mitigation matters. It would appear HS2 Ltd reserve the right to take forward whatever proposals it deem sufficiently robust, with no indication of the decision criteria being used.</p> <p>Lack of Specialised Assistance</p> <p>The Community Forum meetings which have taken place indicate HS2 Ltd is using these events to seek community feedback on a range of technical mitigation points. To be able to contribute to these discussions in any kind of informed manner clearly required specialist help and advice.</p> <p>However meeting attendees are being expected to provide expert input on a range of technical mitigation matters, all of which have major environmental implications, without recourse to expertise to inform its decision making. HS2 Ltd will not make resources available to enable Community Forum participants to seek independent advice to scrutinise the environmental impacts of the materials upon which participants are being asked to comment.</p> <p>Where participants do identify matters which are important to mitigation, HS2 Ltd is demonstrating a pattern of failing to provide a basic level of information required to enable informed deliberation and decision making in a timely manner. One obvious example was the continuing inability of HS2 Ltd to quantify the amount of spoil to be removed in each area covered by a Community Forum. When this was raised at the Euston Community Forum of 19 March 2012, for example, HS2 Ltd representatives were unable to provide this information even in outline.</p> <p>Membership & Administration</p> <p>There appears to be no consistent approach to how participants are chosen for participation in Community Forums by HS2 Ltd. It is unclear what skills are required for persons to be chosen to be participants and how HS2 ensure participants represent their community. HS2 Ltd have not provided any guidance on this area.</p> <p>HS2 Ltd personnel attending Community Forums appear</p>
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	<p>frequently not to have been provided with sufficient information for the meetings to fulfil their stated role. For example, the HS2 Ltd representatives attending the July 2012 Central Chilterns Community Forum had no knowledge of the adverse route changes announced by the Secretary of State in January 2012 which are detailed above.</p> <p>Initially community forum meetings were not minuted by HS2 representatives unless participants raised this as an issue. Such minutes that are taken appear to frequently omit key points of discussion or commitments made by HS2 Ltd. This in turn requires meeting participants to engage in extensive discussions with HS2 Ltd to ensure accurate minutes are produced. Requests for more forum meetings or longer meetings to examine issues in more detail have been refused by HS2 Ltd.</p> <p>HS2 Ltd representatives frequently waited until the end of the allotted times of meetings to announce significant information (eg location of work camps) rather than providing information in advance. This appears to be a crude attempt to limit discussion on important but controversial environmental matters.</p> <p>HS2 Ltd also appear to use the Community Forums to announce matters which should have been the subject matter of wider consultation processes, for example their announcement in the Euston Community Forum on 19 March 2012 that the total budget for mitigation for the entire Stage 1 Route was £250 million. Clearly there is a huge difference between informing the public about major aspects of the scheme, which should have been subject to consultation, and informing relatively few people in a Community Forum.</p> <p>Failure to Provide Information Relating to Mitigation</p> <p>Despite the stated goals of these meetings, the experience of participants in the Community Forums is that it is, in practical terms, impossible to have a substantive discussion about mitigation as HS2 Ltd will not provide details of what funds have been allocated for each section of the line covered by a particular community forum to pay for mitigation projects.</p> <p>Participants have been asked to participate in decisions on mitigation without being provided with the information required to discharge this responsibility. Fundamental points such as who will decide on the design of the mitigation, if there is a conflict between what communities want and what HS2 Ltd want how these are resolved and whether mitigation measures incorporated in the actual structure to be costed against HS2 Ltd's construction or mitigation budgets have not been provided</p> <p>In addition HS2 Ltd representatives will not provide information to forum participants (most of whom as community members have no specialised knowledge of the area) on what type of mitigation measures may be available, their respective relative strengths and weaknesses in terms of environmental impacts, and what issues forums should consider to determine which</p>
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	<p>mitigation options may be preferable for a section of route.</p> <p>This approach means that the Community Forums, which serve as the only mechanism for communities to provide feedback on mitigating the impact of HS2, have been unable to properly discharge the role for which they were created. The primary reason for this failure is the inability or unwillingness of HS2 Ltd to provide even the minimum information required.</p> <p>The Compliance Committee has reviewed the impact of Article 6 (dealing with public participation in environmental decision making) and its key conclusions indicate that the approach taken in connection with the Community Forums raises some significant issues.</p>
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HS2AA Conclusion VII

There are significant changes required to the assumptions used by HS2 Ltd in formulating a scheme that complies with prevailing sustainability requirements.

**4.19. Section 5 (Scope and Methodology For Environmental Topics)
(Pages 61-73)**

As an overall comment, this section provides little in the way of firm commitments and instead provides HS2 Ltd with maximum discretion to plan and implement Phase 1 of HS2. There appears to be little in the way of environmental protection which HS2 Ltd will commit to. HS2AA would urge for this section to be reviewed and an assessment made as to how the processes described compare to sustainable construction best practice and the conclusions of this study to be contained in the ES.

Specific additional comments are as follows:

- Using a corridor 200 metres wide (Paragraph 5.2.3) from the centre of the Proposed Scheme as a study area is too narrow given the environmental effects set out in Paragraph 5.2.1.
- There appears to be confusion as to what size of corridor is being used to assess whether loss of BMV land is significant (Paragraph 5.2.3)-the scope of the corridor should be clarified.
- The statement that assessment of farm impact has been derived from “where feasible from direct contact with affected interests and is based on the best information available at the time of writing” appears to be vague and open to manipulation. Use of HM Land Registry data can inform calculations of the size of farm businesses and should be used (Paragraph 5.2.4)
- The commitment to restore farmland after construction, including related water supplies, is vague and non-committal. HS2 Ltd should be clearer about their proposals in this area.
- The DES is vague about the area to be assessed as being impacted by potential air quality issues-again this is a huge issue for impacted communities and baseline air quality measures should be put in place as soon as possible. (Paragraph 5.3).
- The failure to include any calculations on HS2 Phase 1 impact on Climate Change (Paragraph 5.4) is hugely disappointing and is dealt with in more detail above. It is also concerning that the only commitment made is that the “resilience of the Proposed Scheme to the effects of climate change will be reported in the formal ES”- use of the term “resilience” suggests that a full assessment of how HS2 is consistent with the UK’s carbon reduction commitment may not be provided. HS2AA would find this deeply concerning.
- HS2AA believe HS2 Ltd have devoted too little attention to understanding the impacts in the communities through which the line is proposed to travel-the admission at Paragraph 5.5.8 that “*To date consultation has not been undertaken with all community facilities likely to be affected by*

the Proposed Scheme. As a result detailed information on the use, services provided and future plans of all facilities is not available. Any change to the conclusions as a result of further consultation will be reported in the formal ES.” appears to confirm these concerns. The anticipated corridor to be assessed in this category also needs to be made clearer.

- Restricting landscape character areas and visual receptors to 500 metres of the Proposed Scheme is not appropriate given the major impact on visual amenity the proposed route would have, in particular in rural areas (Paragraph 5.10)
- Noise (Paragraph 5.12) - see Appendix I for detailed comments on how noise is treated in the DES.

4.20. Approach to Mitigation (Section 6)

HS2AA believe the descriptions provided for mitigation strategy in this section suggest HS2 Ltd is not fully committed to discharging its obligations in this area. HS2AA believe the following overreaching principles should apply:

- All structures, such as viaducts, tunnel portals, ponds and earthworks must be designed to fit as unobtrusively as possible into the surrounding landscape and achieve appropriate levels of safety for residents.
- There should be significant attention paid to community involvement in decisions around mitigation including engagement of relevant local authorities.
- The budget available for mitigation must be clear and detailed-covering the different categories of mitigation detailed in the DES.
- New habitats must be created for at-risk fauna and new woodland planted using native species;
- Information about the maximum heights of topsoil, contamination issues and run off risks should be provided.
- Wildlife crossings must be created across the route to help mitigate the loss.
- Noise mitigation must meet World Health Organisation Guidelines on Community Noise.

More broadly, it is difficult to reconcile HS2 Ltd’s stated commitment to mitigation given its decision not to provide details of the compensation measures it will offer in most instances for habitat loss; these will appear in the ES rather than being covered in the DES.

The Department for Transport have made much in the media of their actions in drawing up a landscape plan for HS2, which proposes the planting of 4 million native trees to create new habitats for wildlife and flora and offset some of the carbon impacts from construction. These new trees, although welcomed, can never compensate for the loss of ancient woodland which, by its very nature is irreplaceable. The statement in some of the individual Ecological Assessments therefore that the loss of ancient woodland would only result in a significant effect *‘until mitigation planting has established and matured’* is misleading

4.21. Alternatives (Section 7)

This section seeks to make the case for the current proposals for the route and capabilities of HS2. HS2AA believe the conclusions contained in this section about the need for a very high speed are wrong given the DES:

- Failed to properly take into account carbon benefits of lower speeds;
- Failed to take into account the lower noise impacts of a lower speed;
- Over-estimated the value of shorter journey times, and hence of higher speeds;
- Prioritised ‘future proofing’ to allow the possibility of yet higher speed to the detriment of environmental impacts – including in conservation areas;
- Values journey time reductions on ‘no-one works on trains basis’ which we all know is wrong.

HS2AA's view is that sufficient consideration has not been given to the 51M Optimised Alternative (OA) solution to HS2. In particular, as a result of recently announced 2013 Network Rail plans for the WCML (building the Stafford bypass) the OA can now be achieved with no subsidy, reducing its cost from around £2.6bn to around £1bn.

The OA can meet the DfT's forecasts of a doubling in demand for long distance rail travel at a fraction of the cost of HS2. There are 3 key features of the 51M alternative. By carrying out the first 2 changes below intercity capacity could be doubled. By adding the third change, standard class capacity could be **tripled**.

1. Increasing the length of existing intercity trains from the current 9 or 11 cars to 12 cars (all except for trains to Liverpool which would continue with 11 cars due to prohibitive costings of reconstructing Liverpool Lime Street Station).
2. Reducing the number of first class carriages in each train from 4 to 3 by converting one car to standard class.
3. Addressing 3 pinchpoints on the WCML – constructing a grade separated junction at Ledburn Junction and eliminating existing bottlenecks between Rugby and Nuneaton and in the Stafford area (Stafford bypass) enabling a further 24 additional intercity trains each way a day.

The Government rejected the 51m OA on various grounds following criticisms made in a Network Rail report. At no time did DfT or HS2 Ltd seek to clarify 51m's proposals. The main criticisms are as follows:

- **Insufficient capacity to meet forecast demand on Euston commuter services** – Network Rail implicitly accept that the OA alternative provides sufficient long distance capacity but claimed that the OA would not meet future suburban commuter demand (51m had not specifically addressed this issue as it had not been mentioned as one of the strategic aims of HS2). However, the OA doubles commuter capacity on the overcrowded Milton Keynes and Northampton services. In addition, current overcrowding could be alleviated immediately by allowing passengers to Milton Keynes use half empty Virgin intercity trains which already stop there but are not permitted to carry passengers between Milton Keynes and Euston during peak hours. In addition, HS2's own service patterns (published January 2013) show that it does not allow for any services to be transferred from the slow to the fast lines.
- **Would require remodelling of Euston Station** – the 51m OA would not require any work at Euston as sufficient 12 car length platforms are available to accommodate the proposed service frequency. In contrast, HS2 will require massive disruption to Euston station over an 8 year period.
- **51m's proposals would result in long periods of disruption** – the works to the 3 pinchpoints suggested by 51m are similar to the recently completed works at Nuneaton (constructed without any major disruption). Network Rail intend to proceed with the Stafford bypass works themselves therefore they cannot consider the works prohibitively disruptive. In any event, the works proposed by 51m would be much less disruptive than the works to Euston required for HS2.
- **The high utilisation of the fast lines would negatively impact on route performance** – the 51m alternative would result in 16 trains per hour in the peak (higher than at present but reliably achieved elsewhere on the rail network). In any event it is lower than the 18 trains per hour proposed by HS2.

51m proposals worsen connectivity on intermediate flows resulting in leaving some stations without a train service – these claims are entirely unfounded and no stations are left without a train service – 51m could have clarified this, if asked. In contrast the HS2 business case includes a saving of £7.7bn for service reductions on existing routes.

7. Volume 2 - Community Forum Areas

Set out below are comments on the plans detailed by Community Forum Area. This section is not meant to provide a definitive list of all objections to the current proposals for Phase 1 of HS2 and does not cover all CFA's. It does however show a consistent pattern of environmental issues with the current plans and greater need for improved mitigation.

1. CFA 1 Euston Station

Scheme Summary: Construction of London terminus for HS2 services, involving major disruption and construction to the existing station and surrounding areas.

The revised plans for Euston require substantial additional land take, including existing social housing and local business premises as well as significant traffic disruption to the surrounding area, all without the promise of regeneration.

2 CFA 7 Colne Valley

Scheme Summary: The line runs across the Colne Valley lakes including the Grand Union Canal mostly on viaduct (10-15m above ground level), before reaching the M25 and entering the Chiltern Tunnel.



Key concerns

- Plan CT-05-019 shows a tight construction width over the Grand Union Canal where the proposed Colne Valley Viaduct crosses, just south of the adjoining Harefield Marina south end. The actual method of constructing the viaduct is not set out in the DES, so construction impact on the area is not clear.
- Any construction proposals for the Colne Valley Viaduct must include effective precautions to protect users of the canal and towpath and ensure

continued access to this area.

- Sound impact plan SV-01-10 shows potentially significant (55-65Db) daytime estimated levels of noise expected as trains cross for most of the canal section between bridges 180 and 181, and much of the marina. No clear proposals are provided in the DES on how these noise impacts will be effectively mitigated-further mitigation to reduce noise levels at the viaduct and in the marina must be set out in the ES.
- The diversion of the Colne River, is not covered in detail in the DES and instead there is a statement that it will be described in the ES. This is surprising given the environmental impacts such diversion could have-both on use of the Grand Union Canal as well as London's water supply (22% of which is derived from The Colne). By declining to provide any data on how the diversion will be achieved, it is essentially impossible to evaluate how effective these plans will be.
- The impact on Hillingdon Outdoor Activity Centre is downplayed in the DES-if current plans proceed the centre will need to shut. This provides a valuable resource for young and disabled people-the ES must set out mitigation proposals for this centre.
- The DES contains no reference to vehicles transferring to HS2 construction sites in The Chalfonts and Latimer and Central Chiltern through this CFA. In the latter, this indicates that vehicles for their work compounds will use the M25 and the A412. For haulage contractors, they may use the A40 and the A413 to reach these sites, as this is a shorter distance. These are both heavily used

roads. Construction traffic on these will heavily impact access to / from Chalfont St Peter, Chalfont St Giles and Amersham-the ES must include details of how this issue will be resolved.

- The assessment of temporary and permanent damage to the Mid-Colne Valley SSSI underestimates the impact on wildlife from construction activity, and the impact of noise of the trains on over-wintering and breeding colonies of birds and the risk of bird strike. All these developments will have a significant impact on the SSSI yet are not dealt with in the DES. A clear mitigation strategy for the SSSI must be provided as part of the DES.

3 CFA 8 The Chalfonts and Amersham

Scheme Summary The route through this area is entirely in tunnel, with 3 vent shafts.

Key Concerns:

- There are major concerns with the impact of tunnelling through the chalk sub-structure found in the Chalfonts. There is evidence that there are large caverns in the chalk under the route. Tunnelling could cause these to collapse.
- Chalk Streams in this area are incorrectly described in the DES- they are a globally rare habitat
- The route passes through the Chalk Principal Aquifer underlying the Misbourne Valley. This aquifer feeds the Colne Protected Water Zone, which supplies 22% of London's water. While HS2 Ltd state they are confident the new line will not pollute the aquifer, no substantive details have



been provided to confirm this point and no mitigation is planned. There is a major risk that the tunnelling effects the fissures through the chalk and completely alters the flow of water through the aquifer.

- The DES doesn't deal with the possible impact on the Misbourne, and what mitigation steps will be taken or considered should the tunnelling impact on ground water reaching the river, with the impact on a globally rare chalk stream habitat.
- The closure of Chalfont Lane during the construction period and a long diversion via Horn Hill and the A412, will impact a large number of local people who commute on this road. It will add further to the congestion on the A412, which will already be severely impacted by the construction traffic from the main tunnel construction compound.
- No assessment has been made on the impact of HS2 on business in the Central Chilterns. The area benefits from tourism through the number of people who come to walk and cycle in the Chilterns. The HS2 project will lead to a sharp reduction in the number of people visiting the area, with the resulting reduction in income for businesses serving the visitors. The impact on Old Amersham will particularly severe.

To mitigate the impacts of traffic and loss of business on Chalfont & Amersham and the Central Chilterns, the bored tunnel to Mantles Wood, should be extended to north of Wendover. This would dramatically reduce the amount of traffic, and leave the network of Public Rights of Way intact and available for visitors.

4 CFA 9 Central Chilterns

Scheme Summary: The Chilterns Tunnel ends in this section, and has a single vent shaft. After a short length of surface running the track enters a 1.2km 'green tunnel' near Short Heath before returning to the open in a cutting.

Key Concerns:



- The introduction of drainage ponds and culverts, imports an alien feature into the landscape. Typically ponds in the hills in the Chilterns are dew ponds formed with a clay lining, to provide water for livestock.
- There are references to use of spoil, however no information is provided on how much spoil would be created, how much would be used locally and how much will need to be disposed of.
- The analysis in the DES recognises the

benefits of an extended tunnel on landscape, ecology, ancient woodlands and the land severance impacts on agriculture and habitat. The conclusion that CRAG's tunnel options B&C would produce more lorry movements in the AONB compared to the Proposed Scheme is illogical. HS2 Ltd are urged to assess these matters again.

- Proposals from the local community to increase the depth of the cutting and reduce the speed of the trains through the AONB were rejected because of cost and impact on time savings. Given the flawed assumptions on the value of time used by HS2 Ltd, this decision should be reconsidered. Impact on amenity for South Heath only included in the formal ES, including in combination impacts.
- The quality of the assessment of the impact on visual receptors is called into question, by the assessment in the DES of the impact on 087-2-002 as "moderate adverse". The view from here will be completely destroyed both during and after construction. Again a realistic assessment of landscape impacts must be made in the ES.
- HS2 Ltd has failed to carry out any analysis of the visitor economy and the potential impact of HS2 on the village and the AONB.

To mitigate the impacts of traffic and loss of business in the Central Chilterns, the bored tunnel to Mantles Wood, should be extended to north of Wendover. This would dramatically reduce the amount of traffic, and leave the network of Public Rights of Way intact and available for visitors.

5. CFA 10 Dunsmore, Wendover and Halton

Scheme Summary: The route begins in cutting, moving on to viaducts cuttings & embankments and crossing the Marylebone to Aylesbury Railway line before entering a 1.3km green tunnel as it passes Wendover, emerging again in cutting. North of the green tunnel a "maintenance loop" has been added to park maintenance or non operational trains when necessary.

Key concerns are:

- This area impacts the Weston Turville Reservoir SSSI, approximately 1.1km north of the route. The ES states that during construction prior to the permanent works being in place it may not always be possible to transfer flows from the cutting west of Wendover across the existing railway. This would create a temporary impact on groundwater flow towards the Weston Turville Reservoir SSSI as water is directed further down the catchment. Investigation to the extent to which the releases from the reservoir could be managed to reduce the impact on the SSSI should take place.
- Few details provided of Impact on air quality for Babcombe and Coombe Hill SSSI, which is within 100m of the route.
- Landscape impacts Bacombe Hill will be significant. of construction on Wendover Conservation Area

- The DES envisages the loss of 19 km of hedgerows causing serious loss of habitat connectivity, together with impact on animal migration routes.

All of these losses and risks would be totally mitigated by tunnel from the M25 to the north of Wendover.

6. CFA 11 Stoke Mandeville and Aylesbury

Scheme Summary: The rail track enters this area on an embankment with the maintenance loop line alongside. It then passes to the south of Stoke Mandeville and Aylesbury on shallow cutting before moving onto low embankment. After passing through a shallow 1 km cutting it crosses the River Thames on a 1km embankment, runs through a short shallow cutting and leaves the section on low embankment.

Key Concerns:

- The option of tunnelling along this section of route (from Nash Lee to Waddesdon) be reconsidered given the likely noise impacts on surrounding communities.
- Re-routing of Construction traffic to avoid Lower Road and Marsh Lane East
- Elimination of the Construction sites in Marsh Lane and Risborough Road
- A green tunnel across the SW flank of Aylesbury town - Hawkeslade/ Walton Court to Hartwell.

7. CFA 13 Calvert, Steeple Clayton, Twyford and Chetwode

Scheme Summary: The route runs generally north-west and passes between the Calvert Landfill Site to the west and Calvert to the east, in cutting. At the intersection with the Bicester to Bletchley line an Infrastructure Maintenance Depot will be constructed, joined to both tracks and to the east of the route. This will become a primary base for maintenance of the whole line from London to Birmingham, and during construction will be a major railhead for works. Beyond Calvert the route runs parallel with the disused GCML and will pass Twyford on a series of embankments, culverts and viaducts to cross the Padbury Brook, its tributaries and floodplains. The route would then enter an approximately 1.3km cutting up to 5m deep, to the east of Godington. It then passes over a series of embankments and two viaducts, as the route clears the floodplain of the Padbury Brook, runs in cutting up to 10m deep for approximately 2km passing Chetwode. The route then exits the cutting to re-join the former GCML route.

Key concerns:

- Chetwode still has predicted high noise levels after the proposed mitigation.
- The proposed route goes through the Chetwode Conservation Area significantly affecting the setting of the Grade 1 listed Norman Church with important medieval stained glass
- In Chetwode 10% of the houses are due to be demolished and a further 10% are already owned by the DfT under EHS. The community cannot sustain these losses. A green tunnel would remove blight and prevent DfT from having to acquire more properties in Chetwode. Blight is such that no houses have sold in Chetwode (except under EHS) since HS2 was announced in March 2010.
- The single track country lane proposed for construction route to Chetwode is not suitable for lorries, there are no passing places.

8. CFA 15 Greatworth to Lower Boddington

Scheme Summary: Broadly straight in a north westerly direction across the section, running parallel with the M1 and M40 with two green tunnel lengths (Greatworth Park and Chipping Warden-Aston Le

Walls). A maintenance loop is located in a cutting up to 14m deep and 1.3km long at Lower Boddington, straddling the northern boundary of this section.

Key Concerns:

- The draft ES makes many individual references to various negative impacts at Lower Thorpe but no reference is made to the totality of the devastating effect of the project on the hamlet at Lower Thorpe by way of the loss of dwellings and the questionably habitable position of the three remaining dwellings.
- There is substantial noise and visibility blight emanating from Lower Thorpe will increase by HS2's decision to make a shallower green tunnel at Greatworth, thereby increasing the viaduct height by 2m in Lower Thorpe. This appears to be a decision drawn primarily by cost at the expense of added blight. The DES states that mitigation of the higher alignment could be obtained by the adoption of noise barriers, landscape earthworks and planting. It is unacceptable that HS2 Limited is not prepared to commit to these features
- The photomontages produced in the draft ES do not include the viewpoint 201-2-001 looking down at the severely blighted hamlet overshadowed by the HS2 viaduct, thereby giving a misleading impression of the impact of HS2.
- HS2 Ltd has withheld requests for maximum episodic sound level data.
- The draft ES and supporting map books were poorly distributed to our local libraries despite persistent requests for copies to both the libraries and HS2 Limited.
- Proposals by Thorpe Mandeville and Culworth Parish Councils' for a covered embankment through Lower Thorpe, which would significantly mitigate the impact of HS2 in this area are rejected in the DES, although no alternative proposals for mitigation provided.
- The draft ES assessment of impacts states dust emissions ...*"would be minor adverse for the closest residential receptors... on Banbury Lane"*. The three remaining roadside dwellings on Banbury Lane in Lower Thorpe would be literally surrounded by activity, being i) close to dwellings being demolished, ii) within about 100m of the track including viaduct construction and iii) facing the satellite work compound. The impact is likely to be significant for these properties.
- In Chipping Warden, a bypass should be built round the village. This will make the village safer - the A361 goes through the centre of the village and cannot bear the additional 1000 vehicles a day planned. The school is on this road, as are many residential properties and the bus stop.
- In Upper and Lower Boddington, given the significant effect of the train noise and the adverse effect on visual amenity, the height of the earth banks, which make up the false cuttings, should be increased so no part of the train is visible. That would require the bank height to be 8 metres above the rails.
- The section past Lower Boddington should be enclosed in a green tunnel to completely mitigate the sound from the trains. There is no evidence supplied in the DES to explain decisions taken not to provide a green tunnel or lower the line. The DES admits that lowering the line would decrease environmental impacts considerably, but the full cost benefit analysis is not provided.
- Local community representatives have been having discussions about mitigating the effects of the line for over 12 months and for all of that time questions on lowering the line and green tunnels and the existence of the Highfurlong Brook flood plain, the effects of the maintenance loop and road diversions have gone unanswered.

9 CFA 16 Ladbroke and Southam

The route exits the previous section in cutting, with the maintenance loop still alongside the operating track. It passes between Wormleighton to the west and a loop of the Oxford canal (Bridges 127-126) to the east on an embankment within 60 metres of the canal close to an underpass for a footpath diversion, then makes a further 900 crossing just east of Willison's Bridge. After crossing a couple of

small watercourses on short viaducts the proposed track sweeps south of Southam and crosses the River Itchen. At this point the route enters green tunnel (400m) which becomes a 'normal' tunnel (1.5km) through Long Itchington Wood- all as two single tunnels. One kilometre after exiting Long Itchington Wood tunnel the route exits this section and crosses the Grand Union Canal on a new viaduct (Longhole Viaduct) just west of Longhole Bridge No. 31 (which is to be demolished), and heads to Offchurch and the east of Royal Leamington Spa.

Key concerns:

- Sound maps SV-01-40 show the length of the Oxford Canal between bridges 126 and 129 will experience noise levels of 50-55Db rising to 65-70Db close to the embankment toe and the crossing east of Willison's Bridge. Suggest noise barriers be fitted to the footpath underpass parapets, or other engineering measures to reduce noise transmitted across the canal.
- Ladbroke seek the use of (locally excavated) spoil (Windmill Hill cutting and Ufton/Bascote Heath tunnels) to create adequate bunds to shield communities from noise and visually from sight of the line and any light pollution in hours of darkness.
- The DES appears to contain no assessment of potential effects of traffic using Ladbroke (and other communities) and the minor roads as a potential 'rat run' when the A423/A425 are subjected to delays during construction works. When the A423 is diverted it will also be elevated to cross HS2 which potentially means noise impacts will also be increased; we seek all possible mitigation measures (design of bridge/use of low road noise surface etc) and that the Highways Agency/WCC be engaged at an early stage with full public consultation throughout on detailed design and implementation.

10. CFA 18 Stoneleigh, Kenilworth and Burton Green

The route continues heading in a north westerly direction across this section, initially in cutting underneath roads and across the Stoneleigh Showground east side, on under the major A46 and smaller A429 to the north east of Kenilworth. The track then crosses two local watercourses on viaduct before entering a short tunnel below Burton Green, exiting in a retained cutting and leaving the section on a low embankment into CFA 23.

Key concerns:

- The proposed closure of the Offchurch Road just to the West of Fosse Way causes an unwelcome diversion through narrow lanes when driving between Long Itchington and Leamington/Kenilworth. A green tunnel would avoid this closure on a busy commuter route.
- The DES downplays the environmental effects so only three properties are referenced as being demolished but then the further 18 properties immediately adjacent to the line only 'may need to be re-housed temporarily'. In reality of course these people are all in the safeguarding zone and will be gone as soon as possible, as will the next 20-30 properties if any sort of VPZ appears – so something like 20% of the village will leave. However these impacts are not mentioned so for example in the community section assessment of impacts and mitigation every single subsection in some way defers to further assessment/consideration/significance being addressed in the formal ES

11. CFA 21 Drayton Basset, Hints and Weedon

The route enters this section running northwest in a mixture of embankment and cutting, crosses the A453 and the A5, then turns north exiting the section at the crossing of the A51.

Key concerns:

- Full description of the Local Policies both the Conservation Area (Lichfield District Council) and the Landscape Character (Staffordshire County Council) are not given --just reference to their existence .
- Appropriate account of the Conservation Area status has not been taken in determining what constitutes proper mitigation
- Habitat surveys are incomplete specifically in respect of bats but also other mammals . Without this information it is exceptionally difficult to assess the effect of the proposed route on these species habitats

12. CFA 22 Whittington to Handsacre

The route enters this section crossing the A51, and its alignment is governed by the phase 2 route north to Manchester. The line runs north past Lichfield to the west, alongside the Coventry Canal in parts, crosses the line of the Wyrley and Essington Canal near Huddlesford Junction and the A38 then curves round Streethay to the north west along the western edge of the Fradley South business development. Between Streethay and Fradley Junction the line splits, with two link connections running between HS2 and the existing WCML. The main route continues for a short stub to allow future connection of phase 2 towards Manchester.

Key concerns:

- The impact on the Woodend to Fradley Junction section of the Trent & Mersey Canal is one of the most damaging canal crossings nationally. The design in the DES seriously impacts the environment and heritage of the canal, especially the Listed Buildings within the canal Conservation Area.
- The view down the valley from the scenic and historically significant corner at Woodend, where the canal changes from an overall north-south to an east-west course, would be significantly changed by the proposed embankments and landscape planting.

13. CFA 23 Balsall Common and Hampton in Arden

The track continues from CFA 18 to head broadly north west, swinging round the east of Coventry and to the north east of Balsall Common (where it crosses the Rugby to Birmingham Line) and Hampton in Arden, crossing the floodplain of the River Blythe before entering the next section where the Birmingham Interchange Station is to be located via a cutting.

Key concerns:

- Noise will seriously affect residential dwellings in Diddington Lane, Lapwing Drive and Meriden Road, and the homes and farming businesses at Mouldings Green Farm, Pasture farm, Diddington Farm and Patricks Farm. Details of mitigation are uncertain.
- The Island Project School at Diddington Hall (a School for children with the most acute learning needs) has been the subject of protracted discussion about the effects of rail noise and construction. Despite these discussions, no details of any mitigation are contained in the DES.
- The A45 trunk road and access routes will be extensively rebuilt, realigned, widened and the Stonebridge roundabout flyover at the A456 raised by over a metre in height. The DES provides no detail of appropriate mitigation for increased noise and pollution for affected residences and doesn't describe what effect these works will have on local businesses. The closure of the emergency access from the M42/A45 roundabout into/from Old Station Road causes concern. If this is closed as indicated emergency vehicles will be denied immediate access.

14. CFA 24 Birmingham Interchange and Chelmsley Wood

The route runs north-north-west through this section, over the A45 and pulling parallel to the northbound M42. The first third of the section includes the Birmingham Interchange Station, allowing passengers to disembark for NEC, Birmingham International Station and Birmingham Airport which they would access via a People Mover (design yet to be confirmed). After leaving the station the route crosses the M42 then the M6 on a viaduct, leaving the section close to where the M42 meets the M6.

Key Concerns

- Minimal discussion of the impact on the Green Belt in this area and implications for future development given siting of Birmingham Interchange Station.
- No overview provided of noise impacts for communities from two stations and airport in close proximity.

15. CFA 26 Washwood Heath to Curzon Street

The route enters this section in the last 0.5km of the Bromford Tunnel, and emerges alongside the site for the Washwood Heath Rolling Stock Maintenance Depot parallel to the Birmingham to Derby Railway. The route continues to follow the curve of the existing track down to the south, crossing over the Grand Union Canal and under Saltley Viaduct with 4 tracks including two sidings to Washwood Heath Depot. It then swings round to the west crossing the River Rea on the Birmingham City Centre Viaduct before crossing the Digbeth Branch Canal on the new Curzon Street Viaduct as it expands from 2 to 7 tracks and terminates in the new Curzon Street Station with 6 national and one international platform.

Key concerns:

- No discussion of impact of proposals for a siding at Washwood Heath on proposals for a new technology park. No wider discussion of employment impacts from sidings being placed in this location.

8. Volume 27 Route Wide Effects

The key points are:

- There appears to be no significant discussion of the costs and operational difficulties relevant to the movement of utilities to enable Phase 1 to be built.
- Information about the maximum heights of topsoil, contamination issues and run off risks is not provided.
- The document fails to assess the impact of light pollution on the landscape.
- The impact of night-time working for maintenance is not assessed as a route wide issue.
- The incursion into designated green belts is not assessed. There is no assessment of the impact of HS2 on the fragile green belt separating Coventry and Birmingham. The potential for ribbon development is not explored. Precedents and incursions into the green belt only make it far harder to protect what is left. Paragraph Volume 2, 27, 2.3.5 is symptomatic. This paragraph cites various pre-existing incursions, such as power lines into the landscape, in this case the landscape of an AONB, to minimise the impact and justify a far worse incursion.
- Inadequate information as to intentions and policies for providing planted screening. While it is stated that species native to the local area will be used, it is not clear how substantial the screens are to be, nor whether they are to be tall tree screens or lower hedgerows. Nor is it clear how HS2 Ltd will provide for the future retention and maintenance of the screens in the longer term.
- There is no assessment of resultant fragmented parcels of land and who assumes responsibility for them.
- There is no analysis of the potential drop in farm productivity as a result of land-take or severance and there is an inbuilt assumption about capacity to adapt.
- Total lack of empirical detail as to the effects of vibration caused either by the construction process or the passing of trains through the tunnels. The statements that there will be no damage to buildings and that ground movement will be “very rare” are not sufficient.
- In practice it appears that the socio-economic analysis has concentrated only on the employment opportunities created by the construction of the line. Only in the chapters on agriculture, forestry and soils is there any note that there will be impact on working farmsteads, with loss or short-term severance of land. These chapters conclude that permanent loss of land cannot be mitigated, and that the Code of Construction Practice will be adequate to control dust, noise and vibration impacting on livestock units. There is no detailed assessment as to particular needs, and neither of the special circumstances of farms with listed or historic buildings.
- An assessment of the effects of lighting during the construction has not yet been done and will form part of the ES. As we have no details of the type, size and location of any compound lighting it is impossible to assess the impacts of the proposed scheme on the landscape.
- Wrong assessment and conclusions on tunnelling options and vertical alignment
 - Conducted engineering costings that are questionable and lack detail or substantiation, not appreciated the full environmental benefits, and local costs (blight, congestion, dislocation)
 - Failed to articulate a justifiable basis for balancing short term and long term environmental costs (less spoil v permanently greater visual and noise pollution)
- The ecological studies are inadequate, having been done over too short a period i.e. less than year. Normally to get an accurate baseline, the studies need to be over a 3 year period
- While the DES recognises the National Planning Policy Framework, it does not take into account the requirement for a project to be in the National Interest for it to go through a National Park or Area of Outstanding Natural Beauty. There is no evidence that the Government or HS2 have made any effort to find an alternative route avoiding the Chilterns AONB. Natural England established clear tests, which needed to be met in order to justify the ‘exceptional circumstances’ to allow development in an AONB. They were not met in the AOS and neither are they included in Volume 2, 9, or 27 which specifically deals with the AONB. The CoCP is generic and contains no specific measures for the AONB. Although Volume 1 makes extensive use of the word ‘ensure,’ the reality in the CoCP identifies measures will be taken ‘*where reasonable practicable*’. The detailing of enforcement is weak in the CoCP. Paragraph 2.5.1 is therefore speculative.

- Section 3 is inadequate. It is selective in what it covers. The cumulative impact of severance and fragmentation on farms along the route is not assessed although the statistics supplied on loss of agricultural land are designed to minimise the impact. There is no analysis of loss of specific land grades.
- Impact on ancient woodlands is not assessed. Twenty one ancient woodlands are at risk because of the route. There is no assessment of loss. There is no analysis or survey details of specific species at risk or link to planting proposals.
- There are insufficient independent controls in place to safeguard the local community from the adverse impact of HS2. Appropriate procedures and control measures should be agreed with local authorities before implementation.
- Requirements for Noise and Dust Emissions should be based on the NPPF Technical Guidance for Minerals, issued by the Department for Communities and Local Government in March 2012, which should be regarded as the minimum acceptable.

Section 4 Air Quality

Section 4 is missing key details. The CoCP is used as a screen to reassure that the impacts will be locally slight. In addition, though the 'relevant local authorities will be consulted regarding the monitoring procedures to be implemented,' crucially there is no provision for the rigour of independent monitoring and enforcement required to safeguard the local communities along the line. Dust will be a problem along the line.

Section 5 Climate

Section 5 is inadequate. The resilience of the scheme to climate change effects is being considered. Given that HS2 Ltd has always been touted as a green project amidst some scepticism, then detailed analysis should be presented for scrutiny.

Some of the aspects that the public seek reassurance include: the massive power requirements to operate 36 trains an hour and where that supply is to be generated and by what means; the high percentage of leisure users in HS2 Ltd calculation – using the train because it is there; the implications for out of town stations; the low value attached to the construction phase; the use of average emissions rather than the marginal emissions resultant from HS2; proposed modal shift; projections of electric car use.

Section 6 Community

The claim that community impacts arising from both construction and operation of the project are considered to have no more than local significance. It assumes that there is no cumulative effect region or route-wide.

Neither here nor in the socio-economic section is there any appraisal of the impact of reputational loss and the impact on communities of the loss of visitor economy.

Additionally, there is no consideration of loss of national resources such as landscape and amenity to the region. The benefits derived from the countryside including the recreational opportunities and the contribution these benefits make to health and well-being are not considered.

The cumulative effects along the line are not considered. Urbanisation will bring with it a change of character of the local area that extends beyond the boundaries of the CFAs. There is no assessment of loss to individuals and communities through property blight.

The health and wellbeing of residents in the communities all along the proposed HS2 route should be of paramount concern. HS2 Ltd has a duty of care. There should be a section in the draft ES that dealt specifically with health, wellbeing and safety.

Section 7 Cultural Heritage

This section is inadequate. Volume 1 refers to range of research that has been carried out but this has not been published. Baseline survey work is still ongoing as is discussions with English Heritage and local planning authority archaeologists and conservation officers. Why is a consultation taking place on a DES that is incomplete? It is not possible to comment properly on the archaeological impacts of the proposed scheme when so much work is yet to be done. Volume 27 seriously underplays the cultural and heritage aspects of landscape along the route.

Despite the assurances describing how the principal undertaker and contractors will manage the impact of construction works on cultural heritage assets there is very little on how these approaches are to be monitored or enforced.

Section 8 Ecology

The section is incomplete and lacking in specifics on which to comment. It is therefore inadequate.

Section 10 Landscape

- How anyone is expected to believe that the construction and operation of HS2 will not have 'any significant route-wide effects on landscape and visual receptors' is not credible. It is a transparent attempt to minimise the impact of the project.
- The major earthworks and construction of large structures cannot in reality be disguised by anything other than the natural topography of the land – except where unsightly spoil heaps are located between the worksites and public areas.
- The use of well maintained hoardings or fencing will not hide the excavators, dump trucks, bulldozers, cranes and other miscellaneous items of major construction plant.
- Appropriate measures to reduce landscape, visual and other environmental impacts associated with temporary site offices and compounds is so vague as to be meaningless.

11 Socio Economics

- Essential elements of the government's business case are included within this section when the rationale for the government's 'decision to proceed' with HS2 is contained within Volume 1.
- The economic case is strong on assertion but weak on evidence, not allowing analysis or comment.
- The apparent precision of job losses as being 2190 during Phase 1 is based solely on very limited criteria. It is a summation of job losses from the CFAs of those businesses directly affected by the line's construction.
- There is no external information provided by Visit England covering the potential drop in visitor numbers and the likely knock-on effect to retail, arts, entertainment and other services in areas impacted by HS2. This is a major omission.
- There is no analysis of the potential drop in farm productivity as a result of land-take or severance.
- There is no exploration of loss of personal value. The section concentrates on a narrow view of the socio-economics, that of the labour market. There is no quantification of loss of equity because of falling house prices as a result of property blight. This too is a major omission.

- HS2 Ltd's assumption that it should only be concerned with impacts 100 metres distance from the line do not stand up. The proposal, implementation, construction and operation have and will have a profound major adverse impact on people's lives along the line.
- The loss in perpetuity of part of the nation's highest value landscape and the value of other landscape along the line is not evaluated.

12 Sound, noise and vibration

Given that the DES states that further assessment is being undertaken to confirm operational sound and vibration significant effects and will be reported in the ES, it is difficult how this section comes to its conclusion in 12.2.3.

- Noise could be a problem all the way along the route. Successive CFAs are likely to experience noise disturbance. That is a route-wide problem. There is a lack of reassurances provided in the form of pass-by peak noise levels and noise contours. CFA sound contours are based on averages that inaccurately represent the instantaneous peak noise of 14 to 18 trains per hour each way.

Electromagnetic Interference

- Although the Non-Technical Summary states that measures to control Electromagnetic Interference (EMI) are described in the CoCP, there is in fact no reference to it in that document, nor is there any section in Volume 27 dealing with EMI, although there is mention in Volume 1. It is therefore included in this section. The potential for route-wide impact of EMI is not assessed. In addition, there is no reassurance about potential health issues resulting from EMI.

Section 13 Traffic and transport

The Traffic Management Plan will be compiled and monitored by the contractor, with no provision for independent monitoring, control or enforcement.

Detailed information with regard to HS2 operation would seem to be an essential requirement within the consultation because aspects such as modal shift, loading, impact of increased capacity, reduction in services on non HS2 lines, effects on London Underground are basic. These are not included.

Health and Wellbeing

The health and wellbeing of residents in the communities all along the proposed HS2 Ltd route are of paramount concern. There should therefore have been a section in the draft ES that dealt specifically with health and wellbeing, as we were led to believe there would be by Simon White, HS2 spokesperson on Environment for the Central Chilterns Community Forum. It is not sufficient to make passing references under other headings, e.g. Air Quality, Land Quality, Sound, Noise & Vibration. There is already substantial anecdotal evidence of stress-related illness suffered by residents in close proximity to the phase 1 route who stand to lose their homes and businesses through compulsory purchase, who are suffering property blight, or those further away from the route who cannot sell properties that are significantly devalued.

There is no consideration at all in the draft ES of the effects on the health and wellbeing of these people in the pre-construction phase. HS2 Ltd should have commissioned independent, peer-reviewed research into this significant phenomenon, and then reported on it in the draft ES.

The sections that do make oblique reference to health and wellbeing contain only vague or over-optimistic, self-referencing statements, with no detail or credible, independent verification. This is characteristic of all the d

Draft ES documents, irrespective of the aspects of the assessment with which they are dealing, and numerous examples can be cited throughout.

9. Draft Code of Construction Practice

The main observation regarding the draft Code of Construction Practice (CoCP) is that the responsibility for delivering the Code has been placed on the contractors. The CoCP contains little detail about who will enforce the CoCP - the contractor would not be an effective enforcer and it is not clear what HS2 Ltd's role would be in enforcing (if any). If there is no single body responsible for enforcement then the contractor is unlikely to adhere to the code as presumably the sanctions for not doing so will be minimal and unenforced so that cheaper means of achieving the project will be adopted.

HS2AA would like to see reference to the County and District Councils role in relation to exercising their statutory duties and obligations. The main way that this could be achieved would be by funding being made available (through the Hybrid Bill) for District Councils to appoint Environmental Health Officers (EHOs) tasked with ensuring that the contractor complies with the CoCP and enforcing sanctions where it does not. Such EHOs should have sufficient powers to force contractors to comply with the CoCP and should have powers to stop operations by a contractor where there is non-compliance.

We also note that the Local Environment Plan site controls will only be provided after the Bill submission has been made in support of the Hybrid Bill. It would appear that commenting on the Local Environment Plan at that late stage will be expensive and complicated. Local authorities and other community organisations should be given the opportunity to comment at an earlier stage.

The specific areas of most concern in the CoCP and which will cause the most disruption to communities up and down the route of HS2 are as follows:

- Air Quality and dust emissions – there will be significant issues (as was the case with construction of HS1) with dust emissions and the “erection of hoardings and other barriers along the site boundary” (section 7 of the CoCP) will do little to mitigate dust arising from construction relating to earthworks and removal of spoil. It is likely that watering will do little to alleviate the dust levels and stockpiles of spoil and other material are likely to be too large to be sheeted.
- There are no trigger levels for dust emissions in the CoCP and there is no allowance for independent monitoring of dust emission levels. Requirements for dust emissions levels should be based on the NPPF Technical Guidance for Minerals issued by the Department for Communities and Local Government (March 2012) – this should be regarded as the minimum acceptable levels. EHOs should be appointed to monitor dust emissions and agreed mitigation and powers to enforce compliance should be implemented as required.
- Noise –Acceptable noise levels should be confirmed in the Section 61 agreement between HS2 Ltd and the local authority. EHOs need to monitor noise and ensure compliance with agreed levels as required. There is no provision in the CoCP for failure to reach agreement with the local authority in relation to noise and sanctions for non-compliance need to be made clear. Noise levels around 45 to 50db are intrusive and make normal conversation difficult and appropriate trigger levels should be specified for insulation. The current draft CoCP gives considerable leeway to the contractor in terms of deciding trigger levels for insulation to neighbouring properties.
- Traffic – the impact on communities of increased traffic due to construction will be extremely significant with very high levels of HGV trips per day across a wide number of areas, particularly rural areas which are not used to such high levels of traffic and often have roads unsuitable for sustaining such large numbers of HGV lorry movements per day as those specified in the draft environmental statement. The draft CoCP states that “public access is maintained where practicable” which suggests that access will not be maintained where

considered not practicable by HS2 Ltd and the current draft envisages the traffic management plan to be compiled by the contractor.

- The Traffic management plan should be discussed and agreed with the local authority. In particular, phasing of the works and work traffic to avoid peak time conflict with school runs/school buses/commuters. EHOs should be authorised and empowered to independently monitor traffic levels against the plan and to enforce compliance with the agreed controls. In particular, traffic volumes on narrow country lanes, particularly those roads without pavements, must be closely monitored.
- Working hours - the CoCP lists working hours as being 0800 to 1800 on weekdays and 0800 to 1300 on Saturdays. However, there are a large number of activities which are not limited to core working hours such as Earthworks, Concrete pours, plant maintenance, piling and diaphragm walling, materials delivery, and a one hour start up and close down at each end of the normal working hours. This would appear to be a very comprehensive list of construction activities which can be carried out outside core working hours.
- The CoCP also provides that a contractor is only required to carry out activities in core working hours “as far as reasonably practicable or unless otherwise permitted” It is not clear who will provide this permission.
- As currently drafted the CoCP does not provide for any independent monitoring and as a result appears that communities will be vulnerable to works being carried out 24-7 over prolonged periods.
- It is important that the CoCP provides that construction activities to be carried out outside core hours (other than tunnelling works) should be agreed with the Local Authority in advance of the works – applications should be made 14 days in advance and the work specified in detail. Bank holiday hours should be the same as Saturdays. EHOs should be authorised and empowered to independently monitor these activities and controls and to enforce compliance with the agreement.
- Loss of visual amenity/visual intrusion- The draft CoCP is very vague around the protections to the landscape available in relation to spoil heaps, work sites, excavators and other machinery. The construction and major earthworks involved will cause immense visual intrusion to communities. All attempts should be made to remove spoil heaps and construction compounds etc from public view by locating well away from residential areas and in places where they can be screened by natural topography or located in woodland. Hoardings and fencing will be minimal in disguising major earthworks/construction works. Agreement should be sought with Local Authorities in advance to locate compounds away from public view.

Appendix 1: Noise

1. Overview

It was hoped the DES would provide comprehensive guidance on noise, but instead it:

- Fails to consider how its adverse effects will be perceived by using an average equivalent sound level as the measure, not actual obtrusiveness of pass-by sound;
- Underestimates the proportion of sound generated by the pantograph at the proposed speeds;
- Over-estimates the effectiveness of sound barriers against noise including pantograph noise; and
- Assumes levels of noise reduction that have not yet been demonstrated to be possible.

HS2AA believe HS2 Ltd should publish the information on peak noise without delay, including the maps, and explain the extent of noise pollution in a manner in which consultees can understand (eg “as loud as a normal conversation”, or “a car passing at a given distance”).

2. Average Noise vs. Peak Noise

Deciding the DES need only provide information on noise pollution on the basis of the *average* equivalent continuous noise gives consultees a very misleading impression of the level of noise to which those nearby the railway would, in reality, be exposed. This is because the noise from HS2 would not be continuous, but episodic – no noise when no train is passing and intense noise when one does. Such loud and isolated noises attract attention and are obtrusive. Rough estimation suggests that the 50db peak sound contour (the level of conversation at home) would typically be almost four times further from the line than the ones shown in the map books for the average noise level.^{xxv}

It is widely recognised that averaged noise measures are inadequate to assess intermittent sounds. The World Health Organisation in section 2.1.5 of ‘Guidelines for Community Noise’, states:

“When there are distinct events to the noise such as with aircraft or railway noise, measures of the individual events should be obtained (using, for example, LAmax or SEL), in addition to LAeq,T measurements.”

This flawed approach also has a direct impact on assessing the mitigation issues in this area- a proper assessment of noise effects, requires some demonstration of intermittent peak noise effects. It seems pointless mitigating average noise levels of 65db when on an intermittent though frequent (up to 18 trains per hour in each direction) basis there are peaks of 85db as trains pass.

HS2AA believe the reliance on average noise measurements in the DES is highly misleading and is helping to prevent effective noise mitigation strategies to be put in place.

3. Use of Noise Contour Maps

The operational sound contour maps have been generated by a computer modelling tool and are estimates of the noise levels that will result from passing HS2 trains only. The modelling has been confined to a strip extending 1km either side of the track centre line (indicated on the contour maps by a dotted black line on a yellow background).

Some, very limited, explanation of the approach that has been taken for the modelling and the assumptions that have been made is given in sections 5.12 and 6.12 of DES Volume 1 and in section 11 of each of the twenty-six Community Forum Area Reports in DES Volume 2.

HS2AA is concerned at this approach because:

- The contour maps are misleading in only giving noise values for a strip of land 1km from the line-the reality is that the noise doesn't stop at the edge of the coloured areas, it just reduces to a level that HS2 Ltd considers "acceptable".
- The difference between night and daytime noise levels is misleading. It is not that the first and last trains will be quieter than the others, it is just that because there are fewer trains over the late night/early morning period, the energy of their noise is averaged over a period with a lower incidence of trains. Sudden isolated loud noises in the middle of the night are particularly disruptive and they are not heard as averaged with the quiet periods that surround them
- Any other sources of noise have been ignored in calculating the figures set out in the contour maps.
- The noise contour maps do not appear to indicate the impact severity, based upon the noise increase over the ambient, in any way at all.

The consultation materials also include the assertion:

'... The 50dB contour therefore indicates the distance from the Proposed Scheme at which the night-time sound level would be 40dB. This contour represents where the lowest observed community noise effects would be expected to occur during the day (with respect to annoyance) and night (with respect to sleep disturbance). It is generally unlikely that there will be any adverse noise effects outside of this contour. With regard to sleep disturbance, the assessment has also taken account of the maximum sound levels generated by each train pass by.'

These assumptions are highly questionable in rural or suburban areas, where the enjoyment of outside spaces is an important part of amenity. It is plain from the last sentence that information on peak noise is available and HS2 Ltd are choosing to withhold it.

Further the DES promises that, *"In assessing the risk of sleep disturbance, the maximum noise level for each train pass by has also been calculated and considered in this initial assessment"*. There is no evidence on the noise contour maps of this being the case.

HS2AA believe it is natural to infer the reason for this is HS2 Ltd's own recognition that the levels of noise pollution are such that they show the proposed mitigation to be grossly inadequate.

4. Consideration of Day-time Noise Levels

The lowest day-time noise level that may be discerned from the contour maps is 50 dB $L_{pAeq,16hr}$ – the symbols $L_{pAeq,16hr}$ indicate that it is an equivalent continuous sound level calculated over a 16-hour period. HS2 Ltd claims "adverse effects are not expected" below this level.

The WHO regards 50 dB day-time noise as the level that should not be exceeded *"to protect the majority of people from being moderately annoyed during the daytime"*.^{xxvi} So anyone who lives within a colour-shaded area marked on the contour maps is likely to experience at least moderate annoyance due to HS2 noise.

The same paragraph of the WHO document also advises that *"to protect the majority of people from being seriously annoyed"* the day-time level should not exceed 55 dB. So anyone who lives within the colour-shaded area marked on the contour maps, excluding the pale yellow zone, is likely to experience serious annoyance, or worse, as the result of HS2 noise.

The WHO also states that these recommended levels apply to "a steady, continuous noise", which HS2 noise will certainly not be. The WHO cautions:

"The annoyance response to noise is affected by several factors, including the equivalent sound pressure level and the highest sound pressure level of the noise, the number of such events, and the time of day."^{xxvii}

Further the WHO says that “most countries in Europe have adopted 40 dB as the maximum allowable level for new developments”. According to the WHO “the lower value [of 40 dB] should be considered the maximum allowable sound pressure level for all new developments whenever feasible”.^{xxviii}

In a discussion paper submitted to the HS2 Acoustic Review Group by HS2 Ltd, the Company’s policy regarding WHO recommendations is summarised:

“Designing any new transport scheme to meet WHO guideline values at all receptors would not be sustainable and, as the Government policy sets out, exceeding the guideline values would not necessarily result in significant adverse effects.”^{xxix}

HS2AA believes that HS2 Ltd should adopt the guidance published by the WHO in connection with noise related matters.

5. Consideration of Night-time Noise Levels

The parameter employed by HS2 Ltd for the night-time levels shown on the contour maps is $L_{pAeq,8hr}$. This is equivalent to the parameter L_{night} , which is one of the “selected common indicators” specified by the European Noise Directive. This same parameter, but designated $L_{night,outside}$ to indicate that it is measured outside the building in which a person is sleeping and not inside the bedroom, is used by the WHO in making recommendations about night-time noise levels.

The lowest night-time noise level that may be discerned from the contour maps is 40 dB $L_{pAeq,8hr}$. This is equivalent to the level 40 dB $L_{night,outside}$, which the WHO recommends for its “night noise guideline (NNG)”.^{xxx} The WHO states that, “For the primary prevention of subclinical adverse health effects related to night noise in the population, it is recommended that the population should not be exposed to night noise levels greater than 40 dB of $L_{night,outside}$ during the part of the night when most people are in bed”.^{xxxi}

The method proposed by HS2 Ltd for identifying a significant effect when the receptor is within a colour-shaded zone on the map, based upon the existing level of background noise, is similar to that proposed for day-time noise. The level of HS2 operational noise at which a significant impact will be recorded, irrespective of the background noise level, is 55 dB $L_{pAeq,8hr}$.

The WHO describes the expected health effects of night-time noise at levels above 40 dB $L_{night,outside}$ as follows:^{xxxii}

“40 to 45 dB Adverse health effects are observed among the exposed population. Many people have to adapt their lives to cope with the noise at night. Vulnerable groups are more severely affected.

“Above 55 dB The situation is considered increasingly dangerous for public health. Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed. There is evidence that the risk of cardiovascular disease increases.”

Based upon these descriptions, HS2AA believe it is clear from the contour maps that have been published by HS2 Ltd that HS2 will cause significant sleep disturbance and risks to health in some locations. HS2

6. European Noise Directive

The preamble to the European Environmental Noise Directive (END) states that it is “necessary to establish common assessment methods for ‘environmental noise’ and a definition for ‘limit values’, in terms of harmonised indicators for the determination of noise levels.” L_{den} is one of the “selected common indicators” specified by the END in order to achieve this harmonisation.

The END also sets the requirement for Member States to employ harmonised noise indicators in a wider context:

“... the Treaty objectives of achieving a high level of protection of the environment and of health will be better reached by complementing the action of the Member States by a Community action achieving a common understanding of the noise problem. Data about environmental noise levels should therefore be collected, collated or reported in accordance with comparable criteria. This implies the use of harmonised indicators and evaluation methods, as well as criteria for the alignment of noise-mapping.”

As well as defining common noise indicators, the END empowers the European Commission to establish common assessment methods for the determination of these indicators; these methods have been set out in the document CNOSSOS-EU, which the European Commission intends to have implemented and operational by 2017.^{xxxiii}

HS2AA believe HS2 Ltd should adopt L_{den} and the CNOSSOS-EU methodology in the noise mapping process being undertaken for Phase 1 of HS2-it reflects a more accurate way of mapping noise.

HS2AA believes that the use of L_{den} should provide a more valid assessment of annoyance levels, satisfies EU aspirations for common assessment methods, represents the “best practice” approach to assessing HS2 day-time noise nuisance and should be adopted by HS2 Ltd.

7. Calculation Method

HS2 Ltd states that the levels displayed on the contour maps have been “calculated using proven and verified methods”. Unfortunately, HS2 Ltd fails to provide any support for this claim; in fact, no details at all of the calculation methodology, or its underlying assumptions, are given in the DES.

HS2AA believe this confusion should not have been allowed to have occurred. HS2 Ltd should have provided a clear explanation in the DES of the calculation methodology. Requests for clarification from HS2 Ltd representatives at the DES information events have been met with vague assurances but no detail. HS2AA believe it is clear that what is required from HS2 Ltd is a clear description of the calculation process, including:

- ***The input parameters that are required and the values assumed for the calculation.***
- ***A description of the algorithms employed.***
- ***The tolerances associated with the calculation and how these are accommodated in the contour maps.***
- ***Any consideration given to the impact of changing weather conditions and how this is achieved.***
- ***The source heights that have been employed and the noise power levels assumed for each height.***
- ***The assumptions made about the reduction in noise levels achieved by mitigation.***

8. Impacts of Aerodynamic Noise

Academic study confirms the scale of problems caused by aerodynamic noise. For example

“The acoustic energy of aerodynamic noise is proportional to a train’s speed by a power of 6 to 8, which is higher than for other kinds of noises such as rolling noise and structure-borne noise. Accordingly, as operational train speed increases, aerodynamic noise becomes the predominant source of high speed trackside noise. In the case of Shinkansen trains, aerodynamic noise becomes dominant when velocity exceeds approximately 200km/h.”^{xxxiv}

The problem with aerodynamic noise is that much of it is generated by features that are high up on the train, the prime example being the pantograph. This means that the mitigation offered by features

such as earth bunds is reduced and conventional trackside noise barriers are ineffective, unless the height of the barriers is significantly increased.

The approach that HS2 Ltd has consistently taken to this potential problem is to rely on future improved aerodynamic design of the train elements and on-board noise shielding. At the time of the 2011 public consultation, potential respondents were advised:

“To mitigate potential impacts in areas of high operating speeds, there is a need to control aerodynamic noise through advanced rolling stock design. Without first mitigating the source of aerodynamic noise, wayside noise barriers are not likely to be as effective or feasible, due to the required increase in barrier height, to provide shielding to the entire train.”

The assessment of this matter in the DES is unsatisfactory, with again few details provided:

“It has been assumed that HS2 trains will be specified to be quieter than the relevant current European Union requirements and this will include reduction of aerodynamic noise from the pantograph that would occur above 300kph (186mph) with current pantograph designs, drawing on proven technology in use in East Asia.”

HS2AA believe HS2 Ltd has much more to do to make out a convincing case that its policy on aerodynamic noise is sound. As well as the technical risk associated with this approach, no explanation has been offered how HS2 trains “will be specified to be quieter” or how the public can be assured that trains that do not employ the required standard of noise reduction will not run on the HS2 track. These issues must be dealt with in the ES.

9. Considerations of the Impacts of Train Source Noise Levels and Track Quality

The overall train noise source level that HS2 Ltd has assumed to calculate the contour maps is not stated in the DES, but is known from a response made by HS2 Ltd to request for information made under the provisions of the Environmental Information Regulations (EIR) 2004 that the source level that has been assumed is 95 dB LpAeq,Tp at 350 kph, measured at 25 metres from the track.^{xxxv} This is consistent with the maximum level specified in the European Union technical specification for interoperability (TSI), adjusted for the higher operating speed specified for HS2.^{xxxvi}

HS2 Ltd has also taken advantage of the facility offered by the TSI to assume a 3 dB reduction in the source noise for rolling stock ordered after 1 January 2010.

The TSI maximum noise level for rolling stock assumes that the train is running on a high-quality test track. The TSI makes a distinction between “normal” tracks, which are those encountered in everyday situations, and a “reference” track which is maintained to a high standard to allow compliance with pass-by noise limits to be assessed.

That this is an important distinction is confirmed by the following report on some measurements that were made on an SNCF TGV Réseau (TGV-R) high-speed train in France:

“It appeared that following track works at a few defined dates during the test campaign, some ballast dust might have been run over by the wheels, the roughness of which significantly increased on the following days. The measured noise values were then increased by 1.5 to 2.5 dB(A) after each track work episode, and the influence of the increase of the measured pass-by level can be noticed throughout the whole investigated speed range : 250 to 360 kph.”^{xxxvii}

The report shows that the cumulative effect of this track roughness degradation over several days of tests was in the range 3-4 dB.

Within the response that HS2 Ltd made to issues raised by the 2011 public consultation is an undertaking that “the train noise level will be revisited and checked for suitability as the input to the more detailed EIA”. The only comment in the DES that in any way refers to this matter is that, “It is also assumed that the track will be specified to reduce noise, as will the maintenance regime”.

Maintenance to keep the track at anywhere near reference quality will require a regular rail grinding regime to be employed. This will, of itself, be problematic as the operation generates noise and will be carried out largely at night.

HS2AA believe it important that HS2 Ltd provide more information on the quality of track used and what arrangements will be put in place to maintain such quality

10. Noise Mitigation

Volume 1 of the DES includes the claim that, *“By avoiding many noise-sensitive locations and keeping the proposed alignment as low in the ground as possible, HS2 Ltd has been able to reduce the overall noise impact”*.

HS2AA believe this claim will be viewed with great skepticism in the many communities that have seen the trackbed height increased, in many cases quite significantly, since the 2011 public consultation, with the aim of reducing costs.

The DES also claims that:

“The initial design includes over 200km (124 miles) of permanent noise barriers in the form of cuttings, landscape earthworks and fence barriers.”

And that:

“The case for further noise barrier provision, including the form of such barriers, will be reviewed in the formal ES in light of further assessment, design refinement and engagement with stakeholders.”

HS2AA considers the proposals for noise mitigation set out in the DES are incomplete lack clarity. There is no specification for noise barrier performance in this document, nor any description of the proposed design. Further, the noise contour maps do not appear to differentiate between earth structures that provide mitigation and trackside noise barriers. These matters must be dealt properly in the ES.

11. Engagement with Local Communities on Noise Matters

The DES states that *“Engagement with the local communities has been principally via the community forums and in some cases meetings with parishes and action groups. This has included: briefings about the assessment of sound, noise and vibration being undertaken for the proposed scheme; requests for community defined baseline monitoring locations; and dialogue about mitigation options.”*

This statement disguises the complete lack of meaningful engagement with HS2 Ltd on noise issues that has been afforded to local community representatives. Apart from a presentation which HS2 Ltd described as “non-technical”^{xxxviii} there has been no real attempt to discuss noise issues at community forum and bilateral meetings. A specific request to set up a forum to allow such matters to be discussed with local community representatives was declined by HS2 Ltd.

HS2AA believe HS2 Ltd must be more open and engaging with communities about the likely level of noise impacts and what will be done by way of mitigation.

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- i Estimated Carbon Impacts of a New North South Line Booz Allen
<http://web.archive.nationalarchives.gov.uk/+http://www.dft.gov.uk/pgr/rail/researchtech/research/newline/carbonimpact.pdf>
- ii The Fourth Carbon Budget. Reducing emissions through the 2020s. Committee on Climate Change. December 2010
- iii HofC Transport Committee High Speed Rail, 10th Report of Session 2010-12, para 65, page 31. The 55% is based on journey time savings and the reliability benefits affected by this assumption too.
- iv Strategy-Unit-Paper-HS2, DfT, written in 2011 but published April 2012. It summarises the value of time (VoT) arguments and the available evidence. Paper written as preparation for 2012 decision. Paper concludes with recommending a sensitivity adjustment on VoT for the 2012 business case. But only the combined sensitivity was published (reducing VoT by 0.1 on BCR) which was made up of -0.3 as people do work on trains, but +0.2 crowding effect even though DfT note businessmen book seats. (The DfT 0.3 also excluded other savings eg on reliability that depend on the same assumption)
- v Mott Macdonald et al. (Dec 2009) 'Value of Working Time and Travel Time Savings: Long Run Implications Report. Report says the value should be reduced by between 65% and 50% of currently used values. The main Mott McDonald et al report was published in June 2009 ('Productive use of Rail Travel Time and Valuation of Travel Time Savings for Rail Business Travellers') and concluded that the current figures used were "unsupportable". Neither report was released by DfT until 2012 after the decision on HS2 was taken – but were reviewed by the Strategy Unit (see preceding end note)
- vi 'Economic case for HS2: Updated Appraisal of Transport user benefits and wider economic benefits', Jan 2012, DfT. Page 58 para 10.5.6 "... *the recommended values are fit for purpose and the best currently available*".
- vii HS2 AA and Bluespace Thinking raised these problems with HS2 Ltd and DfT in a meeting in June 2010. DfT recognised that there were issues with using such old data. See also Strategy-Unit- Paper-HS2 that confirmed the use of the outdated figure (page 4) and said this issue would be responded to in the HS2 announcement – but it was not. The issue was reviewed in a paper by HS2AA 'Overestimation of value of business travellers' time – the facts', September 2012 and sent to DfT and PAC
- viii Batley, Mackie and Wardman, ITS Leeds, in 'Review of Value of Time assumptions for business travellers on HS2' April 2012
- ix See Strategy-Unit-Paper-HS2. And discussion at note 7 above
- x Paragraph 69 of HofC Transport Committee Report, High Speed Rail, 10th Report of Session 2010-12, Volume 1
- xi DfT's Web Tag 3.5.6 guidance (issued August 2012) has real GDP continuing at 2.40% and GDP/capita growth at 2.17% from 2060, with OBR given as the source. OBR do not give forecasts beyond 2060-61, and say (see Fiscal sustainability report, Annexes, July 2011', OBR, page 21, section B28) that their assumption is a central case of 2.0%/a average increase in productivity to 2060. Real productivity growth is the appropriate measure for increases in the value of time. DfT have taken a higher value for post 2060 than for 2050 to 2060, and higher than OBR's 2% average to 2060. This overestimates the contribution of time savings from 2060 to 2093 in the assessment of HS2. DfT give no reason why it has done this.
- xii Research showed that the 'distance term' that makes the rail demand elasticity on income increase with length of journey is wrong. The Passenger Demand Forecasting Handbook (PDFH) V4.1 was corrected to remove this term in August 2009 (PDFHv5), and adopted by the Passenger Demand Forecasting Council then. A major research project in 2010 (by Oxera and Arup) for DfT confirmed amongst other things that the distance term does not exist and should be removed – this reduced the elasticity on income from 2.8 to 1.9. Only in Jan 2012 did DfT issue a sensitivity test on this basis to show it was worth 0.4 on phase 1 BCR, and publish the research in April 2012.
- xiii DfT claim there is no guidance on using optimism bias as justification for increasing the cost savings (so it's not wrong to do increase them). DfT increase the savings by 41% with the exception of the leased rolling stock savings that are increased by 18%. This is nonsensical, as the purpose of applying optimism bias (as webtag

3.5.9 section 3.5.1 makes clear) is to correct the tendency to underestimate costs that are subject to uncertainty – not to increase estimated savings in well known current costs. In the August 2012 business case this increase in savings amounts to £2.2bn (NPV) on the Y, almost 10% of the estimated subsidy.

^{xiv} Alison Munro (CEO, HS2 Ltd), admitted that the version of the demand model (PLANET) HS2 Ltd used does not take the price of alternative rail routes into account (letter to Bruce Weston, 29 June 2011)

^{xv} Modern Railways, January 2012

^{xvi} The £9bn package of improvements known as HSLOS underwritten by Government for 2014- 2019.

^{xvii} Rolling stock is costed in Jan. 2012 case as leased for the rail alternatives, but purchased for HS2. Leasing is more expensive. Until the Jan. 2012 case, DfT gave the rail alternatives' assessment on both bases. The additions to costs for optimism bias are the same or higher for the rail alternatives than HS2. This is despite operating costs on WCML being thoroughly known and understood.

^{xviii} The additional capacity of the OA is assumed in DfT's assessment to be created for first use in 2026 ('High Speed Rail Strategic Alternatives Study – Update Following Consultation', Atkins, January 2012, section 5.3.2, page 26), this is despite acquisition of rolling stock for HS2 being assumed to be staggered to reflect the build-up of demand ('A Summary of Changes to the HS2 Economic Case' April 2011 section 2.1.1, page 6).

^{xix} DfT did not include the cost of finance in accordance with Webtag 3.13.1 sub section 5.2.1 (in the pre August 2012 draft it was section 5.3.1). They should have assumed the financing regime of Network Rail's regulatory asset base.

^{xx} 'Economic Case for HS2: Updated appraisal of transport user benefits and wider economic benefits', January 2012, Table 6, page 34

^{xxi} 'High Speed Rail Strategic Alternatives Study – Update', Atkins, January 2012, table 5.8, page 28. This figure compares with Jan 2012 BCR of 1.4 for phase 1 and 1.6/1.9 for full Y. No April or August 2012 update has been given for the alternatives. See table on Page 9 of this note

^{xxii} See Professor John Tomaney's (Director, CURDs) written and oral evidence to Transport Select Committee (2011) that summarises and cites the academic research in this area. He finds it difficult to find robust evidence that supports the Government's position

^{xxiii} Para 6.3 of Prof Tomaney's report on Local & Regional Impacts of HSR in the UK, A Review of the Evidence

^{xxiv} Department for Agriculture, Food & Rural Affairs, Government Forestry Policy Statement, January 2013

^{xxv} At full capacity there would be 36 trains/hour passing a point on the line. At 360km/h it would take a 200m train 2 seconds to pass, and, say 6 seconds to contribute pass-by noise. How long in practice would depend on the local topography. 36 trains take 3 minute 36 seconds, assuming that those going in opposite directions do not actually pass. If they pass the energy is concentrated into a shorter period. This means that only 6% of the time is there the noise of a train passing, and if all the noise energy is concentrated in this period, it has 17 times the energy of the equivalent continuous sound, which makes it 12db louder. To achieve a 6db attenuation (ie reduction) from increased distance, distance must double from the source. On this basis the contour of the <50db peak level would be four times as far from the line – as an example typically 2km instead of 500m for the Quainton/Waddesden area

^{xxvi} Guidelines for Community Noise Chapter 4, section 4.3.1, World Health Organisation, Geneva 1999 (<http://www.who.int/docstore/peh/noise/Comnoise-4.pdf>).

^{xxvii} Guidelines for Community Noise Chapter 4, op cit, section 4.2.7.

^{xxviii} Guidelines for Community Noise Chapter 4, op cit, section 4.3.1.

^{xxix} Position on World Health Organisation (WHO) Guidance on Noise, Paper No. ARG 1012A, Cobbing, C and Greer, R for HS2 Ltd (unpublished).

^{xxx} Night Noise Guidelines for Europe, Table 5.5, World Health Organisation 2009 (http://www.euro.who.int/__data/assets/pdf_file/0017/43316/E92845.pdf).

^{xxxi} Ibid, section 5.6

^{xxxii} xxxii Night Noise Guidelines for Europe, op cit, Table 5.4.

xxxiii Common Noise Assessments in Europe (CNOSSOS-EU), section 1.1.1, Kephalopoulos, S, Paviotti, M and Anfosso-Lédée, F, Publications Office of the European Union, 2012.

xxxiv Aerodynamic Noise Reduction in Pantographs by Shape-smoothing of the Panhead and Its Support and by Use of Porous Material in Surface Coverings, Ikeda, M, Mitsumoji, T, Sueki, T, Takaishi, T, Quarterly Report of Railway Technical Research Institute (Japan Railways), Vol. 51, No. 4, Nov. 2010
(https://www.jstage.jst.go.jp/article/rtriqr/51/4/51_4_220/_pdf).

xxxv HS2 Ltd response to Freedom of Information Request FOI10/032, dated 28 May 2010
(<http://www.hs2.org.uk/news-resources/foi/foi10-032-regarding-noise>).

xxxvi EU Commission Decision 2008/232/CE of 21 February 2008 concerning a technical specification for interoperability relating to the 'rolling stock' subsystem of the trans-European high-speed rail system, paragraph 4.2.6.5.4, Official Journal of the European Union
(<http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:084:0132:0392:EN:PDF>).

xxxvii High Speed Trains external noise: a review of measurements and source models for the TGV case up to 360km/h, section headed "Influence of the state of the wheels", Gautier, P-E, Poisson, F, Letourneaux, F, paper no. S.1.1.4.4, Proceedings of the 8th World Congress on Railway Research 2008, Seoul
(http://www.uic.org/cdrom/2008/11_wccr2008/pdf/S.1.1.4.4.pdf).

xxxviii An introduction to HS2 Ltd's approach to managing noise, HS2 Ltd presentation, September 2012
(<http://www.51m.co.uk/sites/default/files/uploads/An%20introduction%20to%20HS2%20Ltd%27s%20approach%20to%20managing%20Noise.pdf>).