



Health and Wellbeing Pilot Study in the Chilterns Area of Outstanding Natural Beauty (AONB)

This Study is dedicated to the memory of Shirley Judges (1949-2014)

Historian, archaeologist, walker, countryside lover, passionate community champion and dear friend.

Abstract

A pilot study of the health effects of HS2 on residents in two areas of the Chilterns AONB (South Heath and Wendover) showed the great majority of the 286 respondents (over 80%) were suffering psychological effects in summer 2013, principally in the form of anxiety, but stress and sleeplessness also contributed. Over three quarters (81%) regarded the impact on their wellbeing as being material. 17% said that they had raised the matter with a doctor. The main concern affecting health and wellbeing was property blight, but construction and landscape impacts were also important. Overall, the impacts in the future were expected to be worse during construction than when HS2 is in operation, but two thirds still expected the adverse health impacts to be worse during operation than now.

The results of the survey suggest that the Health Impact Assessment (published in November 2013) underestimates the anxiety and associated health effects that property blight in particular has given rise to. Several areas for further work were identified.

1. Background

The Draft Environmental Statement (Draft ES) published in May 2013 did not consider the effects of HS2 upon health and wellbeing. It was clear, however, that many people in the Chilterns who were near to the proposed route were suffering from stress as a result of the prospect of HS2. It was therefore agreed with the Chilterns Conservation Board (CCB) that a survey should be conducted to determine the extent of the adverse psychological and physical effects.

The opportunity for a study by the medical profession, e.g. involving doctors' surgeries, was investigated by the Bucks. County Council (BCC) Cabinet member for Health and Wellbeing. It was, however, considered neither possible, nor practicable, in the timescale. It was therefore decided to construct a small-scale pilot study, informed by local concerns that had been articulated at community meetings and in consultation responses, with the advice and support of relevant professionals. If successful, it could be conducted over a wider area and extended to test more hypotheses.

Relevant health impacts

The World Health Organization (WHO) defines health as: *a state of complete physical, mental and social wellbeing and not merely an absence of disease or infirmity.*¹

The health of individuals therefore goes beyond the physical environmental factors and will involve community and economic factors; it may also be affected by perceptions as well as actual physical changes.

At the point when the CCB study was being considered (2013), the Hybrid Bill had not been deposited and no construction works had begun, so physical and community impacts – via noise, vibration, dust, landscape changes, demolitions, access routes, or effects upon rights of way, facilities and amenities, tourism, businesses, traffic levels, safety risks etc. – did not arise and could not themselves be affecting health. Nevertheless, the deterioration of local properties left empty for various reasons because of HS2, the extensive number of public consultations on HS2 and the amount of HS2 media coverage were, and still are, constant reminders.

¹ Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

Moreover:

- the anticipation of such vectors had already had an effect on property prices, which may have an adverse psychological impact on those suffering or anticipating loss in property value;
- knowledge of exactly what environmental effects would arise was limited: the Draft ES was substantially incomplete, but the property market's reaction was already well known, having had severe impacts from the day of the announcement more than 3 years earlier; most residents living in directly affected areas in the AONB had personal knowledge of difficulties in selling properties and achieving anything near an un-blighted price; the implementation of the Exceptional Hardship Scheme (EHS) and the low numbers of those accepted were also known by this time;
- the anticipation of adverse physical and social effects may itself induce stress, particularly amongst the elderly and those with young families, who are especially concerned about planning their future.

Health Impact Assessment

In November 2013 HS2 Ltd. produced a Health Impact Assessment (HIA). This was published at the same time as the Environmental Statement, but was not included in it or in the consultation. The HIA did not explore the health impacts that might already be evident; it was primarily concerned with potential health benefits or adverse effects that may be expected to result from the construction and operation of HS2.

The HIA identified the factors it would take into account to identify potentially relevant health issues, and used some insights from previous consultations and a new stakeholder survey that HS2 Ltd. conducted with Public Health officials. Other insights offered, but side-lined, included the impact of HS2 on the Chilterns AONB,² and property blight: for example, BCC reported concerns about adverse effects on mental health and wellbeing caused by falling house prices and compensation issues, as well as property blight during construction and operation. There was, however, only one 19-word reference to the stress and anxiety that HS2 was currently causing, situated at the end of a 61-word paragraph, headed *General Issues*, in Appendix 3.³

Despite the emphasis on property blight as important in consultation responses, it hardly features in the HIA. The phrase occurs once, again in Appendix 3,⁴ and only with reference to anticipated blight during construction and operation. There is no acknowledgement of the fact that property blight was already an established phenomenon well before the HIA was published. Although perceptions are said to be taken into account, property blight is not even mentioned in the Health Evidence Base (Appendix 4). Further, there were, for example, no recommended actions on this topic or calls for research to be commissioned.

The CCB study considers the potential impacts of blight and of future loss of AONB amenity, amongst other factors. The HIA also identified fear of increasing criminal activity, associated with the influx of construction workers, as a further potential source of stress, which had not been identified as a cause in the CCB questionnaire (although it might have already been a potential source of anxiety). In addition, it should be noted that there was some anxiety about the effect of empty properties upon community life and safety which was also not taken into account.

² The AONB is mentioned in its own right only once in the HIA: Appendix 3 1.2.14 states that it faces: *considerable disruption and adverse change under HS2 proposals*.

³ In Appendix 3 1.4.3 of the HIA consultation responses from the Draft ES are referred to: *It was also noted that stress and anxiety is considered to already have been caused by the Proposed Scheme*.

⁴ Appendix 3 1.2.7: *A particularly common concern related to property blight arising from both construction and operation of HS2, and the financial and emotional impacts of reductions in housing prices ...*

2. Survey

Under the auspices of the CCB, a survey of the adverse health effects of HS2 was organised in June 2013 for several roads in South Heath and in Wendover. These two areas were chosen as they represent the two communities in the AONB that are substantially affected by HS2 Ltd.'s proposals.

Survey design

The survey was intended as a pilot study for a larger exercise. The scope and questions were developed by a small group, including the BCC Cabinet member for Health and Wellbeing, one with a background in nursing and education, one with extensive and varied admin. experience, another with expertise in medical and social research, and two experienced in designing, conducting and analysing surveys. A questionnaire was produced and tested on a small sample; the questions were subsequently adapted following feedback.

The questionnaire was then distributed to 316 houses in specific roads that are in close proximity to the proposed route of HS2. Each questionnaire gave the opportunity for two or more occupants over the age of 16 to respond. To assist distribution, there was a representative responsible for each road, who could answer questions, and who either collected or had questionnaires returned to them in sealed envelopes to preserve anonymity.

All the data (including any comments) were entered into a spreadsheet designed to permit analysis of the survey results.

Six roads in Wendover in the HP22 post code area, and seven in South Heath in HP16 were surveyed. They ranged from those within 250m of the line to those between 1 and 2km.

The questions

General information was gathered about the respondents and their household, for example, age and gender, number of children; the extent of any health-related effects that HS2 was causing, such as anxiety or depression, was investigated, including whether medical help had been sought.

Respondents were asked to rank potential causes. The six options were abstracted from concerns raised in previous public responses and observations made at community meetings and local action group meetings.

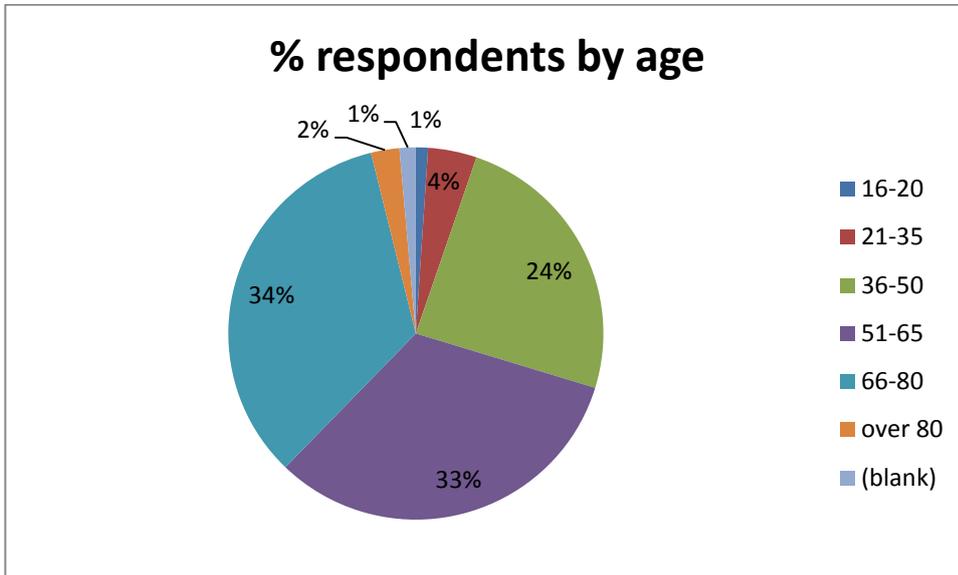
It had been suggested by HS2 Ltd. that certainty would reduce anxiety, so we asked how increased certainty of the route in January 2012 had affected respondents' anxiety and how they expected future greater certainty to affect them. The full questionnaire is attached at Appendix 1

3. Results

Respondents

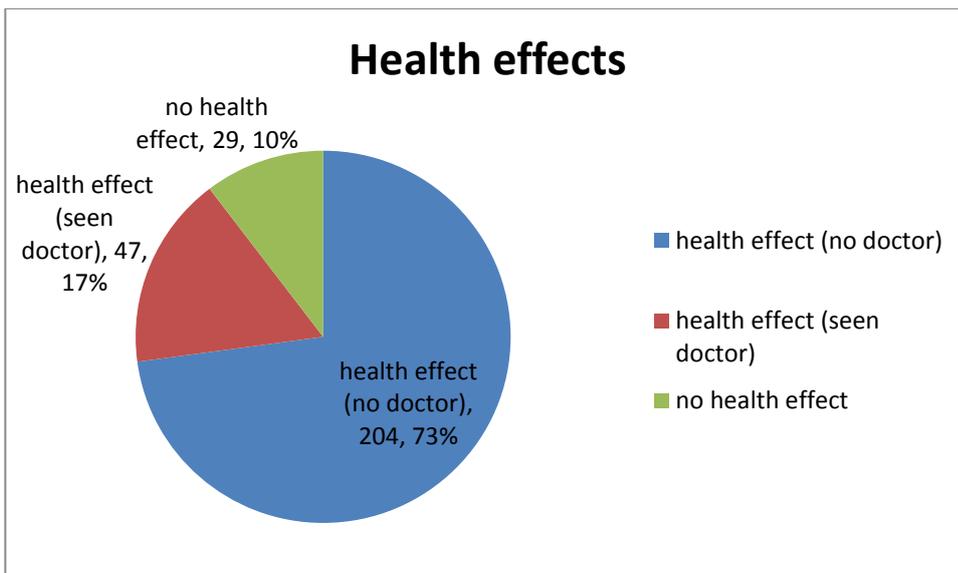
Of the 316 questionnaires distributed 157 (49.7%) were returned, with a marked discrepancy between the numbers for Wendover and South Heath. 115 questionnaires were distributed in Wendover, and only 32 (27.8%) were returned; in South Heath the return rate was 62.2% (125 returned of the 201 distributed). This may relate to the greater distance from the line of some of the roads in Wendover. There were 286 respondents to the survey. 46.8% were male, and 51.4% female (with 5 making no declaration). 22 of the 286 people reported themselves to be living alone. Respondents were self-selecting, in the sense that completing the questionnaire was voluntary. As a result there may be some reporting bias, with those suffering adverse effects more likely to make a return.

The breakdown by age is below. It shows that two thirds of survey respondents were over 50. This is relatively high, but rural communities (such as South Heath) do have an older age profile. The 2011 Census shows South Heath with about 50% over aged 45, compared with just over 40% nationally.



Health effects

89.7% of the total number of respondents reported adverse health effects attributed to HS2. This is in advance of any construction works and relates to the stress that the prospect of HS2 is imposing on residents. The chart below shows the split (of the 286 respondents). 16.8% of all respondents, including those not answering this question, reported that they had sought medical help for the condition(s) that HS2 had induced.

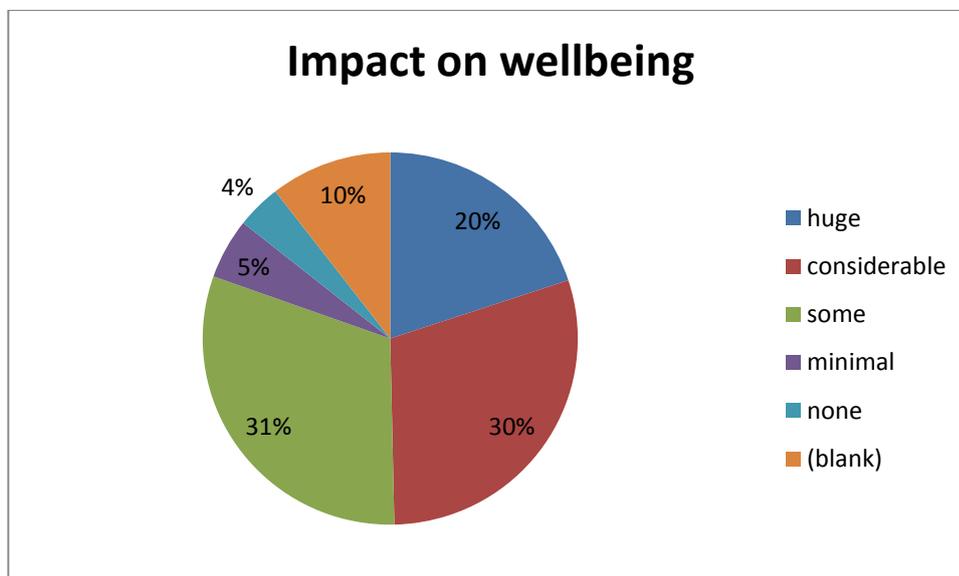


The survey asked about the particular health effects experienced. Anxiety, stress, sleeplessness and depression were the most reported symptoms. A respondent may have reported multiple health effects, and so the total will exceed 286.

The table below shows that anxiety was the most common symptom, with 84% of respondents reporting that they suffered from this effect. About half referred to stress.

Symptom	Number reporting	% of respondents
anxiety	239	84%
stress	150	52%
sleeplessness	115	40%
depression	81	28%
physical	29	10%
none	29	10%
other	18	6%

The chart below shows the impact of adverse health effects upon wellbeing. Over 80% consider them greater than minimal - i.e. huge, considerable or some effects.



The analysis below of effects according to age group demonstrates that just under half (190) of respondent were aged between 50 and 80, and they seem to be the most severely affected. There is a higher percentage (85.3%) of this age group suffering anxiety than the average (83.6%) and also a higher percentage (19.8%) than the average (16.8%) who have sought medical help owing to problems induced by HS2.⁵

Age group	No. in group	Suffering anxiety	Visiting doctor (for any symptom)
16-20	3	2 = 67%	1 = 33%
21-35	12	8 = 67%	0 = 0%
36-50	70	59 = 84%	9 = 13%
51-65	93	80 = 86%	18 = 19%
66-80	97	82 = 85%	19 = 20%
over 80	7	5 = 71%	1 = 14%
(blank)	4	3 = 75%	0 = 0%
Totals	286	239 = 84%	48 = 17%

The survey asked respondents to rank the concerns that were causing the adverse health impacts. Six potential concerns had been identified for the questionnaire. A further question invited open comment. See Appendix 2.

Concerns

Ranked on a scale of 1-6, with 1 as the greatest area of concern and 6 as the least, property blight and inability to sell topped the list. The scores shown in the table below are the sum of rankings, hence the lower the score the more people ranked that factor highly.

Issue	score
property blight	473
unable to sell	584
construction	604
landscape	675
uncertainty	711
own business	1,269

⁵ Eliminating the two statistically unreliable groups from the analysis makes little difference to the outcome: discounting the three 16-20-year-olds and the four who did not divulge their age from the analysis results in an increase of 0.3% to the total suffering anxiety (up to 83.9% from 83.6%) and 0.02% overall in the percentage who have visited the doctor (up to 16.85% from 16.83%).

The numbers of respondents ranking each concern are given below.

	property blight	landscape	construction	unable to sell	Uncertainty	own business
Score	473	675	604	584	711	1,269
1st	110	68	75	100	64	13
2nd	63	30	46	42	27	9
3rd	25	48	47	19	43	3
4th	19	42	35	26	39	3
5th	10	35	24	43	52	19
6th	6	10	6	4	8	187

Property blight and inability to sell (even if the respondent did not wish to sell yet) are noted as the dominant causes of adverse health effects from HS2. Construction impacts come third and then the landscape issues (e.g. those associated with the impacts of HS2 on the AONB).

HS2 Ltd. had suggested in compensation consultations that certainty would relieve anxiety. The survey tested this by asking how the clarification of the route in the January 2012 announcement had affected them. Only one respondent reported a reduction in symptoms. In fact greater certainty worsened symptoms for the majority, with 188 declaring this to be the case.

The survey asked about the health impacts of future changes i.e. from construction and operation. The great majority of people (233) expect a worse health effect when construction starts. Just 2 people thought otherwise. Furthermore, 183 people (64% of respondents) think that when the trains start operating, their health will worsen compared with now.

4. Further work

The pilot study should be extended to cover other areas in the AONB and those communities directly affected along the whole route. It should identify roads at materially different distances from the line to test how the anxiety from blight varies according to proximity to the route.

The survey should also be conducted in areas where HS2 Ltd. proposes to construct the Chilterns bored tunnel, to see how or if the effects upon health and quality of life differ.

The questions should be amended to capture data, on the fear of crime as a result of the influx of construction workers, and on the effect of vacated properties in the affected communities.

The pilot study findings should be used to elicit co-operation from local medical practitioners, to contribute to a more detailed investigation of health effects of HS2. It should further be extended to include the various health and social care agencies at all levels responsible for community, health and wellbeing.

There is no research reported in the HIA Health Evidence Base (Appendix 4) on the adverse health effects related to property blight and the inability to sell. Given the significant findings of this survey, and the length of time such impacts may continue (with people having already suffered for three years when the survey took place) HS2 Ltd. should correct this omission, and urgently commission independent, peer-reviewed research.

5. Conclusion

The survey found that 89.7% of respondents were suffering adverse health effects from HS2, and 16.8% had sought medical support for this reason.

The picture painted by the HIA makes no direct reference to loss in property value as a cause of anxiety, with no material effect ascribed to it. The findings of the CCB Pilot Study suggest that, on the contrary, anxiety and associated health effects can be ascribed to the ongoing property blight caused by HS2. These adverse health effects are, not unexpectedly, age-related. Other significant concerns need to be further investigated: anxiety about noise; air pollution; effects of stress on family and children; the future survival of communities, with potential isolation and fragmentation; the quality of life for families and individuals, and the destruction of the AONB all deserve further attention. The comments made by respondents in Appendix 2 provide a starting point.

Such adverse health and wellbeing effects should be researched further with particular reference to understanding their cumulative effects. The HIA currently underestimates the health impacts from HS2. While we urge HS2 Ltd. to commission research, we also hope to find a university department to conduct further independent, peer-reviewed research into the nature and extent of these phenomena along the HS2 Phase 1 route.

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HS2 Health Survey – A Community based pilot Study into the effects of HS2

The Chilterns Conservation Board is interested in understanding the effects that High Speed 2 has on the health of local people in the Chilterns Area of Outstanding Natural Beauty. The Board believes that HS2 should be in a tunnel as it passes through the Chilterns AONB, which would significantly reduce any impacts on the health of local people as well as protecting the environment. This survey will help provide a better understanding of what those impacts are, or might be, and help make the case for a longer tunnel should HS2 go ahead.

All information provided will be confidential and is anonymous.

If you have questions please contact the Distributor for your road. Their name is on the envelope.

General information

1. **Post code of your home:**
2. **Approx. distance from HS2 line:** 0 to 250m 251 to 500m 501 to 1km 1km to 2km 2km + Not known
3. **Your home:** Are you (or any other member of your household) the owner occupier? Yes No
4. **Total number in household (insert number):** Adults..... Children under 16.....

Your health effects (circle or insert as appropriate)

5. **Gender:** Female Male **Age:** 16-20 21-35 36-50 51-65 66-80 over 80yrs
6. **Effects:** Have you experienced any of the following as a result of HS2? (circle as many as apply)
 Anxiety/worry Depression Stress Physical health effect Sleeplessness Other None – go to Q13
7. **Frequency:** How frequent are any of these effects? Daily Frequent Occasional Not applicable
8. **Doctor:** Have you been to your doctor about this? Yes No If no, go to Q 10
If Yes, then how often? Once Twice More often (state).....
9. **Treatment:** Have you been prescribed any treatment?
 Medication Counselling Referral to specialist Other (state)..... None
10. **Impact:** How would you describe the health effects on your life?
 Huge impact Considerable impact Some impact Minimal impact No effect
11. **Concern:** What aspect of HS2 is the main underlying concern that you feel has affected your health?
 (rate 1 to six where 1 is the main concern and 6 is the least)

Property blight Landscape impact Construction disruption
 Unable to sell home Uncertainty Impact on own business

12. **Past changes:** When the route was confirmed in 2012, how did this certainty affect your health?

Certainty made it better Certainty made it worse Certainty made no difference Not applicable

13. **Future changes:** How do you expect your future health to be affected by HS2:

(1) When HS2 construction starts? Better than now Worse than now About same No effect Don't know

(2) When HS2 is operating? Better than now Worse than now About same No effect Don't know

14. **Other comments.** Please add anything else you wish to say (including about any effects on children).

.....

Health effects on other adult members of household. Effects on 2nd adult:

15. **Gender:** Female Male **Age:** 16-20 21-35 36-50 51-65 66-80 over 80yrs

16. **Effects:** Have you experienced any of the following as a result of HS2? (*circle as many as apply*)

Anxiety/worry Depression Stress Physical health effect Sleeplessness Other None – go to Q23

17. **Frequency:** How frequent are any of these effects? Daily Frequent Occasional Not applicable

18. **Doctor:** Have you seen a doctor about this? Yes No If no, go to Q 20

If Yes, then how often? Once Twice More often (*state*).....

19. **Treatment:** Have you been prescribed any treatment?

Medication Counselling Referral to specialist Other (*state*)..... None

20. **Impact:** How would you describe the health effects on your life?

Huge impact Considerable impact Some impact Minimal impact No effect

21. **Concern:** What aspect of HS2 is the main underlying concern that you feel has affected your health?

(*rate 1 to six where 1 is the main concern and 6 is the least*)

Property blight Landscape impact Construction disruption
 Unable to sell home Uncertainty Impact on own business

22. **Past changes:** When the HS2 route was confirmed in 2012, how did this certainty affect your health?

Certainty made it better Certainty made it worse Certainty made no difference Not applicable

23. **Future changes:** How do you expect your future health to be affected by HS2:

(1) When HS2 construction starts? Better than now Worse than now About same No effect Don't know

(2) When HS2 is operating? Better than now Worse than now About same No effect Don't know

3rd Adult: Please ask for another form or put answers to Q 15 to 23 on a separate sheet for each adult

Next step

1. Please put your completed survey form in the provided envelope and seal up.
2. The Distributor for your road will arrange to collect it or ask you to post it back in their letter box. Their name and address is on the envelope. If you have any questions please just ask them. We do hope you can help.
3. We need forms back **by 1 JULY** to give time for analysis before the Environmental Consultation ends 11 July).

Thank you for taking part in this survey.



**HS2 Health Survey – A community-based Pilot Study into the effects of HS2:
comments of participants.**

Frustration because it seems that we have not been listened to at all about anything by the Government.

Serious concerns re- government not considering more financially viable alternatives.

Frustrated by consultations that have little impact, sense of gross injustice as Government riding roughshod over views of electorate, AONB designation disregarded.

Angry at a beautiful area being ruined.

All of the following contribute to local health effects: impact on protected AONB, loss of wildlife habitat and recreational areas, destruction on community, demolition of homes, loss of our only community buildings. Lack of understanding by HS2 Ltd. about how much people care about this area!

Health impact includes lowered immunity and multiple infections; no consideration in the ES of impact on health/wellbeing. The issues of noise, dust and construction generally have been inadequately set out by HS2 Ltd. Impact on individuals through blight/huge loss of house price have been ignored, as has the impact on the community. The feeling of loss of control of own life is crippling!

Health impact: stress-related alopecia, leading to need to wear a full wig. Children may be left a property they can't sell. Blight prevents us moving closer to amenities as we get older. Blight on property and life. Local views spoiled through what was deemed to be a protected area.

Detrimental effects on blood pressure, effects on all physical/mental wellbeing, lack of peace, constant frustration, anger, sadness.

Stress & uncertainty a constant concern.

Concerned about health effects of dust, lorry fumes etc. General environmental damage, constant noise, disruption, destruction of AONB will be depressing to watch.

V. concerned about pollution as HS1 findings showed considerable rise in asthma etc.

Construction – impact of dust and worse. Operation – worse and blight.

Concern about chemical exposure should chemicals be used to control weeds etc. along the line. Also concerned about dust during construction.

A source of constant noise and disturbance, financial loss with no compensating advantage.

The noise levels would make sitting in our lovely garden impossible.

Pollution and disruption.

Disruption, blight, journey delays, rural area changing.

Complete uncertainty: costings, route, benefits, inability to move.

The considerable effort expended in fighting the proposed railway has adversely affected the quality of my life through the negative effect of having to expend so much time and money campaigning against it.

Daughter bought house in Anton Way Stoke Mandeville 10 years ago. HS2 will pass across fields close to the rear of her garden. Two people in the same family affected by this - disgusting!!

HS2 impacts on every aspect of family life. The uncertainty, worry and anxiety lead to increased stress levels between family members and having less time to devote to family matters.

Very long timescale makes life v. stressful as no plans can be made for future. We row as a result and I fear it may lead to divorce. Our child's asthma will be made worse when construction starts.

For years the children won't be able to walk to the bus stop; play outside safely; ride bikes out on the road; enjoy country walks; safely play with other children in the street. Adults won't be able to enjoy any of the above or any outdoor activities, let alone journeys from home.

Our children worry that we aren't going to have enough money when we are older. They also worry about getting to school and meeting with friends during construction and when it is in use.

At present only noise from house is farm animals and children playing, noise for HS2 will be horrendous. My eldest child has nightmares about HS2.

Children are aware of impact of HS2 on our lives.

Concerned about ability to move, safety of children.

Concern is noise pollution for all, but especially children.

Concerned that noise will affect us and our child through disturbed sleep and disturbed relaxation time at home.

Active campaigner, children sharing stress, business suffering through time spent on campaign.

Construction work will affect all terribly, and our property value will drop; hope it won't go ahead.

Had no idea this was in the pipeline when we moved here in 2006; had just completed an extension when HS2 was announced and our house price has gone down more than the cost of this.

Feel trapped in house as unable to sell.

Treated for cancer in 2009, partner left 2010; financially need to sell but the uncertainty of HS2 is making it impossible.

Due for retirement this will be hell for us just as we want a quieter life!

Concern over HS2 has ruined the declining years of my life.

We moved here for the peace and quiet, now as we get older and more frail we are really worried about the noise and damage this will bring to our lives.

Getting much older – unable to move to be near children in our old age.

Some years ago I had a stroke and it's a constant worry that this undue stress regarding my property in relation to HS2 will bring on another, particularly regarding my ability to sell.

79 years old – would like to down size but can't afford to now.

Husband died last year leaving me with a house and garden that are too big. I should downsize but I can't because of HS2.

Approaching retirement, property blighted, unable to sell.

Unable to downsize for retirement. 10% price reduction had no effect.

Need to downsize in 2/3 yrs. EHS* application turned down.

Need to downsize. Rejected for EHS*. Fear of being trapped.

Very worried about saleability until work is completed.

Not needed, impact not fairly assessed, home not saleable.

*EHS: Exceptional Hardship Scheme – eligibility determined by HS2 Ltd., with no right of appeal to independent adjudicator.