

Update of the 2013 Rapid Health Impact Assessment of HS2 initial preferred route in Eastern Derbyshire

An update of community profiling, review of proposals and recommendations in response to the HS2 Realignment Phase 2b Eastern Leg

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1. Introduction

1.1 Background

The Department of Public Health, Derbyshire County Council produced a rapid health impact assessment of High Speed Two (HS2) initial preferred route in Eastern Derbyshire in December 2013 (HS2 HIA 2013): see appendix 1 for the link to this document. On 7th July 2016, HS2 Ltd published a proposed, revised route and station location in the eastern leg to serve Sheffield and the Toton-Leeds section of HS2 – Phase 2b (figure 1). This report aims to:

- Summarise the changes
- Assess if the proposed changes to routes and stations have any health impacts beyond those identified in the HS2 HIA 2013 and
- Summarise the details of the property compensation scheme which was not previously available.

1.2 Summary of the proposed HS2 Phase 2b route refinements affecting the eastern leg and Derbyshire

A more detailed description on the proposed route refinement can be found in sections 3, 4, 6 and 6.

I. **Route refinement 1: East Midland Hub Approach through Long Eaton**

Amends the alignment of the route as it passes through Long Eaton. The Secretary of State is considering two options for the alignment in this area. Both pass through Long Eaton directly to the east of the existing low level rail lines, either by lengthening the viaduct over the River Trent floodplain through Long Eaton at high level or via a lower viaduct and embankment through Long Eaton.

II. **Route refinement 2: Derbyshire to West Yorkshire (M18/Eastern Route)**

Moves the alignment of the route from Derbyshire to West Yorkshire over 70km to reflect a change in the proposals for serving Sheffield, as proposed by Sir David Higgins in the Sheffield and South Yorkshire Report, published on 7 July 2016, which can be found in appendix 2.

III. Route refinement 3: Derbyshire to West Yorkshire

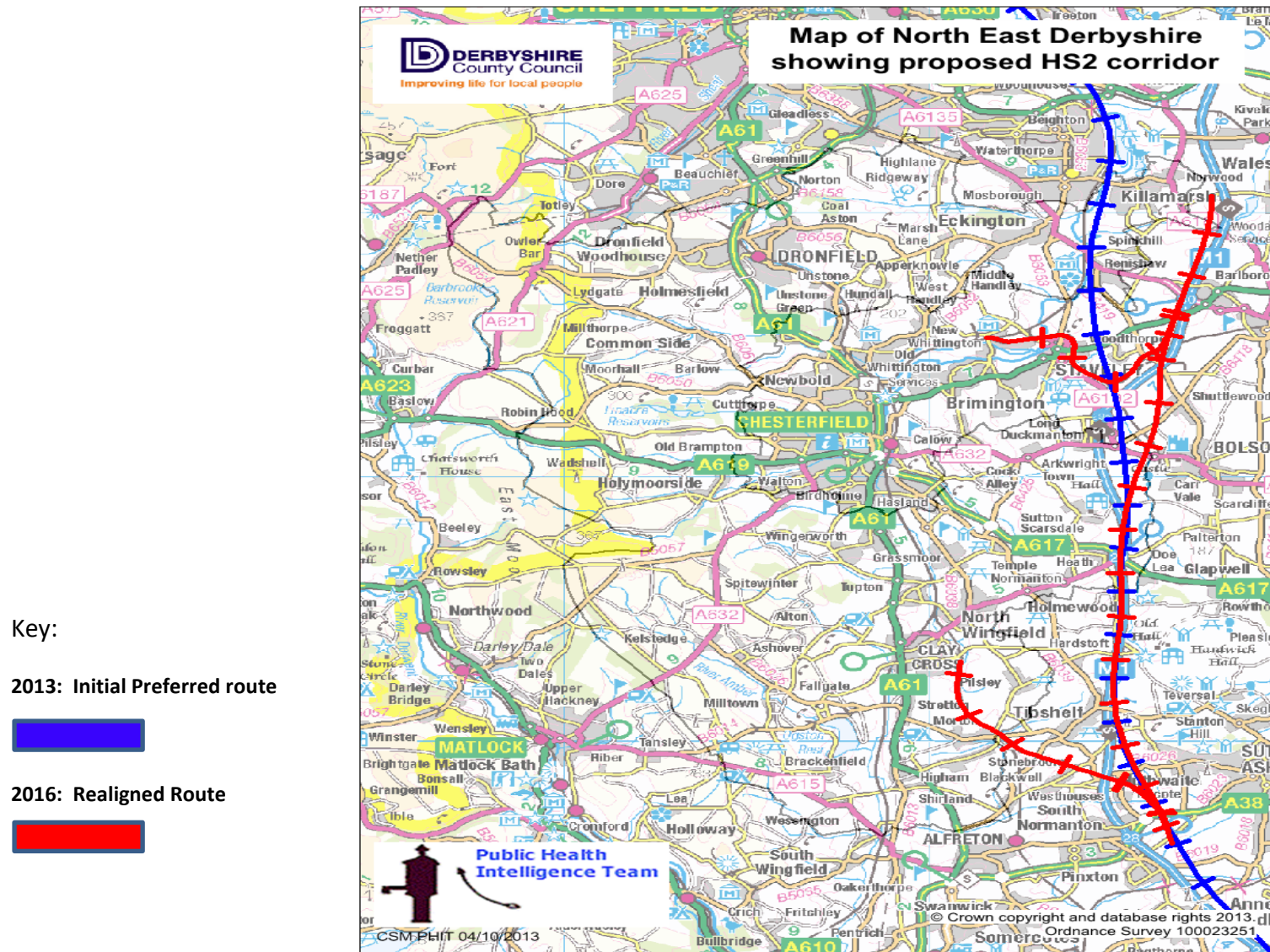
HS2 Ltd has developed a new proposal to serve Sheffield and Chesterfield via a connection to the Midland Main Line that would allow HS2 Ltd services to run on the existing network to Sheffield Midland Station. A spur would leave the HS2 network between Huthwaite and South Normanton, passing under the A38, then under the M1 and between the villages of Newton and Blackwell. As a result of this proposal, HS2 Ltd have re-examined the line of route through South Yorkshire to consider whether there is the opportunity to deliver an alternative line of route.

IV. Route refinement 4: Staveley Infrastructure Maintenance Depot

In order to align with local development plans HS2 Ltd have refined the layout of the infrastructure maintenance depot (IMD) at Staveley. The realigned route is now further away from the IMD so they have proposed an alternative connection from the mainline, which follows the line of a currently disused mineral railway and connects to the mainline to the east of Mastin Moor with a grade separated connection that passes under the mainline.

On 13th September 2016, HS2 Ltd stated that they expected the proposed route to be fully confirmed by mid-2017. The current proposal is that the Eastern Leg of HS2 will not be operational until 2033.

Figure 1. Map to show sections of the proposed realignment of the eastern leg



2. Methodology

2.1 This report comprises of a summary of the proposed realignment of the HS2 Ltd, Eastern Leg, Phase 2B, in Derbyshire. Using information from HS2 Ltd we have summarised the proposed realignment affecting Derbyshire in the Eastern Leg. We considered if the changes have a positive or negative impact upon health. Health Impacts were measured according to: scale, likelihood, equality, locality and stage of development. Where impacts have previously been reported in the HS2 HIA 2013 (see appendix 1) we have not revisited this information in this report. Where additional, health related themes have emerged in Erewash and Chesterfield, the Public Health Intelligence team have undertaken a literature review of evidence to support recommendations on health impacts. These themes include 2 proposed routes through Long Eaton and the spur linking HS2 to Chesterfield's mainline station. Where new information from routinely collected statistics and health related surveys of 2016 (appendix 3) were available we updated and compared changes with the existing data in each of the localities. For the purposes of this report we did not pursue further public consultation. Public consultation took place for the HIA in 2013 and the evidence gained at that stage is still valid. We have searched the literature for key emerging themes and have made recommendations to HS2 Ltd where we consider there is further opportunity to enhance positive health impacts and mitigate negative health impacts.

3. Proposed Route Refinements 2016

3.1 Route refinement 1: East Midland Hub Approach through Long Eaton

The route consulted on in 2013 crossed the River Soar and River Trent on viaducts before running at ground level through Long Eaton along the existing low-level rail corridor on the approach to the East Midlands Hub station at Toton. The originally proposed route would have directly impacted Main Street and Station Road, and the existing high level rail line through Long Eaton would have needed to be widened for use by rail services on existing networks. Following the 2013 consultation, HS2 Ltd undertook extensive work to consider alternative options for station locations in the East Midlands, which would have required a change to this line of route. As well as designing and appraising alternative station options, HS2 Ltd also engaged with key local stakeholders to understand how well these options fit with local

aspirations. As a result of this work, HS2 Ltd continue to recommend that Toton is the best location for an East Midlands Hub Station.

There are a number of significant constraints and challenges in this area, including interfaces with the existing network, interactions with highways, and the River Erewash flood plain. The HS2 route needs to reflect these constraints while considering the impacts on local communities, particularly the need to avoid creating a physical barrier across the communities of Long Eaton and Toton.

The 2013 consultation highlighted concerns over local connectivity in this area, particularly owing to the possible impact on local highways of the construction and operation of the railway. In addition, following consultation, HS2 Ltd undertook further work to understand the wider rail network through this area. This highlighted that the consultation proposition would involve work on two rail corridors through Long Eaton, which could involve construction impacts being spread more widely in this area than the HS2 corridor alone.

HS2 Ltd therefore considered options that would focus construction on a single corridor:

3.1.1 Route refinement 1: Option One Upper Alignment

One option is to lengthen the viaduct over the River Trent flood plain to approximately 4,700m, so that the route would pass through Long Eaton on a viaduct, with HS2 directly to the east of the existing low-level corridor. The viaduct would cross Main Street at a height of approximately 17m, Station Road at approximately 16m, and the A6005 Nottingham Road at approximately 8m high. The current level crossings on the existing network would continue to operate as normal.

3.1.2 Route refinement 1: Option Two Lower Alignment

An alternative option was for a lower alignment through Long Eaton, with HS2 crossing Station Road at a height of 4m and then travelling through Long Eaton at ground level, on the same general horizontal alignment as the route described above. HS2 Ltd expect that this would introduce a number of conflicts with the existing highways network that would need to be resolved, including Station Road, and the A6005 Nottingham Road.

Although the East Midlands Hub Station is still proposed to remain at Toton, HS2 Ltd have made some small changes to accommodate changes to the route design as a result of lessons learned from Phase One. The configuration of the station, including new platforms on the existing network, has not changed. However, to allow for the route to pass between the gap between Sandiacre and Stapleford, the station has moved approximately 150m southwards to accommodate the updated alignment.

3.2 Health Issues relating to route refinement 1

The health issues related to the East Midland Hub Approach through Long Eaton are mostly covered on the HS2 HIA 2013 (appendix 1). HS2 HIA 2013 recommended working closely with local planning in Long Eaton with aims to: Enhance road safety and reduce fear of crime particularly on public transport; protect parking for residents especially around the station at Toton; reducing the impacts of community severance and mitigating against potential job losses through potential closure of manufacturing businesses. Also covered are: Noise, air and light pollution.

The regeneration of the station at Toton may create about 1,600 additional jobs. Increased income via employment improves self-worth and communities benefit from the increased spending in the community.

Additional Health Issues associated with the route refinement options through Long Eaton are considered in more detail below.

3.3 Health Issues Relating to the Upper Alignment Option one

3.3.1 What did the literature tell us?

We searched the literature regarding health impacts of viaducts. This section summarises the literature and considers the potential impacts on health and whether such implications widen or close gaps in health status. Where health impacts highlighted in the literature have been identified previously, such as noise and vibration, they have not been repeated in this report and can be found in the HS2 HIA 2013 at appendix 1.

- Viaduct design is sometimes used to improve transportation efficiency but possibly affects urban airflow and the resultant risk of increased exposure to environmental pollutants (1)
- High structures like a viaduct may become a “suicide hotspot” and suicide prevention measures should be considered (2)(3).

3.3.2 References:

- (1) Jian. Hanga *et al.* Environmental Pollution. The influence of street layouts and viaduct settings on daily carbon monoxide exposure and intake fraction in idealized urban canyons. Volume 220, Part A, January 2017, Pages 72-86.
- (2) Pirkis J, Spittal MJ, Cox G, Robinson J, Cheung YT, Studdert D. The effectiveness of structural interventions at suicide hotspots: a meta-analysis. University of York. 26/11/2013.
- (3) Sinyour, M. Levitt, A.J. Effect of a barrier at Bloor Street Viaduct on suicide rates in Toronto: natural experiment. BMJ; July 2010: vol.341; p. c2884.

3.3.3 Our Assessment of the Overall Impact

This section characterises potential impacts in terms of:

- Scale (major, moderate, minor)
- Likelihood (definite, probable, speculative)
- Effect on social equality (enhancing, worsening, neutral)
- Locality affected and development stage of impact (all, planning, construction, operational).

3.3.4 Summary of the health issues with a positive impact of the upper alignment proposal

Table 1 summarises the health issues with a positive impact of the upper alignment proposal, including the scale, likelihood, equality, locality and stage of developments issues are likely to have impact.

Table 1. Route refinement 1 (Option 1 Upper alignment): Health Issues with a Positive Health Impact

Health issues with a positive impact using the upper alignment proposal	Scale	Likelihood	Equality	Locality	Stage
HS2 Ltd may consider erecting aesthetically pleasing, structural barriers on high level viaducts to prevent attempts of suicide	Moderate	Probable	Enhancing	Erewash	Construction
HS2 Ltd may support suicide prevention strategies such as exploring the introduction of telephone help lines at potential “hot spots” for suicide	Moderate	Speculative	Enhancing	Erewash	Construction Operational
Avoids transecting existing communities which can lead to community severance	Major	Definite	Enhancing	Erewash	Construction Operational

3.3.5 Summary of the health issues with a negative impact of the upper alignment proposal

Table 2 summarises the health issues with a negative impact of the upper alignment proposal, including the scale, likelihood, equality, locality and stage of developments issues are likely to have impact.

Table 2. Route refinement 1 (Option 1 Upper alignment): Health Issues with a Negative Health Impact

Health issues with a negative impact using the upper alignment proposal	Scale	Likelihood	Equality	Locality	Stage
High level viaducts may become suicide “hot spots”	Moderate	Speculative	Worsening	Erewash	Operational
High level viaducts have potential to affect urban airflow and increase exposure to carbon monoxide pollutants at pedestrian level in traffic crowded streets	Moderate	Speculative	Worsening	Erewash	Operational

3.4 Health Issues Relating to the Lower Alignment Option 2

3.4.1 What did the literature tell us?

Whilst most of the health impacts of a lower level alignment through Long Eaton are covered in the 2013 HIA/HS2, we searched for evidence from the literature to identify how any other major infrastructure developments might or have an impact on community, as a cause of ill health. We sought evidence on the effectiveness of any proposed interventions to enhance positive health benefits or mitigate health impacts. This section summarises what we found and considers whether such impacts help to close or further widen gaps in health status (if reported).

- The loss of property and land caused by compulsory purchase / eminent domain takings could lead to adverse psychological effects associated with the community that provided a sense of safety, comfort and identity (4).
- Less green space in people's living environment can coincide with feelings of loneliness and with perceived shortage of social support (5).
- Some studies show moderate associations between perceived safety and physical activity (5).
- More disadvantaged areas tend to have a higher density of roads and traffic, which can cause community severance (6).
- Crime and the perception of crime-related safety are both individual and social-level factors affecting physical activity (6) (7). In an examination of the relationship between walkable, safe environments and indicators of health in urban areas, researchers found that participants in areas with higher crime rates walked less often, with crime-related safety more adversely affecting walking rates among women than men (7).
- Visual characteristics influence the perception of noise on railways (8).
- Green walls along with other greening strategies can mitigate against air pollution, improve social wellbeing, aesthetically and visually enhance urban space, add nature to man-made, high visibility structures and utilise rainwater for irrigation, reducing flood risks (9)(10)(11).

3.4.2 References

- (4) The psychological cost of eminent domain takings and just compensation. Citation: Law & Psychology Review, Mar 2006, vol. 30, p. 215-228, 0098-5961 (Spr 2006) Author(s): Powell, Jeffrey T.
- (5) Social contacts as a possible mechanism behind the relation between green space and health. Citation: Health & Place, 01 June 2009, vol./is. 15/2(586-595), 13538292. Author(s): Maas J, van Dillen SM, Verheij RA, Groenewegen PP.
- (5) Environmental Correlates of Physical Activity and Walking in Adults and Children: A Review of Reviews Bull A and Bauman F NICE, Feb 2007
- (6) Wilson D.K., Kirtland, K.A., Ainsworth, B.E., Addy, C.E. "Socioeconomic Status and Perceptions of Access and Safety for Physical Activity." Annals of Behavioural Medicine, 28(1), 20–28.
- (7) Wolch, J.R., Tatalovich, Z., Spruijt-Metz, D., Byrne, J., Jerrett, M., Chou, C., Weaver, S., Wang, L., Fulton, W., Reynolds, K. 2010. "Proximity and perceived safety as determinants of urban trail use: findings from a three-city study." Environment and Planning, 42, 57–79.
- (8) Maffei, L. et al. The influence of visual characteristics of barriers on railway noise perception. Science of The Total Environment. 15th February 2013, Pages 42 -47
- (9) Virtudes, A. Manso, M. Green Walls Benefits in Contemporary City. EPOKA, University. Proceedings 19-21 April 2012.
- (10) Rakhshandehroo, M. et al. Living wall (vertical greening): Benefits and Threats. University Putra Malaysia. May 2015.
- (11) Dalgard, O. Tambs, K. Urban environment and mental health. A longitudinal study, The British Journal Of Psychiatry. Dec 1997, 121 (6) 530-536.

3.4.3 Our Assessment of the Overall Impact:

This section characterises potential impacts in terms of:

- Scale (major, moderate, minor)
- Likelihood (definite, probable, speculative)
- Effect on social equality (enhancing, worsening, neutral)
- Locality affected and development stage of impact (all, planning, construction, operational).

3.4.4 Summary of the health issues with a positive impact of the lower alignment proposal

Table 3 summarises the health issues with a positive impact of the lower alignment proposal, including the scale, likelihood, equality, locality and stage of development

Table 3. Route refinement 1 (Option 2 Lower alignment): Health Issues with a Positive Health Impact

Health issues with a positive impact using the lower alignment proposal	Scale	Likelihood	Equality	Locality	Stage
HS2 Ltd may create a case for extension of Nottingham's NET tram line into Long Eaton to ease traffic congestion and journey times during peak travel times.	Moderate	Probable	Enhancing	Erewash	Construction Operational
Provides opportunities during planning to ensure design optimises provision of open green space	Moderate	Probable	Enhancing	Erewash	Planning Construction
Provides the opportunity to strengthen provision of cycle lanes in local highway network reform for Long Eaton	Moderate	Probable	Enhancing	Erewash	All

3.4.5 Summary of the health issues with a negative impact of the lower alignment proposal

Table 4 summarises the health issues with a negative impact of the lower alignment proposal, including the scale, likelihood, equality, locality and stage of development

Table 4. Route refinement 1 (Option 2 Lower alignment): Health Issues with a Negative Health Impact

Health issues with a negative impact using the Lower alignment proposal	Scale	Likelihood	Equality	Locality	Stage
Closure or reconfiguration of highways in Long Eaton may cause community severance and reduced physical activity due to perceived safety	Moderate	Probable	Worsening	Erewash	Construction Operational
For transparent noise barriers, the perceived noise annoyance is likely to be judged lower than for opaque barriers.	Moderate	Probable	Worsening	Erewash	Operational

3.5 Updated Health Profiles for Erewash

Available, comparative data for 2016 demonstrates health improvements since the HIA /HS2, 2013 and further information can be found in appendix 4. A number of indicators within the health profile for Erewash remain similar to the 2013 profile presented in the HS2 HIA 2013.

4 Derbyshire to West Yorkshire (M18/Eastern Route)

4.1 Route refinement 2: Derbyshire to West Yorkshire (M18/Eastern Route)

HS2 Ltd propose to move the alignment of the route from Derbyshire to West Yorkshire over 70km to reflect a change in the proposals for serving Sheffield, as proposed by Sir David Higgins in the Sheffield and South Yorkshire Report, published on 7 July 2016.

HS2 Ltd is now proposing to serve South Yorkshire via a spur to the existing network north of Pinxton. This spur would leave the HS2 network on a grade separated junction as the route passes between Huthwaite and South Normanton.

The route would leave the HS2 mainline, with the northbound spur passing under the A38 in a cutting approximately 16m deep. The southbound spur would also pass under the A38, at a depth of 20m, before passing under the main line. The route would run in cutting, passing under the M1 and between the villages of Newton and Blackwell.

The route would continue in cuttings up to 7m deep, moving to embankment as the ground level starts to fall. The spur would join the corridor of the existing Erewash Valley Railway immediately to the east of Stonebroom, before joining the existing railway with a flat junction at Clay Cross to enable HS2 trains to serve Chesterfield and Sheffield.

4.2 Health Issues Relating to Derbyshire to West Yorkshire (M18/Eastern route)

4.3 What did the literature tell us?

New proposals of 2 trains per hour from Chesterfield station to London with a 70 minute commute were not covered in the HS2 HIA 2013 and whilst aspects such as increased time pressures of high speed rail (HSR) have already been identified we looked at the literature in relation to access to capital cities, tourism, social mobility and employment.

Key themes arising from the literature:

- High speed rail (HSR) is mostly used for business travel followed by tourism and visiting family or friends. Notably in one study the employment-residence split was 19% demonstrating the ability for families to live and work in different cities/regions as a result of HSR (12)(13)(14).
- The introduction of HSR may contribute to the development of tourism, and the speed, safety and comfort of travel may also impact upon the expansion of tourism (15)(16).
- HSR introduces the possibility for household mobility and potential for “double city*” households (12).
*Double city describes the separation of the place of residence and place of work.

- The Capital city has strong links to industry, capital and talents and this may have negative impact on surrounding areas (12).

4.4 References

(12) Hongsheng Chen, Dongqi Sun, Zhenjun Zhu and Jun Zeng. The Impact of High-Speed Rail on Residents' Travel Behaviour and Household Mobility: A Case Study of the Beijing-Shanghai Line, China. Sustainability. 2016. 8, 1187

(13) Rosewell B., Venables T., High Speed Rail, Transport Investment and Economic Impact. A paper written for HS2 Ltd on the economic impacts of HS2, 2014. University of Oxford.

(14) Guirao B., Soler F., Impacts of the new high speed rail services on small tourist cities: the case of Toledo (Spain) Department of Transportation, Technical University of Madrid, Spain

(15) Delaplace M., Bazin S., Pagliara F., Sposaro A., High Speed Railway System and the Tourism Market: Between Accessibility, Image and Coordination Tool. 54th European Regional Science Association Congress, Aug 2014, Saint-Petersburg, Russia. pp.26 - 29, 2014.

(16) Albalade D., Campos J., Jiménez L., "Tourism and high speed rail in Spain: Does the AVE increase local visitors?" Research Institute of Applied Economics Working Paper 2015/27 1/23.

4.5 Summary of the health issues with a positive impact of the lower alignment proposal

Table 5 summarises the health issues with a positive health impact of the new connection to Chesterfield, including the scale, likelihood, equality, locality and stage of development.

Table 5. Route refinement 2: Issues with a positive health impact

Health issues with a positive impact	Scale	Likelihood	Equality	Locality	Stage
Improved commuting times to the Capital city may increase opportunities of travel for leisure	Moderate	Probable	Enhancing	Chesterfield	Operational
A 70 minute commute to the Capital could increase employment and education opportunities for Chesterfield residents in particular	Moderate	Definite	Enhancing	Chesterfield	Operational
Increased access to travel for leisure may increase tourism to Derbyshire's places of interest.	Moderate	Speculative	Enhancing	Chesterfield	Operational
More affordable housing than the Capital and a 70 minute commute in Derbyshire could encourage London dwellers to migrate to Derbyshire for rural living.	Moderate	Speculative	Worsening	Chesterfield	Operational

4.6 Summary of the health issues with a negative impact of the lower alignment proposal

Table 6 summarises the health issues with a negative health impact of the new connection to Chesterfield, including the scale, likelihood, equality, locality and stage of development.

Table 6. Route refinement 2: Health Issues with a negative health impact

Health issues with a negative impact	Scale	Likelihood	Equality	Locality	Stage
Affordability of travel could have a negative impact for those who are financially excluded from accessing the HS2 link to the capital	Moderate	Probable	Worsening	Chesterfield	Operational
Commuter times to the capital may have a negative effect on the labour market, taking young, highly educated and middle income earning adults out of Derbyshire.	Minor	Speculative	Worsening	Chesterfield	Operational
Train timetables would need to be compatible with work activity and travel, especially for non-flexible hour's employment such as retail.	Moderate	Probable	Worsening	Chesterfield	Planning Operational
Increased numbers of commuters at Chesterfield Station could have a negative impact on surrounding infrastructure.	Major	Definite	Worsening	Chesterfield	Operational

4.7 Update of the Health Profile of Chesterfield

The headlines of changes to the health profile of Chesterfield since the HS2 HIA 2013:

- Emergency hospital visits for self-harm remain high and are double that of England rates.
- Suicide rates in Chesterfield have doubled since in 2013.
- Smoking related deaths have increased and are the highest in Derbyshire.
- Whilst cancer rates in England in under 75 yrs have reduced, in Chesterfield they remain higher than England averages.
- Hip fractures in 65+ years in Chesterfield are the highest in Derbyshire.
- Fuel poverty has reduced in England and in Chesterfield it has halved.

- Long term unemployment rates have reduced in Chesterfield and are now similar to England as a whole.

Further information can be found in appendix 4.

5 Derbyshire to West Yorkshire

5.1 Route refinement 3: Derbyshire to West Yorkshire

HS2 Ltd has developed a new proposal to serve Sheffield via a connection to the Midland Main Line that would allow HS2 Ltd services to run on the existing network to Sheffield Midland Station. As a result of this proposal, HS2 Ltd have revisited the line of route through South Yorkshire to consider whether there is the opportunity to deliver an alternative line of route.

The route presented in the 2013 consultation travelled to a station at Meadowhall along the line of the Rother Valley, before heading north into West Yorkshire. On the 2016 proposed alignment the route would run closer to Bolsover, to the west of the town on a mixture of viaduct and embankment, passing into longer sections of cutting to the north of the town. The alignment would then cross the M1 on a 490m-long viaduct, crossing the M1, the B6419 and an existing mineral railway at a height of up to 29m. It would then continue to run to the west of the M1 in the existing transport corridor, largely cutting of up to 15m deep, heading north of Balborough.

5.2 Health Issues Relating to Derbyshire to West Yorkshire

The original 2013 proposed route of this section of the Eastern Leg already passed through the District of Bolsover and into North East Derbyshire. The health impacts of HS2 for the Bolsover District were covered in the HS2 HIA 2013 (Appendix 1) this included potential impacts associated with construction and operation of HS2 including noise and air pollution. The health impacts on the introduction of viaducts are also considered earlier in sections 3.3. The newly proposed route runs closer to the heritage site of Bolsover Castle and potential health impacts to this area are covered in

the HS2 HIA 2013 (Appendix 1). The connection to HS2 in Chesterfield will mitigate against some of the negative health impacts identified in the HS2 HIA 2013 through increased access to HSR for Bolsover residents.

5.3 Updated Health Profiles for Bolsover

- Since reporting in 2013 the number of children living in poverty in Bolsover remains higher than county and national averages.
- Smoking rates in Bolsover have increased and remain the highest in Derbyshire and significantly worse than the England average.
- There have been significant reductions in under 75 mortality rates for cancer and rates in Bolsover are now comparable to those of England as a whole.
- Alcohol specific hospital stays have reduced and are also now comparable with the England average.
- Fuel poverty in Bolsover has halved.

Further information can be found in appendix 4.

6 The Eastern leg Infrastructure Maintenance Depot Located at Staveley

6.1 Route refinement 4: Staveley Infrastructure Maintenance Depot

The 2013 proposed route to serve Sheffield entered Chesterfield east of Duckmanton and exited to the southwest of Renishaw. The closest station for Chesterfield residents would have been at Meadowhall (the South Yorkshire hub), to the north east of Sheffield. There was a proposed Infrastructure Maintenance Depot (IMD) at Staveley within the borough. In their 2016 proposals, HS2 Ltd have reviewed and refined the layout of the IMD at Staveley so it better aligns with local development plans. This depot now occupies 26 hectares of land to the north-west of Staveley. As the route is now further away from the depot, HS2 Ltd have proposed an alternative connection from the mainline, which follows the

line of a currently disused mineral railway and connect to the mainline to the east of Mastin Moor with a grade separated connection that passes under the mainline.

6.2 Health Issues Relating to IMD and Staveley Spur

The health impacts of Staveley and the IMD are covered in the HS2 HIA 2013 (appendix 1). Considerations of light and noise pollution and loss of homes are some of the issues covered. The construction and operation of an infrastructure maintenance depot at Staveley is expected to create local jobs, some of which may be permanent. Increased income via employment improves self-worth and communities benefit from the increased spending in the community. Whilst the spur now impacts upon a larger geographical area the health impacts are documented and transfer to the newly proposed route.

7 Property and Compensation

7.1 The Property Compensation Scheme

The HS2 HIA 2013 covers the health impacts of property loss and compensation. However details of the property compensation scheme were not available at that stage. Information on the scheme and consultation is now available and is summarised below:

The Government is running a consultation on the property compensation and assistance schemes it is proposing to introduce along the Phase 2b line of route. The consultation closes on Thursday 9th March 2017.

The proposed property compensation and assistance schemes for Phase 2b that are being consulted on are:

- Express Purchase (available now)
- Extended Homeowner Protection Zone
- Need to Sell

- Rent Back Rural Support Zone – Voluntary Purchase and Cash Offer
- Home Owner Payment Scheme

To make sure the people most directly affected by the proposed Phase 2b route can begin to plan their future, the Secretary of State for Transport has launched the Express Purchase and Need to sell schemes for this phase of the route at the same time as the consultation for these schemes. Further detailed information can be found at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/571256/D8_Property_Factsheet_FINAL.pdf

8 What are the recommendations to HS2 Ltd?

The steering group acknowledge that the HS2 phase 2b realignment through the eastern leg will have both positive and negative impacts upon health and that the recommendations from HS2 HIA 2013 remain relevant. These recommendations can be found in the Executive Summary of the HS2 HIA 2013 (appendix 3). The recommendations for enhancing positive impacts and mitigating negative impacts of the realigned route can be found in table 7 and 8 below.

8.1 Enhancing the Positive Health Impacts

We offer the following recommendation to HS2 Ltd with a view to enhancing the positive impacts (Table 7)

Table 7 Recommendations for enhancing positive health impacts

Recommendation for enhancing positive health impacts
HS2 Ltd to enhance the ability to access employment through faster train time journeys by ensuring that travel journey times from Chesterfield are compatible with work activity.
HS2 Ltd to work with local planners in minimising the loss of green space when considering the lower alignment in Long Eaton.
HS2 Ltd to work with local planners at Long Eaton with the reform of the local highway network (the lower alignment option), to support active travel like walking and cycling, via safe, well-lit paths that potentially link to other public transport access points.
A 70 minute commute from the capital to Chesterfield could increase tourism and migration to Derbyshire and its places of interest. HS2 Ltd may support Derbyshire in the promotion of its places of interest.

8.2 Mitigating the negative health impacts

We offer the following recommendations to HS2 Ltd, with a view to mitigating the negative health impacts.

Table 8 Recommendations for mitigating negative health impacts

Recommendations for mitigating negative health Impacts
Where the introduction of viaducts is in significantly populated areas like Long Eaton (higher alignment route) HS2 Ltd to consider the provision of aesthetically pleasing barriers as a prevention measure to mitigate against potential suicide.
HS2 Ltd may support suicide prevention strategies in areas like Long Eaton (higher alignment route) e.g. Telephone Helplines in potential suicide “hot spots”
HS2 Ltd to improve the accessibility of high-speed access with travel concessions for those experiencing low income and financial exclusion
HS2 Ltd and local planning agencies to consider traffic flow under viaducts in the infrastructure reform at Long Eaton (upper alignment) avoiding static traffic and an increase in air pollutants at pedestrian level.
HS2 Ltd to consider how Chesterfield Station’s footfall and congestion could increase. HS2 Ltd to work with local authorities, emergency services and the Highways Agency to develop a traffic management strategy aimed at minimising disruption to road users and limiting the risk of road traffic accidents or injuries to pedestrians and minimising the effects on disruption to work-travel compatibility.
Closure of roads in Long Eaton (lower alignment) could create community severance, increasing the perceptions of isolation and higher crime. HS2 Ltd to consider preventing reduced physical activity levels by improving access through bridges and improving street lighting.
HS2 Ltd to support the extension of Nottingham’s NET tramline into Long Eaton (upper and lower alignment) to reduce congestion and increase traffic flow at peak times.
HS2 Ltd to consider the use of transparent noise barriers to mitigate against visual characteristics that affect perceived noise annoyance.
HS2 Ltd may consider contemporary technologies like living walls or other greening strategies to improve aesthetics, wellbeing, air quality and use of rainwater on both the upper and lower alignment options in Long Eaton.

9 Appendices

9.1 Appendix 1.

Rapid Health Impact Assessment of HS2 Initial Preferred Route in Eastern Leg Derbyshire 2013:

Available at: <http://www.apho.org.uk/resource/item.aspx?RID=131972>

9.2 Appendix 2

Sheffield and South Yorkshire Report 2016

Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/535307/CS550A_South_Yorkshire_Report_WEB.pdf

9.3 Appendix 3

Rapid Health Impact Assessment of HS2 Initial Preferred Route in Eastern Derbyshire: Executive Summary

https://observatory.derbyshire.gov.uk/IAS/Custom/resources/HealthandWellbeing/Health_Needs_Assessments/Derbyshire%20HS2%20HIA%20Exec%20Summary.pdf

9.4 Appendix 4

HS2 Health Impact Assessment Locality Profile 2016 update

HS2 Health Impact Assessment Locality Profile 2016 update

Health indicator	Period	England	Derbyshire County	Bolsover	Chesterfield	Erewash	North East Derbyshire
Mental health							
Emergency Hospital Admissions for Intentional Self-Harm	2014/15	191.4	245.1 ▲	257.3 △	466.2 ▲	199.3 △	238.9 △
Mortality from suicide and undetermined injury, directly age-standardised rate per 100,000 people	2012-14	10.1	10.3 ▲	-	14	10.5 △	8.6 -
Deaths from drug misuse	2013-15	3.4	3.7 △	-	-	-	-
Prevalence of psychoses, % diagnosed in primary care (QOF register)	2015/16	0.9	0.78 △	0.78 ▽	0.99 △	0.71 ▽	0.88 △
Prevalence of depression, % diagnosed in primary care (QOF register)	2015/17	8.28	9.3 ▽	7.63 ▽	9.79 ▽	9.74 △	9.61 ▽
Prevalence of dementia, % diagnosed in primary care (QOF register)	2015/18	0.76	0.92 △	0.95 △	0.89 △	1.03 △	1.03 △
Physical health and injury							
Incidence of malignant melanoma, aged < 75 yrs, directly age-standardised rate per 100,000 people							
People diagnosed with diabetes, % on GP registers	2014/15	6.4	6.9 ▲	8.3 ▲	7.6 △	6.7 △	7.2 △
New cases of tuberculosis, crude rate per 100,000 people	2012-14	13.5	3.5 ▽	35 △	5.8 ▽	3.2 ▽	1.3 ↔
Infant deaths, rate per 1,000 live births	2013-15	3.9	3.5 △	4.2 △	3.9 ↔	2.3 ↔	3.1 ▽
Under 75 mortality rate: cardiovascular	2013-15	74.6	73.7 ▽	81.5 △	89.2 ▽	76.4 ▽	64.3 ▽
Under 75 mortality rate: cancer	2013-15	74.6	73.7 ▽	81.5 △	89.2 ▽	76.4 ▽	64.3 ▽
Under 75 mortality rate from liver disease	2013-15	18	18.4 ▲	15.6 △	21.1 △	21.5 △	16.1 △
Road injuries & deaths, rate per 100,000 people	2012-14	39.3	45.1 △	40.4 △	31.7 △	34.8 △	41 ▽
All age, all cause mortality, directly age-standardised rate per 100,000 people*	2014	946.72	987.03 ▽	1186.37 ▽	1032.38 ▽	978.6 ▽	955.84 ▽
Limited day-to-day activities, % people*	2011	17.6	20.4	24.7	23.1	19.3	22
People with 'bad' general health, % people	2011	5.5	6.2	8.6	7.6	5.6	6.9
Dental health (tooth decay in children aged < 5 yrs), mean decayed/ missing/ filled teeth per child	2011/12 (ac)	0.94	0.67 ▽	0.65 ▽	0.80 ▽	0.75 ▽	0.54 ▽
Proportion of five year old children free from dental decay	2011/12 (ac)	7.5	77.8 ▲	66.4 ▽	76.2 △	81.1 △	87.6 △
Mortality rate from communicable diseases per 100,000 population	2012-14	10.5	10.2 ▽	-	12.9 ▽	-	10.9 ▽
Estimated GP recorded prevalence: CHD, %	2015/16		3.8	4.1	3.3	3.6	4.5
Estimated GP recorded prevalence: Stroke & TIA, %	2015/16		2.1	2.1	1.9	2.1	2.5
Estimated GP recorded prevalence: Hypertension, %	2015/16		15.4	16.3	14.0	15.9	17.6
Estimated GP recorded prevalence: COPD, %	2015/16		2.2	2.7	1.8	2.1	2.5
Lifestyle							
Smoking in pregnancy, % of mothers where status known	2015/16	10.6	14.2 ▽	15.8 △	12.4 ▽	16 △	14.3 ▽
Alcohol-specific hospital stays (under 18 yrs), crude rate per 100,000 people	2012/13 - 14	36.6	45.4 △	53.2 △	58.7 △	37.6 △	76.9 △
Admission episodes for alcohol-related conditions - narrow definition (Persons)	2014/15	641	705 ▽	683 △	964 △	717 ▽	705 ▽
New sexually transmitted infections (STI)	2015	815	478 △	527 ▽	619 △	517 ▽	437 ▽
Teenage pregnancy, crude rate of < 18 yrs conceptions per 1,000 females aged 15-17 yrs	2014	22.8	16.2 ▽	19.7 ▽	18.7 ▽	16.2 ▽	16.7 △
Adults smoking, % aged 18+ yrs	2015	16.9	17.9 ▽	19.3 ▽	18.3 ▽	20.4 ▽	20.9 △
Smoking-related deaths, directly age-standardised rate per 100,000 people aged 35+ yrs	2012-14	274.8	272.7 ▽	355.9 △	300.1 ▽	282.4 △	235.9 ▽
Physically active adults, % achieving 150+ mins activity per week	2015	57	55.6 ▽	52.9 △	54.8 △	58.3 △	52.8 ▽

Key:

Significantly better than England	Similar to England	Significantly worse than England	▲▼ – significant change	△▽ – non-significant change	Not updated
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Health indicator	Period	England	Derbyshire County	Bolsover	Chesterfield	Erewash	North East Derbyshire
Community							
Violent crime, crude rate per 1,000 persons		13.5	8.1 ▲	9.3 ▲	10.9 △	11.3 ▲	4.8 △
Antisocial behaviour (call for service), per 1,000 people*	2012	41	44.1	47.2	62.3	47.2	39.7
Total crime, per 1,000 people*	2012	67	44.4	50.8	57.3	56.3	28.9
Youth offending (first time entrants), per 100,000 people aged 10-17 yrs*	08/11-09/11	595	540	231.2	396.4	687.6	407.2
Dependency ratio (non-working/ working population)	2011	57.4	57.4	57.1	56.5	56.1	60.8
Lone parent households, %	2011	7.1	6.2	6.8	7	7.1	5.3
Children in care, per 10,000 people aged < 18 yrs*	2012	59	42.5	56.9	56.8	60.7	32.5
Lone pensioner households, %	2011	12.4	13	13.4	13.5	12.5	14
Environment							
Resident satisfaction with local area, % 16+ yrs*	2011		85.8	76.6	88.3	83.8	86.6
Greenspace, % of total land m2	2005			86	61	74	63.7
CO2 emissions, total per capita	2012		10.8	14.1	6.4	6.4	6.9
CO2 emissions from transport, total per capita	2012		2.5	4.5	1.4	2.3	2.4
Fluvial (river) flood risk, % of properties at risk	2011			1	3.5	28.7	1.5
Pluvial (rain) food risk, % of properties at risk	2011			4.7	5.2	4.2	2.5
Housing							
Excess winter deaths, ratio	Aug 12 - Jul	19.6	23.2 △	18.9 △	17.7 ▽	25.5 △	20.3 △
Owner occupied, %	2011	64.1	71.4	67.2	63.5	73	71.3
Rented (council or housing association), %	2011	17.7	15.3	18.2	23.1	13	20.4
Private or other rented, %	2011	16.8	12	13	12.4	12.9	7.4
Living rent free, %	2011	1.3	1.3	1.5	1	1.2	0.9
Average of monthly average house prices	2015	211175	151263	105488	134293	137318	158831
Council tax band D & above, % of dwellings*	2011	33.8	22.7	10.5	12.6	16.6	22
Overcrowded households, % of households	2011	8.7	3.7	3.3	4.7	3.7	3
Households without central heating, % of households	2011	2.7	2	1	1.3	3.2	1.1
Detached housing, % of households	2011	22.3	31.8	28.1	23.9	28.3	36.4
Transport and access							
Hip fracture in 65+ yrs, directly age & sex standardised rate of acute admissions per 100,000 people aged 65+	2014/15	571	576 ▽	592 ▽	703 ▲	542 ▽	638 △
Travel time to nearest GP, minutes	2011	10	10.2	9.6	9.2	9.3	10
No car or van, % of households	2011	25.8	20.1	23.4	27.1	22.4	18.7
Nutrition							
Obese children, % aged 10-11 yrs (Year 6)	2014/15	19.1	17 △	20.5 △	19.8 △	16.7 ▽	17.6 △
Excess weight in adults	2012-14	64.6	68.8	73.1	73.4	69.3	68.7
Starting breast feeding, % mothers initiating where status known	2014/15	74.3	73.4 △	69.1 ▽	78.7 △	69 ▽	-
Eligible & claiming free school meals, % compulsory school age*	2011-12	17.9	14.3	22.2	17.5	16.8	12
Proportion of the population meeting the recommended '5-a-day' on a 'usual day' (adults)	2015	52.3	53.3 ▼	44.5 ▽	57.2 △	48.6 ▽	50.6 ▽
Land use for cereals, % of farmed land	2010	28.1	12.6	49	33.6	—	23.4
Land use for arable crops excluding cereals, % of farmed land	2010	14.4	5.1	18.2	20.9	—	7
Land use as grassland, % of farmed land	2010	49.2	77.7	29.1	35.6	54.7	63.7

Health Impact Assessment Locality Profile 2016 update

Health indicator	Period	England	Derbyshire				North East Derbyshire	
			County	Bolsover	Chesterfield	Erewash		
Education								
GCSE achieved (5A*-C inc. Eng & Maths), % at Key Stage 4	2014/15	57.3	55.7	47.2	58.5	56.3	59	
Pupils with statements of special educational needs, % compulsory school age*	2011-12	1.6	2	2.2	2.2	1.5	1.6	
Adults with a degree, % aged 16+ yrs*	2011	27.4	23.7	15.8	21	20.7	22.2	
Adults with no qualifications, % aged 16+ yrs*	2011	22.5	25.7	32.9	27.6	25.9	26.9	
Foundation stage pupils achieving 78+, % 4-5 yrs*	2011-12	64	68.8	65.3	63	69.1	67.2	
School absenteeism (primary), % missed sessions at compulsory school age*	2011-12	4.4	4.2	4.6	4.5	4.3	4.1	
School absenteeism (secondary), % missed sessions at compulsory school age*	2011-12	5.9	6	6.1	5.7	6.3	6.1	
Employment								
Children living in poverty (< 16 yrs in families receiving means-tested benefits & low income), %	2013	17.8	15.9 ▼	20.9 ▼	20.5 ▼	18 ▼	15 ▼	
Unemployment rate (overall), % aged 16-64 yrs*	2015/16	73.9	77.7 ▲	73.5 ▲	74.3 ▲	84.2 ▲	77.3 ▲	
Youth unemployment, % aged 16-24 yrs*			Sep-16	2.1 ▼	2.7 ▼	2.9 ▼	2.7 ▼	2.2 ▼
Long term unemployment, crude rate per 1,000 persons aged 16-24 yrs	2015	4.6	3.2 ▼	3.7 ▼	5 ▼	4.6 ▼	3.2 ▼	
Fuel poverty, % households*	2014	10.6	9.8 ▼	9.9 ▼	9.6 ▼	9.4 ▼	8.7 ▼	
Unpaid care provision, % people*	2011	10.2	12.1	12.7	12.6	11.2	13.3	
Full time work (30+ hours), % people aged 16-74 in employment	2011	71	70.3	71.5	68.4	71.6	68.8	
Part time work (< 30 hours), % people aged 16-74 in employment	2011	29	29.7	28.5	31.6	28.4	31.2	
Employment in managers, directors & senior officials role, % people aged 16-74 in employment	2011	10.9	10.9	9.6	9.1	10	11.1	
Employment in professional role, % people aged 16- 74 in employment	2011	17.5	15.1	10.9	14.5	13.6	14.3	
Employment in associate professional or technical role, % people aged 16-74 in employment	2011	12.8	11	9.6	10.7	11.3	10.9	
Employment in administrative or secretarial role, % people aged 16-74 in employment	2011	11.5	10.9	10.3	11.4	11.5	12.3	
Employment in skilled trade (manual), % people aged 16-74 in employment	2011	11.4	13.3	13.4	12	13.7	13.6	
Employment in caring, leisure or other services role, % people aged 16-74 in employment	2011	9.3	9.6	11	11.1	8.9	9.7	
Employment in sales or customer service role, % people aged 16-74 in employment	2011	8.4	7.9	8.2	9.5	9	8.4	
Employment in process, plant or machine operative (manual) role, % people aged 16-74 in employment	2011	7.2	9.6	11.4	9.1	9.8	8.9	
Employment in elementary (manual) occupation, % people aged 16-74 in employment	2011	11.1	11.7	15.7	12.5	12	10.8	
Economy								
Economically active (available to work), % people aged 17-74 yrs*	2011	69.9	69.9	66.9	67.9	71.5	68	
Not in education, employment or training (NEET), % 16-18 yrs*	2015	4.2	3.6 ▼					
Position in agriculture, forestry or fishing industry, % people aged 16-74 in employment	2011	0.8	1	0.6	0.2	0.3	0.9	
Position in mining, quarrying or utilities industry, % people aged 16-74 in employment	2011	1.4	1.9	2.4	1.6	1.8	1.6	
Position in manufacturing industry, % people aged 16-74 in employment	2011	8.8	14.9	15.2	11.4	16.3	13.4	
Position in construction industry, % people aged 16- 74 in employment	2011	7.7	8.5	8.8	7.7	8.7	9.6	
Position in wholesale or retail industry, % people aged 16-74 in employment	2011	15.9	16.6	19.4	18.1	17.8	17.3	
Position in business services industry, % people aged 16-74 in employment	2011	32.1	25.1	22.6	25.4	25.6	24.5	
Position in public services industry, % people aged 16-74 in employment	2011	28.2	27.5	26.7	31.1	25.5	28.2	

Key:-

Significantly better than England	Similar to England	Significantly worse than England	▲▼ – significant change	△▽ – non-significant change	Not updated
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