



High Speed Rail (West Midlands - Crewe)

Environmental Statement

Volume 5: Technical appendices

CA4: Whitmore Heath to Madeley

Health assessment matrix (HE-001-004)



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Department for Transport

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1 Introduction

- 1.1.1 This document is an Appendix relating to the health impact assessment for the Whitmore Heath to Madeley community area (CA4). It contains health assessment matrices which identify impacts on health determinants along the High Speed Rail (West Midlands - Crewe) proposed route, and apply assessment criteria as set out in the Scope and Methodology Report (SMR)¹ and its Addendum² to evaluate the health effects arising from these impacts.
- 1.1.2 The health assessment matrices for the construction and operational health assessments are set out in Tables 1 and 2 respectively. Impacts that are categorised as having low intensity and a low extent of exposure are not considered to affect the health of the population and are therefore not reported in the High Speed Rail (West Midlands - Crewe) Environmental Statement (ES)³. The low levels of impact on health determinants in these instances can be attributed in part to the incorporated mitigation, which is reported in Volume 2 of the ES⁴.
- 1.1.3 A route-wide commentary on the health evidence base is provided in Volume 5: Appendix HE-003-000.
- 1.1.4 In addition, health profile information for the Whitmore Heath to Madeley area is set out in Background Information and Data (BID)⁵, (see BID-HE-002-004: Community area health profile).

¹ *Environmental Impact Assessment Scope and Methodology Report*, Volume 5: Appendix CT-001-001

² *Environmental Impact Assessment Scope and Methodology Report Addendum*, Volume 5: Appendix CT-001-002

³ HS2 Ltd (2017), *High Speed Rail (West Midlands - Crewe) Environmental Statement (ES)*, www.gov.uk/hs2

⁴ See ES Volume 2, Community area reports

⁵ HS2 Ltd (2017), *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*, www.gov.uk/hs2

Table 1: CA4 Whitmore Heath to Madeley- Construction health assessment matrix

CA4 Whitmore Heath to Madeley – Health effects during construction											
Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact (low / moderate / high)	Extent of exposure (low / moderate / high)	Vulnerable groups	Health effects at population level	Mitigation	Reporting
Whitmore Heath, Baldwin's Gate and surrounds	Construction of Meece Brook viaduct. Construction works and vehicle movements along haul road visible from lanes and scattered residential properties on the north side of Hill Chorlton. Perceptible levels of construction noise.	Change in visual amenity, and minor reduction in tranquillity in rural settlements north of Hill Chorlton, leading to reduced levels of satisfaction with the local environment.	Temporary and permanent construction impacts	Adverse	Neighbourhood quality	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Construction of Whitmore Heath tunnel and location of Whitmore Heath tunnel north portal satellite compound, tunnelling facility and logistics area close to residential properties on the north side of Whitmore Heath. Presence of Heavy Goods Vehicles (HGVs) on Common Lane, Snape Hall Road and Heath Road; key access routes to residential area of Whitmore Heath, close to dwellings. Permanent closure of Snape Hall Road on the north side of Whitmore Heath and widening of Snape Hall Road on the west side of the village. Construction sites for the north tunnel portal will be visible from Snape Hall Road on the north side of Whitmore Heath. Noise from construction activities and construction traffic will be noticeable across the residential area of Whitmore Heath.	Change in visual amenity, landscape, sound environment, tranquillity and perceived road safety in Whitmore Heath, leading to reduced levels of satisfaction with the local environment.	Temporary and permanent construction impacts	Adverse	Neighbourhood quality	Moderate	Moderate	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Temporary road diversions and reinstatement, temporary haul road, road widening and utilities works, temporarily requiring outside space at three properties on the A53 Newcastle Road and two properties on Three Mile Lane, Whitmore, and one property on Common Lane, Whitmore Heath. Permanent requirement of outside space from three properties in Whitmore Heath.	Temporary and permanent loss of land from some properties will add to feelings of dissatisfaction with living environment.	Temporary (1 - 3 years) and permanent construction impacts	Adverse	Neighbourhood quality	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Presence of HGVs on A53 Newcastle Road through Baldwin's Gate and Whitmore.	Noticeable changes to sound and visual environment and perceived reduction in road safety, leading to reduced levels of satisfaction with the local environment of Baldwin's Gate and Whitmore.	Temporary construction impact	Adverse	Neighbourhood quality	Low	Moderate	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2

CA4 Whitmore Heath to Madeley – Health effects during construction

Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact (low / moderate / high)	Extent of exposure (low / moderate / high)	Vulnerable groups	Health effects at population level	Mitigation	Reporting
Whitmore Heath, Baldwin's Gate and surrounds	Realignment and diversion of three rural public right of way (PRoW). This includes is Whitmore Footpaths 4, 5 and 6.	Impacts on noise and visual amenity value of rural PRoW, discouraging their use for physical activity and access to the countryside. (The ES showed that there were fewer than 10 people a day recorded on most of the PRoW in the area. Alternative PRoW are available for recreational use).	Temporary and permanent construction impacts	Adverse	Access to green space and physical activity	Moderate	Low	None identified	Contributes to reduction in wellbeing benefits associated with access to green space and physical activity across CA as a whole.	Incorporated mitigation as reported in the ES.	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Construction traffic will be present on local roads including A53 Newcastle Road, Snape Hall Road and Common Lane.	HGVs on local roads causing deterrent to pedestrians, cyclists and equestrians, leading to a reduction in recreational activity and active travel.	Temporary (3 years and 9 months)	Adverse	Access to green space and physical activity	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people impaired hearing, vision or mobility and children.	Reduction in wellbeing benefits associated with physical activity	Incorporated mitigation as reported in the ES.	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Presence of construction workforce, including civil and rail systems workers, on site sites and at seven satellite compounds (Stableford North embankment satellite compound, Whitmore Heath tunnel south portal satellite compound, Whitmore Heath tunnel satellite compound, Whitmore North cutting satellite compound, Whitmore Heath tunnel north portal satellite compound, Whitmore North auto transformer station satellite compound, and River Lea viaduct satellite compound).	Workers are unlikely to be present in residential areas immediately adjacent to this part of the route due to lack of local facilities. Presence of the workforce will be apparent on the local road network and in nearby village centres used by the community, including Whitmore Heath and Baldwin's Gate, leading to changes in levels of community cohesion and trust. Beneficial impacts are discussed below.	Temporary (up to 4 years and 9 months)	Adverse	Social capital	Low	Moderate	None identified	Adverse effects on wellbeing associated with negative feelings about community cohesion and trust.	HS2 Ltd will engage with stakeholders and incorporate measures to integrate the workforce within a Community Engagement Framework to be prepared in accordance with the Code of Construction Practice (CoCP) ⁶ .	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Presence of construction workforce, including civil and rail systems workers, on site sites and at seven satellite compounds (Stableford North embankment satellite compound, Whitmore Heath tunnel south portal satellite compound, Whitmore Heath tunnel satellite compound, Whitmore North cutting satellite compound, Whitmore Heath tunnel north portal satellite compound, Whitmore North auto transformer station satellite compound, and River Lea viaduct satellite compound).	Increased demand for local services (e.g. impact on capacity at GP surgery in Baldwin's Gate from workers who may choose to register with a local GP).	Temporary	Adverse	Access to services	Low	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	No health effects at population level.	No mitigation required. Funding for services is allocated by local authorities on the basis of population size and would include temporary workforce in rental accommodation.	Not reported

⁶ Draft Code of Construction Practice, Volume 5: Appendix CT-003-000

CA4 Whitmore Heath to Madeley – Health effects during construction

Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact (low / moderate / high)	Extent of exposure (low / moderate / high)	Vulnerable groups	Health effects at population level	Mitigation	Reporting
Madeley and surrounds	Construction of the Lea South embankment to the east of Madeley Park Wood and presence of HGVs on Manor Road through Madeley Park Wood.	Construction works visible from rear gardens of properties on the east side of Madeley Park Wood. Noise from construction activities will reduce outdoor amenity in this area. HGVs on Manor Road will cause some visual intrusion and changes to the sound environment, as well as perceived reduction in road safety within Madeley Park Wood.	Temporary construction impact	Adverse	Neighbourhood quality	Low	Moderate	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2
Madeley and surrounds	Construction of Madeley Cutting, Madeley Tunnel and A525 Bar Hill Road realignment, in close proximity to residential properties in Bar Hill. Presence of HGVs on Manor Road and Bar Hill, south of Madeley. Construction works and construction traffic routes will be located close to 11 residential properties, (Moor Hall Farm, Bower End Farm, 9 properties on A525 Bar Hill Road) and the allotments site to the south of Madeley on Manor Road.	Change in visual amenity, landscape, sound environment, reduced tranquillity and reduction in perceived road safety, leading to reduced levels of satisfaction with the local environment.	Temporary construction impact	Adverse	Neighbourhood quality	Moderate	Low to moderate	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2
Madeley and surrounds	Presence of construction workforce, including civil and rail systems workers, on site sites and at five satellite compounds (Madeley cutting satellite compound, Madeley tunnel (south) satellite compound, Madeley tunnel (north) satellite compound, Madeley tunnel north portal satellite compound, and Checkley South embankment satellite compound).	Workers are unlikely to be present in residential areas adjacent to this part of the route due to lack of local facilities. Presence of the workforce will be apparent on the local road network and in nearby village centres used by the community, including Madeley, leading to changes in levels of community cohesion and trust. Beneficial impacts are discussed below.	Temporary (up to 4 years and 9 months)	Adverse	Social capital	Low to moderate	Low	None identified	Adverse effects on wellbeing associated with negative feelings about community cohesion and trust.	HS2 Ltd will engage with stakeholders and incorporate measures to integrate the workforce within a Community Engagement Framework to be prepared in accordance with the CoCP.	Volume 2
Madeley and surrounds	Presence of construction traffic along the A525 Bar Hill Road and through Madeley.	HGVs on local roads causing deterrent to pedestrians, cyclists and equestrians, leading to a reduction in recreational activity and active travel.	Temporary (3 years 9 months)	Adverse	Access to green space and physical activity	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people impaired hearing, vision or mobility, children	Reduction in wellbeing benefits associated with physical activity.	Incorporated mitigation as reported in the ES.	Volume 2
Madeley and surrounds	Realignment, diversion or closure of seven PRoWs. These include Madeley Bridleways 1, 2 and 5 and Madeley Footpaths 7, 14, 24 and 28. The Newcastle Way long distance footpath will be crossed by the Proposed Scheme.	Impacts on amenity value of PRoW, discouraging their use for physical activity and access to the countryside. (The ES showed that there were fewer than 10 people a day recorded on most of the PRoW in the area. Alternative PRoW are available for recreational use).	Temporary and construction impacts	Adverse	Access to green space and physical activity	Moderate	Low	None identified	Contributes to reduction in wellbeing benefits associated with access to green space and physical activity across CA as a whole.	Incorporated mitigation as reported in the ES.	Volume 2

CA4 Whitmore Heath to Madeley – Health effects during construction

Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact (low / moderate / high)	Extent of exposure (low / moderate / high)	Vulnerable groups	Health effects at population level	Mitigation	Reporting
Route-wide	Demolition of residential properties: Hey House Lodge in Madeley and two properties on the A525 Bar Hill Road.	Residents required relocating involuntarily, leading to disruption and uncertainty. Potential changes in connectivity to social networks, schools, employment, services and facilities.	Permanent construction impact	Adverse	Housing	Low to high (depends on individual circumstances)	Moderate (at route-wide level)	Older people, Young families / children, Disabled people	Adverse effects on wellbeing including increased stress.	Incorporated mitigation as reported in the ES including Express Purchase Scheme and Need to Sell Scheme.	Volume 3 ⁷
Route-wide	Construction activities and presence of infrastructure close to residential properties in Whitmore Heath and Bar Hill.	Concerns about potential local amenity impacts during the planning stage, and actual impacts during the construction and operational stages, leading to changes in desirability and value of local property market.	Pre-construction, temporary and permanent construction impacts	Adverse	Housing	Moderate	Moderate (at route-wide level)	Older people, young families	Financial concerns and practical problems associated with postponing selling / moving house, leading to adverse effects on wellbeing including increased stress.	Incorporated mitigation as reported in the ES including Express Purchase Scheme and Need to Sell Scheme	Volume 3
Route-wide	Presence of construction workforce.	Increased demand for local facilities including local shops, restaurants and other businesses in Baldwin's Gate and Madeley.	Temporary construction impact	Beneficial	Employment and income	Low to moderate	Low to moderate	None identified	Potential for beneficial effects on wellbeing associated with increased income	Incorporated mitigation and enhancement reported in the ES.	Volume 3
Route-wide	Increased traffic flows, temporary road or lane closures and associated diversions, temporary signals and speed restrictions on the local road network.	Delays at affected junctions, route uncertainty at diversions and fear of accidents associated with HGVs leading to increase in levels of traveller stress.	Temporary	Adverse	Transport	Low	Moderate to high	None identified	Adverse effects on wellbeing including increased stress.	Incorporated mitigation and enhancement reported in the ES.	Volume 3
Route-wide	Increase in traffic flows and proportion of HGVs on local road network.	Increased risk of road traffic accidents associated with increased traffic flows. Risk is considered low as there are no locations where elevated baseline accident rates coincide with changes of greater than 30% in average daily traffic flows.	Temporary	Adverse	Transport	Low (risk)	Low	None identified	Adverse effects on wellbeing including increased stress relating to road safety.	Incorporated mitigation and enhancement reported in the ES.	Volume 3
Route-wide	Increased in air emissions from construction dust, vehicle and plant emissions.	Small increases in exposure to dust, NOx and PM10 in areas close to construction sites and haulage routes.	Temporary	Adverse	Air quality	Low	Low	Children, older people, people with existing respiratory health problems	No health effects at population level.	Incorporated mitigation as reported in the ES and draft CoCP.	Not reported

⁷ See ES Volume 3, Route-wide effects

Table 2: CA4 Whitmore Heath to Madeley- Operational health assessment matrix

CA4 Whitmore Heath to Madeley – Health effects during operation											
Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact	Extent of exposure (low / moderate / high)	Vulnerable groups	Potential health effects at population level	Mitigation	Reporting
Whitmore Heath, Baldwin's Gate and surrounds	Loss of landscape features such as trees and hedgerows and presence of Meece Brook viaduct and operational trains, visible from rural settlement area north of Hill Chorlton. Intermittent noise from passing trains will be noticeable.	Change in character of views and noise environment, and reduction in tranquillity, leading to reduced levels of satisfaction with the local environment.	Operational impact	Adverse	Neighbourhood quality	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	No health effect at population level.	Incorporated mitigation as reported in the ES.	Volume 2
Whitmore Heath, Baldwin's Gate and surrounds	Presence of Whitmore Heath tunnel north portal and noise from operational trains leading to reduced outdoor amenity in northern areas of Whitmore Heath. Closure of Snape Hall Road on the north side of Whitmore Heath and widening of Snape Hall Road on the west side of the village will change the layout and visual appearance of the area. Road widening will permanently require outside space from three properties.	Impacts on noise environment, tranquillity, road layout and access within parts of the village, leading to reduced levels of satisfaction with the local environment.	Operational impact	Adverse	Neighbourhood quality	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	No health effect at population level.	Incorporated mitigation as reported in the ES.	Volume 2
Madeley and surrounds	Presence of Madeley Cutting, Madeley Tunnel portals and A525 Bar Hill Road realignment, in close proximity to residential properties on Bar Hill. Noise from passing trains will impact on amenity of outdoor areas including private gardens on Bar Hill Road and Red Lane. Passing trains visible from PRoW in the surrounding area.	Change in visual amenity, landscape, sound environment, and tranquillity leading to reduced levels of satisfaction with the local environment.	Operational impact	Adverse	Neighbourhood quality	Moderate	Low	Some groups may be more vulnerable, e.g. older people, people with existing illness or disability and children.	Adverse effects on wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 2
Madeley and surrounds	Presence of Lea South embankment, Bar Hill overbridge, and Checkley South embankment in close proximity to PRoW including Whitmore Footpath 6, Madeley Footpaths 14 and 24 and 26, and Madeley Bridleways 1, 2 and 5. Presence of underbridges on rural PRoW network.	Visual intrusion, noise from passing trains and changes in perceived safety, e.g. at underbridges, affecting amenity value of PRoW and discouraging their use for physical activity and access to the countryside. (The ES showed that there were fewer than 10 people a day recorded on most of the PRoW in the area. Alternative PRoWs are available for recreational use).	Operational impact	Adverse	Access to green space and physical activity	Low	Low	None identified	No health effects at population level.	Incorporated mitigation as reported in the ES.	Not reported
Route-wide	Presence of operational scheme and passing trains close to dwellings at Madeley Park Wood and Bar Hill.	Changes to noise and visual amenity, leading to changes in desirability and value of local property market.	Operational impact	Adverse	Housing	Low to moderate	Low	None identified	Adverse effects on mental wellbeing such as increased stress and reduced satisfaction with quality of life.	Incorporated mitigation as reported in the ES.	Volume 3

CA4 Whitmore Heath to Madeley – Health effects during operation

Communities	Impact description	Impact pathway	Temporary / permanent construction / operational	Beneficial / adverse	Health determinant	Intensity of impact	Extent of exposure (low / moderate / high)	Vulnerable groups	Potential health effects at population level	Mitigation	Reporting
Route-wide	Operational trains	Increased exposure to noise in the population close to the Proposed Scheme resulting from operational train movements.	Operational impact	Adverse	Sound, noise and vibration	Moderate	Moderate	Children, older people, disabled people	Increased annoyance, loss of sleep and physiological effects.	Incorporated mitigation as reported in the ES.	Volume 3

2 References

HS2 Ltd (2017), *High Speed Two (HS2) Phase 2a (West Midlands - Crewe), Background Information and Data*. Available online at: www.gov.uk/hs2.

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