

High Speed Rail (West Midlands - Crewe)

Environmental Statement

Volume 5: Technical appendices

CA5: South Cheshire

Health assessment matrix (HE-001-005)



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Department for Transport

High Speed Two (HS2) Limited has been tasked by the Department for Transport (DfT) with managing the delivery of a new national high speed rail network. It is a non-departmental public body wholly owned by the DfT.

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1 Introduction

- 1.1.1 This document is an Appendix relating to the health impact assessment for the South Cheshire community area (CA5). 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 South Cheshire area is set out in Background Information and Data (BID)⁵, (see BID-HE-002-005: 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: CA5 South Cheshire - Construction health assessment matrix

| CA5 South Cheshire – 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 |
| Blakenhall and surrounds | <p>Construction of Checkley Brook viaduct, Checkley North embankment and Crewe South cutting.</p> <p>Construction works and traffic on haul roads either side or the Proposed Scheme visible from properties on Checkley Lane including Grange Farm and Randilow Farm.</p> <p>Construction of Crewe South cutting, West Coast Main Line (WCML) modifications, Den Lane West viaduct, Den Lane East viaduct, and traffic on haul roads to the east of the WCML and along either side of the Proposed Scheme main line. Visible from several farms and groups of cottages on Den Lane and Mill Lane.</p> <p>Construction traffic, including HGVs, will temporarily use Den Lane and Checkley Lane, passing through the village of Checkley.</p> <p>Noise from construction traffic and construction activities will affect the local noise environment including the local public right of way (PRoW) network and properties at Checkley Lane and Mill Lane.</p> | Noise impacts, visual intrusion, reduced tranquillity and concerns about road safety leading to reduced levels of satisfaction with the local environment. | Temporary and permanent construction impacts | Adverse | Neighbourhood quality | Moderate to high | 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 |
| Blakenhall and surrounds | Realignment, diversion or closure of eight rural PRoW. These include: Checkley cum Wrinehill Footpaths 5, 8, 9 and 15; and Blakenhall Footpaths 7, 8, 9 and 17. | Diversions and impacts on noise and visual amenity value of rural PRoW, in the vicinity of residential properties, 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 |
| Blakenhall and surrounds | Presence of construction traffic on Checkley Lane and Den Lane. | Heavy Goods Vehicles (HGVs) on local roads causing deterrent to pedestrians, cyclists and equestrians, leading to a reduction in recreational activity and active travel. | Temporary construction impact | 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 |

CA5 South Cheshire – 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 |
|-------------------------------|--|--|--|----------------------|-----------------------|---|--|---|--|---|-----------|
| Blakenhall and surrounds | Presence of construction workforce, including civil and rail systems workers, on work sites and at one main compound (Checkley Lane East main compound) and seven satellite compounds (Checkley North Embankment satellite compound, Checkley Lane West satellite compound, Den Lane Welfare satellite compound, Den Lane East satellite compound, Den Lane West satellite compound, Blakenhall Northbound Spur embankment satellite compound and Blakenhall cutting satellite compound) throughout the area. | 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 Wrinehill and Betley, leading to changes in levels of community cohesion and trust. Beneficial impacts are discussed below. | Temporary construction impact | 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 |
| Chorlton, Hough and surrounds | Construction of Crewe South cutting, WCML modifications, Chorlton viaduct and retaining walls, movement of construction traffic along haul roads adjacent to the Proposed Scheme main line and WCML, presence of HGVs on Chorlton Lane. Construction works and construction traffic visible from the local road network and houses and rear gardens on Hampstead Drive, Freshwater Drive, and from street level and fronts of houses on Freshwater Drive, Waybutt Lane and Chorlton Lane to the east of the Proposed Scheme. Construction works and haul road adjacent to the group of houses and Dairy Farm on Chorlton Lane, which will be severed from the rest of Chorlton. New access road will link these properties to Newcastle Road. HGVs will be present on the northern section of Chorlton Lane, and the new access road serving properties at the western end of Chorlton Lane. Noise from construction activities will adversely affect amenity in gardens and outdoor areas to the west of Wychwood Park in Chorlton and along Chorlton Lane. | Noise impacts, visual intrusion, reduced tranquillity, severance of residential properties in Chorlton and concerns about road safety in relation to construction traffic on local roads, leading to reduced levels of satisfaction with the local environment. | Temporary construction impact | Adverse | Neighbourhood quality | Moderate to high | 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 |

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

CA5 South Cheshire – 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 |
|-------------------------------|---|---|--|----------------------|---|---|--|---|--|---|-----------|
| Chorlton, Hough and surrounds | <p>Construction of Crewe South portal retained cutting, Chorlton Lane diversion, Newcastle Road realignment and Newcastle Road overbridge, Casey Lane diversion, Crewe South portal, Basford cutting and Basford Cutting main compound.</p> <p>Works and construction traffic on haul roads visible from the local road network, Heath Farm, approximately 12 houses on Newcastle Road, eight houses on Casey Lane, Larch Farm, Basford Hall, and the residential area of Basford on Weston Lane and Larch Avenue.</p> <p>Noise from construction activities and traffic will impact on outdoor amenity in these areas.</p> <p>Presence of construction traffic on the local road network including Newcastle Road to the east of the Proposed Scheme main line and Newcastle Road / Casey Lane (as far as junction in north east corner of Hough but not through the village).</p> | Noise impacts, visual intrusion, changes to the local road layout and concerns about road safety on routes affected by HGVs, leading to reduced levels of satisfaction with the local environment. | Temporary construction impact | Adverse | Neighbourhood quality | Moderate to high | Moderate to high | 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 |
| Chorlton, Hough and surrounds | Realignment, diversion or closure of 12 rural PRow. These include: Blakenhall Bridleway 12; Blakenhall Footpath 11; Chorlton Bridleway 2; Chorlton Footpaths 3, 7, 9, 11, 12, 13 and 17; Basford Footpaths 4 and 5; and diversion of Regional Cycle Route 70 on Weston Lane. | 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 permanent construction impacts | Adverse | Access to green space and physical activity | Moderate | Moderate | 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 |
| Chorlton, Hough and surrounds | Closure of Chorlton Lane and diversion via realigned Chorlton Lane to the west of the Proposed Scheme main line and Newcastle Road, causing severance of Dairy Farm and houses at western end of Chorlton Lane from Chorlton village. | Severance of properties from neighbouring village causing loss of social capital. | Permanent construction impact. | Adverse | Social capital | High | Low | Older people | Adverse effects on wellbeing associated with loss of social capital. | Incorporated mitigation as reported in the ES. | Volume 2 |
| Chorlton, Hough and surrounds | Presence of construction workforce, including civil and rail systems workers, on work sites and at one crossover compound (Crewe South Crossovers compound), two main compounds (Basford Cutting main compound and Motorail Terminal main compound) and 11 satellite compounds throughout the area. | Workers presence will be apparent in the local community including in local shops, restaurants and other facilities in local areas such as Hough and Weston, leading to changes in levels of community cohesion and trust. Beneficial impacts are discussed below. | Temporary | 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 CoCP. | Volume 2 |

CA5 South Cheshire – 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 |
|-------------------------------|--|---|--|----------------------|---|---|--|--|--|--|-----------------------|
| Chorlton, Hough and surrounds | Presence of construction traffic along Chorlton Lane (east of the Proposed Scheme), Newcastle Road and Casey Lane. | HGVs on local roads causing deterrent to pedestrians, cyclists and equestrians, leading to a reduction in recreational activity and active travel. | Temporary | 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 |
| Route-wide | Construction activities and presence of infrastructure close to residential properties at Checkley Lane, Blakenhall, Chorlton, Newcastle Road, Casey Lane and Basford. | 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 ⁷ |
| Route-wide | Construction works resulting in indirect impacts on businesses. | Amenity impacts leading to reductions in business and potential impacts on employment and loss of earnings. | Temporary construction impact | Adverse | Employment and income | Low / moderate | Low | None identified | Adverse effects on wellbeing associated with loss of earnings / job loss. | Incorporated mitigation as reported in the ES. | Volume 3 |
| Route-wide | Presence of construction workforce. | Increased demand for local facilities including local shops, restaurants and other businesses in local areas such as Hough and Weston. | Temporary construction impact | Beneficial | Employment and income | Low / moderate | Low to moderate | None identified | Potential for beneficial effects on wellbeing associated with increased income. | Incorporated mitigation as reported in the ES and Transport Assessment (TA) ⁸ . | 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 / 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

⁸ Volume 5: Appendix TR-001-000, Transport Assessment

Table 2: CA5 South Cheshire - Operational health assessment matrix

| CA5 South Cheshire – 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 |
| Blakenhall and surrounds | <p>Presence of train infrastructure and passing trains on the Checkley Brook viaduct, Checkley North embankment and Crewe South cutting. Changes to the visual character of the area and exposure to noise from passing trains at properties on Checkley Lane including Grange Farm and Randilow Farm.</p> <p>Presence of passing trains, Crewe South cutting, Blakenhall Northbound spur cutting, Blakenhall Southbound spur cutting, Den Lane West viaduct, Den Lane East viaduct, Blakenhall viaduct and mitigation planting. Train infrastructure, such as viaducts, will be visible from several farms and groups cottages on Den Lane and Mill Lane. Noise from passing trains will affect outdoor amenity.</p> | 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 | Moderate | 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 |
| Blakenhall and surrounds | Permanent diversions of PRow including crossings of the Proposed Scheme main line and WCML modifications and changes to the visual and sound environment at rural PRow including Checkley Cum Wrinehill Footpaths 5, 8 and 9, Blakenhall Bridleway 8 and Blakenhall Footpath 9. | 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 PRow 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 |
| Chorlton, Hough and surrounds | <p>Presence of passing trains, Crewe South cutting, WCML modifications, Chorlton viaduct and retaining wall.</p> <p>Proposed Scheme visible from the local road network, houses and rear gardens on Hampstead Drive, Freshwater Drive, and from street level and fronts of houses on Freshwater Drive, Waybutt Lane and Chorlton Lane to the east of the Proposed Scheme. To the west, the Proposed Scheme will be adjacent to the group of houses and Dairy Farm on Chorlton Lane.</p> <p>Noise from passing trains will adversely affect amenity in gardens and outdoor areas to the west of Wychwood Park in Chorlton and along Chorlton Lane.</p> | 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 | Moderate | 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 |

CA5 South Cheshire – 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 |
|-------------------------------|--|--|--|----------------------|---|---------------------|--|---|---|--|---------------|
| Chorlton, Hough and surrounds | Presence of passing trains, Crewe South cutting, Chorlton Lane diversion, Newcastle Road realignment and overbridge. Proposed Scheme will be visible from the local road network, Heath Farm, approximately 10 houses on Newcastle Road, eight houses on Casey Lane, and Such Farm. | 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 | Low | Moderate | 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 |
| Chorlton, Hough and surrounds | Permanent diversions of PRoW including crossings of the Proposed Scheme and changes to noise and visual amenity including Blakenhall Bridleway 12, Blakenhall Footpath 11 and 7, closure of Chorlton Footpath 12 and the realignment of Chorlton Footpaths 3, 7 and 9. | 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 PRoW 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 Checkley Lane, Blakenhall, Chorlton, Newcastle Road, Casey Lane and Basford. | Changes to noise and visual amenity, leading to changes in desirability and value of local property market. | Operational impact | Adverse | Housing | Low / moderate | Moderate | 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 |
| Route-wide | Operational trains | Increased exposure to noise in the population close to the Proposed Scheme main line and WCML modifications 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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