

South Yorkshire Integrated Transport Authority

High Speed Rail Investing in Britain's future Consultation response

Appendix A
Route Engineering Technical Response



The following forms South Yorkshire's technical response to the HS2 Phase 2 consultation, providing detailed information to complement the strategic response.

This technical response covers the South Yorkshire Districts as well as the wider city region.

This response deals, where relevant and appropriate, with route engineering issues and focuses on the specific locations within South Yorkshire and the wider city region where we feel that there are concerns that HS2 Ltd need to consider. This section of the response supports the ITA's response to the consultation question 4 ("Do you agree or disagree with the Government's proposed route between West Midlands and Leeds as described in Chapter 8?").

1. Route Engineering Concerns

1.1 South Yorkshire needs new capacity on the east side of the country. In order to stimulate economic growth, Sheffield and Leeds require the benefits offered by shorter journey times. South Yorkshire Integrated Transport Authority (ITA) welcome the proposal for a station to serve the South Yorkshire; the proposed high speed services will enhance links to the West Midlands, East Midlands, Leeds and the North East, as well as to London.

1.2 While the benefits of bringing HS2 to South Yorkshire are considerable, as with all major construction projects, it has the potential to cause disruption and impact on existing infrastructure and properties. The proposed route takes HS2 on a north to south alignment through the SCR for just over 37 miles, leading to risks across a range of categories.

1.3 It is clear from the assessment of the proposed route that there are many engineering challenges and that the construction process will inevitably cause disruption. We are also confident that it is feasible to mitigate the impacts that are detailed in this response by the authorities working in partnership with HS2 Ltd.

1.4 This technical response considers each of the risks by category, identifying ways to minimise the impacts and identifying the specific locations along the route where these occur. We collated these locations through reference to the consultation maps HS2 Ltd published in July 2013 and the route engineering report. Where appropriate, each specific location in this response has a reference to the relevant paragraph in the route engineering report that describes the

impact HS2 will have on it.

1.5 The categories of risk in this response are:

- Road diversions (especially on the strategic road network)
- Road crossings
- Road closures
- Railway diversions
- Railway crossings
- Demolition of commercial premises
- Farms and farmland
- Demolition of residential properties
- Impact on regeneration schemes in development
- Disruption to commercial premises
- Impact on strategic development
- Impact on public transport schemes in development
- Impact on leisure facilities, heritage & environment
- Ground conditions
- Flood risk

1.6 Across all of these categories there is a requirement for HS2 Ltd to reduce disruption as much as possible and to minimise the effect on business activity within the region. This will be possible by careful planning of the construction stages to balance the level of disruption the region will experience at any one time. It is possible to coordinate activities and integrate types of work to maximise the activity at any one site, rather than working across multiple sites at the same time.

1.7 It is also important to provide us with advanced notification of construction activities and the impact on existing transport networks and infrastructure. HS2 Ltd should provide this information for the whole project at the early planning stages, allowing residents and businesses in South Yorkshire to make plans around the activity taking place.

2. Road Diversions

2.1 Road crossings are likely to be the most disruptive elements during the construction of HS2, as they require a diversion or realignment of an existing road. This will result in the need for considerable road works and the potential for road closures to allow the changes to take place, although the impact of the HS2 crossing itself will be low, so long as the optimal programming of construction takes place.

2.2 To minimise disruption it is important that coordination of major works takes place so that suitable diversionary routes are always available. For permanent road changes, the construction of HS2 infrastructure must be complete before the road opens to avoid further disruption at a later date.

2.3 The majority of temporary road diversions appear to be where there is a need for substantial engineering work across a trunk road or motorway. The impact of the construction of these temporary realignments will be considerable and made worse by the need to reinstate the original provision. A preferable approach may be to build a permanent realignment where this is possible to reduce the disruption.

2.4 The following lists identify the road diversions in South Yorkshire and the wider SCR area.

Temporary Diversions

- M1 between Jct 28 and Jct 29 (3.6.16)
- M1 Jct 29 connections to A617 and A6175 (3.6.18)
- M1 immediately north of Jct 29 (3.6.19)
- M1 immediately south of Jct 35a, including slip road access (3.9.4)
- A6135 east of the M1

Permanent Diversions

- Brookhill Lane (3.6.10)
- Mill Lane (3.6.17).
- B6200, Swallownest (3.7.6)
- Blacker Lane
- Wentworth Road

3. Road Crossings

3.1 Road crossings are unavoidable, however, they do represent a risk to existing transport arrangements and mitigation is necessary to reduce the impact during construction. In particular, HS2 Ltd should plan road closures to make sure that simultaneous road closures do not result in a lack of practicable diversionary routes.

3.2 It is likely that less disruption will arise from roads under railway bridges than roads over railway bridges, as the bridge construction work will affect the HS2 alignment rather than the road. However, this may not be the case if there are changes to the road levels to facilitate the crossing of HS2. We want assurance that HS2 bridges over roads will have sufficient clearance to allow the passage of traffic which currently uses the road (i.e. bridges will not have a height restriction beyond that which already applies to the route). Furthermore, any change to lower road levels will need to include provisions to guard against drainage or flooding issues.

3.3 The following lists identify the road crossings of HS2 in South Yorkshire and the wider SCR, which do not require road diversions. This list is not exhaustive and therefore, should not be viewed as a complete list of all crossings:

Road over railway bridges (higher risk)

- A38 Alfreton Road (3.6.11)
- B6025 Huthwaite Lane (3.6.12)*
- Newtonwood Lane (3.6.13)
- B6014 Mansfield Road (3.6.15)
- Deep Lane (3.6.16)
- Bridle Road (3.6.24)
- A57 Worksop Road (3.7.4)
- B6200 Retford Road (3.7.6)*

- B6533 Poplar Way (3.7.7)*
- Europa Link - twice (3.7.8)
- Jumble Lane (3.9.3)
- A6135 Sheffield Road (3.9.6)
- A633 Wombwell Lane (3.9.10)
- Shaw Lane (3.9.14)*
- B6053 Eckington Road#

* HS2 Ltd is planning to raise the level of these roads to provide clearance, increasing the level of impact and risk.

The HS2 plans do not indicate whether the B6053 crosses over or under HS2 at this location – this is considered further in section 16 of this response.

Road under railway bridges (lower risk)

- Palterton Lane (3.6.19)
- A632 Chesterfield Road (3.6.20)
- B6418 Buttermilk Lane (3.6.20)
- M1 immediately north of Jct 29a (3.6.22)
- A619 Worksop Road (3.6.25)[§]
- A6135 Main Road (3.6.26)
- Spinkhill Lane (3.6.26)
- B6058 Sheffield Road (3.7.2)
- A630 Sheffield Parkway (3.7.8)
- Greasbro Road – twice
- A631 Shepcote Lane (3.8.3)
- A6178 Sheffield Road (3.8.3)
- M1 Jct 34 south roundabout
- Meadowhall Way – twice (3.8.3)
- Alsing Road (3.8.3)
- A6109 Meadowhall Road (3.8.3)
- Barrow Road – twice
- B6082 Ecclesfield Road
- Fife Street (3.8.3)
- Grange Mill Lane
- Deep Lane (3.9.2)
- A629 Cowley Hill (3.9.3)
- Black Lane
- Station Road, Worsbrough
- Barnsley Road, Cudworth (3.9.13)
- A628, Cudworth (3.9.13)
- Hall Lane

§ There is a contradiction concerning the height of the A619 road crossing in the HS2 Ltd publications – this is described further in section 16 of this response.

3.4 In some places, the scale of work to provide the HS2 Infrastructure, particularly viaducts, is likely to require complex temporary works on highways where no alternative is possible, for example crossing motorways. Although less disruptive than diverting a road, it is important to recognise the need to minimise disruption as much as possible.

3.5 In addition to the existing roads listed above, there are also plans for developments to the highway network which HS2 may have a direct impact on. Specifically, there are plans to construct a new road (Tinsley Link) from Meadowhall Way to Sheffield Road across Blackburn Meadows, as part of the BRT North scheme. HS2 will cross this road in the vicinity of the proposed station and early plans (January 2013) saw it incorporated into the station access routes, although this is no longer the case following the changes to location prior to the consultation.

3.6 When considering the impact of construction work for road crossings, HS2 Ltd needs to pay particular consideration to the impact on the local public transport network. Local bus services use many of the affected roads and in some cases, provide essential accessibility, allowing people to reach essential services.

3.7 The following table identifies the road crossings, which support local bus services within South Yorkshire, the wider city region and the number of buses per hour using that road as of late 2013. Although we recognise that bus timetables are subject to considerable changes, experience suggests that the overall pattern of services remains similar and the roads with a high proportion of bus services are comparable.

Road	Buses per Hour
A633 Wombwell Lane	30
A6109 Meadowhall Road	28
B6200 Retford Road	24
Barnsley Road, Cudworth	24
B6058 Sheffield Road	20
Barrow Road (twice)	18
B6082 Ecclesfield Road	18
A6178 Sheffield Road	14
Meadowhall Way (twice)	12
A6135 east of the M1 #	10
B6533 Poplar Way	9
A619 Worksop Road	9
A632 Chesterfield Road	8
B6019 Kirkby Lane	6
A6175/A617 (M1 J29)	5
Europa Link (twice)	4
A631 Shepcote Lane	4
A629 Cowley Hill	4
A6135 Sheffield Road	4
A38 Alfreton Road	4
A6135 Main Road	4
B6014 Mansfield Road	4
A630 Sheffield Parkway	3
A57 Worksop Road	2
Wentworth Road #	2
Station Road, Worsbrough	2
A628, Cudworth	2
Shaw Lane	2
Spinkhill Lane	1
Brookhill Lane	1
M1 immediately south of Jct 35a, including slip road access #	1

These roads are diversions rather than crossings – see section 2.

4. Road Closures

4.1 There are very few road closures identified in the proposed route which will have a direct impact on South Yorkshire and the wider city region, as the majority are access routes to, or within industrial premises, which are on the proposed route. However, there are some roads crossing the alignment for which there are no bridge or diversion proposals, although it is unclear if this omission is accidental. With the lack of alternative proposals, the assumption is that these roads are at risk of closure.

- Hodmire Lane is truncated by HS2, removing direct access from east of the M1 to Stainsby, with the shortest diversionary route being around 3½ miles further. HS2 Ltd should consider providing a bridge, allowing access to the realigned Mill Lane.
- There is no mention of Forge Lane, Killamarsh which provides access to industrial premises and residential properties on the west side of the Trans-Pennine Trail. HS2 Ltd should provide access along Forge Lane unless the construction itself demolishes all the buildings.

4.2 Any closure of a through route is undesirable leading to a need for HS2 Ltd to reconsider if alternative options, such as a bridge, are suitable.

5. Railway Diversions

5.1 One way of minimising the construction impact of HS2 is to use existing railway corridors for the new alignment, particularly where these corridors have spare land as a result of railway rationalisation. This approach has strong support from the ITA where it is practicable, although it is necessary to carefully plan construction to minimise the disruption to the classic rail network.

5.2 Ideally, HS2 should use available spare land to the side of the existing railway. This is not always practicable and the proposals include the requirement to divert the alignment of the existing railway in order to provide sufficient space for HS2, ensuring it will not interfere with classic line junctions. In these cases there will be a greater level of disruption as there is the need to carry out the changes to the existing railway prior to the construction of HS2.

5.3 In view of the benefits from using existing railway corridors, the ITA support the railway realignment subject to there being sufficient provision to manage the disruption. This must include ensuring suitable diversionary routes are available, along with provision of spare train paths and catering to the needs of both passenger and freight operators. HS2 Ltd should also work with Network Rail to synchronise the construction with any upgrades or enhancements to the existing railway so that the work takes place at the same time.

5.4 Any reconstruction of the existing railway should also ensure that when complete, the classic line conforms to the highest UK requirements in terms of loading gauge and accessibility, to gain benefit from the necessary work.

5.5 The following identifies the locations where HS2 Ltd proposes to divert the existing railway:

- Beighton to Woodhouse Mill on the line from Chesterfield to Rotherham via Barrow Hill (3.7.3). This line is currently predominantly a freight route, although it is available as a diversionary route and some passenger services use it to maintain driver route knowledge. HS2 will use the existing alignment with the classic line adopting a more westerly alignment. This stretch of line includes Beighton Junction, where a line diverges to the west to join the Sheffield to Worksop line. HS2 Ltd need to work with Network Rail to understand the scale of the operational impact of realigning the classic line and to identify alternative routes for the trains using this section of the network.

6. Railway Crossings

6.1 As with road crossings, railway crossings are unavoidable. However, unlike roads there are opportunities to arrange suitable diversionary arrangements for trains, particularly as our railway network includes numerous freight routes which are available for diversions. There is still a significant risk of disruption as many sections of the railway network are operating at capacity – itself one of the key reasons for constructing HS2 – limiting the options for railway diversions. It is therefore, important that HS2 Ltd plans rail crossing work, in conjunction with Network Rail, to manage the construction programme, to avoid having a simultaneous impact on multiple routes. Careful planning will ensure suitable diversionary routes remain open to minimise impacts on rail travellers.

6.2 Further benefits will accrue from maximising the opportunities from any railway closure. This includes carrying out as much HS2 work, which affects the closed line, as possible during the possession and working with Network Rail to allow them to undertake essential maintenance or other rail improvement projects on that line whilst it is closed. This will reduce the need for multiple closures to allow different works to take place.

6.3 In this report, Sheffield Supertram crossings are also included as railways where they are on a segregated right of way, as similar issues arise.

6.4 The following lists identify the railway and Supertram crossings in South Yorkshire and the wider city region.

HS2 over railway

- Chesterfield to Rotherham railway north of Fence. The proposal is for HS2 to be on a viaduct crossing the flood plain (3.7.7)
- Railway siding access around Tinsley Yards north of Sheffield International Freight terminal
- Tinsley to Rotherham railway near Meadowhall. This stretch of line is currently freight only, but plans are in place for it to become part of the Sheffield to Rotherham tram-train scheme (3.8.3)
- Sheffield Supertram at Meadowhall South tram stop (3.8.3)
- Sheffield Supertram at Meadowhall station. As this section is under the proposed Sheffield Meadowhall station, HS2 Ltd are looking at providing a tram stop here to allow direct interchange (3.8.3)
- Meadowhall to Rotherham railway line. The crossing of HS2 is just north of the existing Meadowhall station platforms and as it is the location of the proposed HS2 station, HS2 Ltd's plans involve extending the platforms to allow direct interchange
- Meadowhall to Barnsley railway line (twice). HS2 crosses north of the Meadowhall platforms where it crosses Fife Street (3.8.3)
- Meadowhall to Barnsley railway line to the west of Harley (3.9.4)
- Meadowhall to Barnsley railway immediately south of Swaithe (3.9.9)

Railway over HS2

- Sheffield to Worksop line north of Beighton. This uses a viaduct to cross the Staveley to Rotherham line, although there is a suggestion HS2 will require a new bridge (3.7.4).
- Railway siding access around Tinsley Yards south of Sheffield International Freight Terminal.

HS2 crosses some freight sidings that exist on the ground but which HS2 Ltd do not show on the HS2 maps or describe in the engineering report. Although these may not currently be in use, the ITA recognise that future changes to land use or rail freight economics may create future opportunities and it is important that these branches or sidings continue to be available for future use. The ITA believe HS2 Ltd should provide passive provision to reinstate these lines in the future by including infrastructure for bridges over or under them. The following list identifies these crossing points.

Railway crossings not defined

- A freight branch between Seymour Jct and Bolsover crosses HS2 immediately north of M1 Jct 29a.
- A freight branch between Seymour Jct and Oxcroft Disposal Point crosses HS2 to the east of Seymour Jct. The lines from Seymour Jct have the potential to serve Markham Vale LEZ, while the Seymour Jct site itself is likely to be important if the Staveley Infrastructure Maintenance Depot is also used as a construction base.
- The two lines above run from the Barrow Hill area to Seymour Jct, through the alignment HS2 Ltd is planning for accessing the Staveley Infrastructure Maintenance Depot, from the HS2 main line. Although the plans include a classic network connection into the infrastructure depot at Barrow Hill, HS2 Ltd should ensure continuation of the freight line access to Seymour Jct, both from Barrow Hill and the link between Foxlow Jct and Hall Lane Jct to safeguard the opportunity for rail serving key employment sites, including Coalite and Markham Vale.

7. Demolition of Commercial Premises

7.1 A substantial risk to South Yorkshire's economy is the requirement to demolish some commercial premises to allow for the construction of HS2. The need for businesses to relocate is a considerable risk, especially for smaller firms, with the high potential for an interruption to their operation and the possibility of increased rent or issues at a new location. Larger companies are not immune and if they have flexibility of location (i.e. are not dependent on local suppliers, resources or specialist skills) they may relocate outside of South Yorkshire, with a resultant impact on the local economy.

7.2 South Yorkshire believe it is important that all the affected companies receive adequate compensation, support and that disruption and uncertainty is kept to minimum. A further local consideration is to ensure the availability of suitable alternative sites for these businesses to relocate within the region. As well as providing suitable compensation, the option of offering incentives to ensure affected businesses relocate within the region is something HS2 Ltd should consider, to reduce any adverse impact on the local economy.

7.3 The following businesses have been identified as having a particular impact on the South Yorkshire and wider city region's economy if they are demolished. We therefore suggest that HS2 Ltd continue to engage and negotiate with these companies, to identify ways of minimising the impact and to provide support with any necessary changes to their operations.

- Outukumpu.
- Bifrangji.
- Ross and Catherall Ltd, Killamarsh.
- SCX Group Ltd.

7.4 In addition to these large individual organisations, there are numerous other companies that the proposed HS2 route will affect. Many of these companies are located within business parks, retail areas and industrial estates we should like to see HS2 Ltd engage with the site management as well as the individual companies, with a view to negotiating a fair package of mitigation measures and should provide business support. The business parks, retail areas and industrial estates which are on the proposed route of HS2 are:

- Castlewood Business Park
- Tibshelf Business Park / Sawpit Lane Industrial Estate – off B6014 Mansfield Road (3.6.15)
- Fence Industrial Estate
- Catcliffe (Discount Warehouse, Morrison's supermarket and Boundary Mill Store, along with other small businesses)
- Sheffield Airport Business Park
- Sheffield International Freight Terminal
- Various industrial premises around Tinsley Yard and on Greasbro Road
- Various commercial premises located off Shepcote Lane at M1 Jct 34
- Various industrial premises located off Meadowhall Road and Blackburn Road north of Meadowhall
- Stairfoot Business Park, off A633

7.5 Away from the established business parks and large companies, the proposed route of HS2 will also impact on smaller, isolated businesses, where these lie on the line of route. Although these businesses only have a small impact on economy, it is still important that HS2 Ltd fully engages with them fairly and that they receive sufficient compensation.

7.6 In contrast to the locations above, the smaller size and isolated nature of these businesses means there is a risk their concerns will attract less attention during future planning stages. Another consideration of these smaller businesses, is that many of them are also residential properties, which increases the impact on the owners who have to relocate.

7.7 For the sake of completeness, the following identifies the locations where isolated small businesses are located on the proposed HS2 route, along with the name of the companies affected.

- Renishaw (Sitwell Arms Hotel, Commonsides Motors and associated businesses)
- Killamarsh (KJS Fisheries)
- Ecclesfield (Hartwell Home)
- Harley (Hood Hill Farm – Barley Hall Stables)
- Hoyland Common (Park Side Farm Shop)
- Blacker Hill (Warwick Ward machinery).
- Hesley Wood (South Yorkshire Scout Association Activity Centre)

8. Farms and Farmland

8.1 The impact of HS2 on farms and farmland is a particularly sensitive issue and will require thoughtful engagement by HS2 Ltd. The route of HS2 will impact on farmland, within South Yorkshire and the wider city region, and whilst this is largely unavoidable, the amount of land taken will vary for each affected farm.

8.2 It is important that the owners of the land receive suitable compensation and the impact on the viability of the farm is recognised. If a farm which is only just commercially viable loses a large proportion of its land, or access is restricted, this could lead to it becoming unprofitable, which will need addressing. A further consideration is to minimise the impact on farmland during the construction of HS2, particularly regarding access to sites and ensuring there is no adverse impact on crops and livestock by the construction activities.

8.3 The HS2 route consultation does not include information on which farms will suffer a loss of land, nor the scale of impact, so it is not possible to include the information here. However, it is important that HS2 Ltd has direct communication with the farm owners and ensure that they manage issues and minimise the impact as much as possible.

8.4 A higher risk impact of HS2 is where farm properties will require demolition, especially where there is little impact on the farm land itself. Farms represent a key contributor to the economy, which means it is important to minimise the impact as much as possible.

8.5 The loss of farm buildings is a clear risk to the continuation and future prosperity of a farm as, unlike some other business types, there is no scope to stop activity temporarily whilst building relocation takes place. Livestock require continual care and crops require long term planning and preparation of the land.

8.6 Even the need for relocation of buildings will have a larger impact on the viability of farms, as there is a greater restriction on how far they can move from their original location. Whilst other business types, such as manufacturing, are able to relocate over large distances, farms continue to require access to their land and the buildings need to be relatively close or this becomes problematic.

8.7 It is important that HS2 Ltd work with the affected farms and local authorities to ensure that the process of relocating farm buildings is as seamless as possible. Replacement buildings must be available before they vacate their original buildings and the new location has to allow good access to the farmland they manage. HS2 Ltd also need to manage changes sensitively, as farms often have a long history and a family owned farm will generate emotional impacts in the same way as residential properties.

“Agriculture is at the start of the UK food chain. Even though the value of agricultural produce is relatively low, a complex infrastructure of processing, distribution and retailing are subsequently dependent upon it. The value of these sectors to the wider economy is significant with Defra estimating their contribution at £80 billion gross value added (GVA) and in total employing 4.25 million people. Without a domestic agriculture, the financial viability of a large part of the food chain would be under threat.”

UK Agriculture (http://www.ukagriculture.com/the_importance_of_agriculture.cfm)

8.8 The farm buildings which are on the HS2 alignment within South Yorkshire and the wider city region are:

- Overmoor Farm (Tibshelf)
- Birley Farm (Renishaw)
- Boiley Farm (Killamarsh)
- Hood Hill Farm (Harley)
- Birch Tree Farm (Cudworth)
- Bleach Croft Farm (Cudworth)

9. Demolition of Residential Properties

9.1 One of the more sensitive issues concerning the proposed route of HS2 through South Yorkshire, is the need to demolish some residential properties which lie on the line of route.

9.2 There is recognition and acceptance that the loss of some residential dwellings is necessary to enable the construction of HS2. Considering the length of route, the number of residential buildings requiring demolition is commendably small; however, it is still important that the available level of compensation is fair, reasonable and timely. It is also important that affected residents as well as their landlords receive good communication at every stage of the process.

9.3 A particular concern to the ITA is the relatively low value of some of the affected residential properties and the impact on tenants and owners. The compensation scheme for HS2 reflects the un-blighted market value of the properties, but where the value is exceptionally low, the provision of this value may be insufficient to allow the residents to move into a comparable property elsewhere. Furthermore, some of the residents privately rent their house and whilst the compensation package will recompense the house owner, there is no provision to support or help people find alternative, affordable rental accommodation.

9.4 Further work is necessary to address these issues, ensuring that the support made available, goes beyond the pure value of the property and that where people have to relocate, sufficient support is available to enable them to move in to an equivalent property. Further considerations must include ensuring access to jobs and other facilities as well as trying to retain a strong sense of community. HS2 Ltd should also have discussions with the relevant Local Authority to ensure residents of properties affected, gain priority for rehousing on the housing register in their chosen areas.

9.5 The following list identifies the locations and number of residential properties which will require demolition:

- A38, South Normanton. There are three residential properties on the A38 where it crosses the proposed route of HS2 which will require demolition
- Saw Pit Lane, Tibshelf. There is a row of residential properties which will require demolition
- Riverdale Park, Netherthorpe. This is a park which includes homes for retired couples. The plans for the infrastructure depot suggest the demolition of some properties, but without stating exact numbers
- Main Road, Renishaw. The sustainability non-technical summary suggests around nine dwellings will require demolition
- Station Road, Killamarsh. It is possible that there may be residential demolitions in this area, particularly in the vicinity of Old Hall Farm
- Greasbro Road, Tinsley. The sustainability non-technical summary suggests around 49 dwellings will require demolition. There is a suggestion that many of these properties are private rentals

- Junction of Barrow Road, Ecclesfield Road and Fife Street, Wincobank. The sustainability non-technical summary suggests around 11 dwellings will require demolition

9.6 There are also numerous residential communities across the city region which are located close to the line of route and are likely to have noise and visual impacts when the route opens. HS2 Ltd should seek to mitigate these impacts as much as possible and consider the use of noise barriers and provide visual screening to integrate HS2 into the natural environment.

9.7 HS2 Ltd should work with Local Authorities and community groups to develop understanding of any statutory processes, follow best practice guidelines in terms of communication and are as wide-reaching as possible.

9.8 HS2 Ltd need to maintain access to residential properties, both pedestrian and highway, where they are adjacent to the construction sites, particularly in Tinsley and lower Wincobank. HS2 Ltd should also provide regular and consistent communication during the works.

10. Impact on regeneration schemes in development

10.1 The ITA note and recognise that one of the biggest impacts of HS2 in the local area is the on-going restoration of the Chesterfield Canal, a long-standing regeneration scheme which has a potentially significant economic value. This canal is a branch off the River Trent, near Gainsborough, to Chesterfield. Restoration is taking place from both ends of the canal and navigation is possible from the River Trent to Kiveton Park and from the other direction, an isolated stretch from Chesterfield to Staveley. A restoration plan exists to close the gap by connecting Staveley to Kiveton Park, providing a through-route to the rest of the UK canal network. Without this connection, the section at Chesterfield will remain isolated and not allow the canal to reach its full economic benefits through tourism and regeneration.

10.2 Unfortunately the route of HS2 is along substantial sections of the canal alignment between Staveley and Killamarsh. The ITA believe both the restored canal and HS2 are important to the economy, albeit in different ways and that HS2 Ltd should amend its design, both for the depot approaches and for the vertical and horizontal alignment of the HS2 main line, between Norbriggs and Killamarsh. Failing that, it should make provision for an alternative canal alignment where the original is no longer available.

10.3 Within the SCR, HS2 potentially impacts on another canal, the Sheffield & Tinsley Canal. The HS2 alignment crosses this canal at Meadowhall and, although the impact should be minimal as HS2 is on a viaduct at this location, it is important that HS2 Ltd manage any disruption as a result of construction to avoid any long term

impact on the use of the canal.

11. Disruption to commercial premises

11.1 There are some locations where there is no need to demolish existing commercial premises, but the proximity of HS2 is likely to cause some disruption during the construction phases. There will be a direct dialogue between HS2 Ltd and the owners / occupiers of the affected properties, which means there is no need to identify them here, except where they provide facilities, which are important to the residents of South Yorkshire and the wider city region and are not in a position to relocate either temporarily or permanently.

- East Midland Designer Outlet Centre. The HS2 alignment impacts on available land for future expansion plans, including car park provision
- Tibshelf southbound service area on M1. A retaining wall will minimise land take, but construction may be disruptive (3.6.13)
- Meadowhall Shopping Centre. Loss of some car parking provision (3.8.3)

12. Impact on Strategic development

12.1 The announcement of the planned route of HS2 inevitably impacts on the development potential of the land it crosses, as there is no logical reason for investing where there is no long-term future. Although the Government is providing compensation for businesses affected by blight, this only applies where they already exist and will not apply to any development which starts on the proposed route. Future stages will see the Government safeguarding the agreed route, which will restrict future development.

12.2 There will be a significant impact on the Local Enterprise Zones (LEZ), which are designated sites where special planning conditions and other incentives are in place to encourage development to take place. The route of HS2 crosses a number of LEZ sites, restricting the amount of available development land. Discussions are on-going between the SCR Executive team and the Department for Communities and Local Government (DCLG) to identify and designate alternative land to replace that taken by HS2.

12.3 There is further detail regarding the impact of HS2 on the LEZs, in our response to question (vii) in the Appraisal of Sustainability.

The LEZs which HS2 crosses are:

- Advanced Manufacturing Park / Waverley (3.7.7)
- Sheffield – Europa Link and Tinsley Park
- Shortwood and Ashroyd Business parks – Barnsley, M1 Jct 36
- Markham Vale North & South – M1 Jct 29a

12.4 There is also an emerging Employment Zone south of Hoyland, in the vicinity of the southern portal of the proposed tunnel. The plans for HS2 will impact on the continued viability of this proposal and HS2 Ltd should carry out further work to mitigate the impact on this area. With the location being close to the tunnel portal, HS2 Ltd should consider the options to extend the tunnel southwards to reduce the impact.

13. Impact on Leisure Facilities, Heritage & Environment

13.1 The proposed route of HS2 will impact on a number of South Yorkshire and the wider city region leisure facilities, such as footpaths and recreational areas. The ITA recognise that the benefits of HS2 mean that some impacts are inevitable; however, it is essential that HS2 Ltd carry out all practicable efforts to replace the facilities, to an equivalent standard.

13.2 In the case of footpaths or other non-traffic routes, HS2 Ltd should provide suitable crossing facilities at all locations in the same way that highways will continue to operate. Where the route of HS2 uses an alignment that is a recognised right of way (e.g. the Trans-Pennine Trail), HS2 Ltd need to provide an alternative route or alignment that is equivalent to the one it replaces. Opportunities also exist to enhance the current provision by identifying where gaps exist in proximity to the line of route and incorporating new links during the construction phase.

13.3 HS2 could also have an adverse effect on environmental issues in South Yorkshire. The ITA recognise that in general terms, the benefits of HS2 outweigh the environmental impact of constructing a new railway. It is clear from the published material that HS2 Ltd are carrying out a robust environmental assessment. However, there are a number of locations where there is a need to carefully manage the impact of HS2. These are where the route crosses nature reserves at Norbriggs Flash, Beighton Marsh, Carlton Marsh and Rabbit Ings Country Park, as well as historic, protected woodland, such as Wombwell Woods, Hesley Wood and Smithy Wood. The noise impact on activity and animal habitats in areas adjacent to the route, such as Rother Valley Country Park, will require monitoring.

13.4 As well as the obvious benefits to biodiversity, nature reserves also provide leisure facilities and encourage greater recognition of environmental issues. Whilst some impact is unavoidable, HS2 Ltd should ensure the impact is minimal and where possible, provide alternative facilities, including the relocation of important wildlife and fauna. One of the locations, Rabbit Ings Country Park, is also sensitive, as it only recently opened and has strong support from local residents.

13.5 Where HS2 Ltd are planning to mitigate for the environmental impact, there should be an ambition to provide an overall net gain in terms of the natural environment, providing an improvement on facilities compared to the current position. It is important that HS2 Ltd work with the Local Authorities to fully determine the impact on sites of biodiversity along the line of route and identify suitable ways of enhancing the natural environment when the route is complete.

13.6 Part of Hesley Wood is currently used for coal washing by Recycoal following a very public and contested planning application in 2011. Conditions of the planning approval for this site are that when coal washing activity ceases on this site, the site will become a nature park.

13.7 Hesley Wood Scout Centre is a regional scout centre for young people aged 6-25. It provides outdoor and indoor activities in a woodland setting. The proposal for HS2 will lead to a need to relocate this regionally important leisure facility to a similar woodland setting and this may cause further environmental concerns.

13.8 There are also concerns about the impact HS2 will have on local heritage sites, both in terms of the damage to historic sites and the derived impact of tourism and cultural activities. It is important that HS2 Ltd considers the full impact on these sites and reviews alternative options to mitigate the impact.

13.9 The ITA are aware of the impact of the current proposals to the historic landscape setting of Hardwick Hall, Bolsover Castle and Sutton Scarsdale. As well as the historic nature of the buildings themselves, their setting in the landscape, including the views is an equally important part of their heritage. In the proposal, HS2 Ltd suggest the existence of the M1 along this corridor mitigates the impact, however, the current impacts of the M1 are already unacceptable and HS2 will make the situation even worse. By considering ways of further mitigating the impact, HS2 may provide an opportunity to address the existing impacts and provide a wider improvement in the heritage setting.

13.10 A unique opportunity exists as part of the detailed development of HS2 to update existing Local Authority records in terms of heritage, archaeology, geology, environment and biodiversity. Throughout the detail design work, HS2 Ltd should work with the Local Authorities as part of the detail design and investigative work to capture information for future research purposes.

14. Ground Conditions

14.1 One of the biggest concerns within South Yorkshire and the wider city region is the number of former mine workings which cover the area. Large areas of both North Derbyshire and South Yorkshire have considerable former workings and HS2 will cross over many of these.

14.2 Throughout the Route Engineering Report there are references to underground and opencast coal mine workings, although it does not explicitly identify them. This suggests that there is a considerable risk of delay or cost increases during the construction phase. The stability of the land may also hinder tunnelling work in Hoyland and Ardsley. It is therefore, essential that HS2 Ltd carry out substantial detailed investigation and preparation in advance of the construction process, to reduce the risk of delays, additional cost or additional disruption.

15. Flood Risk

15.1 The preferred station location for Sheffield Meadowhall is located on a flood plain. Although the proposed station is elevated and clear of the flood risk, the access routes continue to be vulnerable to the risk of flooding and this could affect people travelling to the station. During 2007 considerable flooding of the Lower Don Valley occurred, leading to a significant impact on businesses located in the vicinity of the proposed station.

15.2 Sheffield City Council, the Sheffield Chambers of Commerce and the Environment Agency are working in conjunction to develop a flood defence scheme for the Lower Don Valley. The scheme will involve improved defences and on-going channel management on the River Don. The aim is to protect over 250 businesses and thousands of jobs, as well as ensuring the Lower Don Valley remains an attractive place for new investment. The council has recently approved a project budget of £8.1 million subject to securing all funding. Over 80% of costs will use public funds and the private sector are contributing £1.4 million through the mechanism of a Business Improvement District. It is important that HS2 Ltd is aware of these plans and work with the project team to ensure that the HS2 construction process is compatible with this scheme.

15.3 The route of HS2 through the Sheffield City Region involves crossing a number of rivers and flood plains. Although the published plans show that the areas of flood risk are recognised and the proposal includes substantial use of viaducts to mitigate this risk, care is necessary to ensure that any changes as a result of constructing HS2 will not create problems elsewhere. Changes to the flow of water courses or availability of flood plain can lead to issues arising a considerable distance away from the point of change and it is not acceptable if a situation results in difficulties in maintaining the local transport network or reduces its resilience.

15.4 In the shorter term there is also the need to ensure the construction process for HS2, in particular the viaducts over recognised flood plains, does not increase flood risk.

16. Areas requiring further clarification

16.1 Throughout this document, the ITA response reflects the information which HS2 Ltd are providing, including the route maps and the sustainability statement as well as other accompanying consultation documentation. There are a few locations where the information in the HS2 proposal is unclear, or the description of how HS2 will integrate with the existing environment and infrastructure does not correlate well with local knowledge. In these situations, we are not able to fully respond unless HS2 Ltd provide further information or clarification. The areas where we believe further clarification of the proposals are as follows:

16.2 The A57 Worksop Road and Sheffield to Worksop railway line (3.7.4). The engineering report suggests the A57 will require diverting to cater for HS2, however as the crossing of this road is almost perpendicular, a diversion will still require a crossing of HS2. In the same section the proposal suggests constructing a new bridge for the Sheffield to Worksop railway line; although at this location it crosses the existing railway on a viaduct which may include sufficient room to cater for HS2 without new construction.

16.3 As the level of disruption from road diversions and new bridge construction is potentially much more than using existing infrastructure or small scale alterations, HS2 Ltd should provide further clarity on what their plans are and the reasons other alternatives are not suitable.

16.4 B6053 Eckington Road at

Staveley. Although it is clear from the plans that a road crossing is necessary here to allow HS2 to access the infrastructure depot, it is not clear whether this is an over-bridge or under-bridge. The close proximity of the HS2 crossing with the existing road bridge of the B6053 over the A6192 indicates a road over railway bridge is the solution which will have the least impact on existing facilities.

16.5 B6533 Poplar Way (3.7.7). The HS2 route consultation plans (drawing number C321-MMD-RT-DPP-120-551402) show the route of HS2 crossing the B6533 on the level. This is a variation from the initial maps published in January as a result of the changes made to the route in the Meadowhall area resulting in HS2 being at a lower level at this location (the original maps showing HS2 crossing a bridge over the B6533). The route engineering report (page 43, section 3.7.7) suggests the B6533 will cross over HS2 at this location, requiring a change of levels close to residential houses and existing junctions. HS2 should provide further information on these proposals to allow a proper assessment of the impacts.

16.6 A619 Worksop Road (3.6.25).

There is a contradiction within the HS2 Ltd documents concerning this road crossing. In the consultation plans of the route (drawing number C321-MMD-RT-DPP-120-551307) show the A619 crossing underneath the HS2 viaduct. However, in the Route Engineering Report (page 41, section 3.6.25) the description of the crossing is:

“... at the same time affecting the A619 Worksop Road, which would have to be raised, itself on viaduct, to pass over the railway's viaduct”

16.7 It is important that HS2 Ltd clarifies the type of crossing for this road.

