MANCHESTER

LEEDS

HUDDERSFIELD

BRADFORD

DEWSBURY

HALIFAX

WAKEFIELD

BARNSLEY

ROCHDALE

OLDHAM

Manchester and Leeds: Fieldwork Note Annex B22

Route maps and notes December 2015

National Cycleway in association with HS3: Preliminary Feasibility Study

John Grimshaw & Associates
Introduction

This document is one of 22 Annexes to the main HS2 Cycleway Project Report. It sets out the preferred routes which were identified in workshops, refined in subsequent field surveys and then discussed further with local authorities.

The detailed mapping shows the different traffic free and on road sections, and includes brief notes and photographs describing points of particular interest along the route.

Background to the First Stage

In January 2014, the Department for Transport (DfT) commissioned consultants, Royal HaskoningDHV, to carry out a Feasibility Study into creating a series of world class cycling routes from London to Birmingham, Manchester and Leeds. The project considers a study area that is generally three miles either side of the planned HS2 Rail alignment, and was conceived as an opportunity to deliver excellent local facilities for communities along the whole length of the proposed railway.

It is envisaged that each section of cycle route would serve as an important facility at a local level, connecting where people live to where they want to go to; and by linking the individual sections together, a continuous long distance could be created that would provide an attractive leisure and tourism facility as well.

As far as possible the project was also to enhance pedestrian routes, and in some cases bridleways too, all within the context of creating continuous, safe and attractive routes which would encourage the public to cycle for local trips, for leisure and as tourists.

The report of this first phase of work was completed in December 2014. It included a total of 18 detailed annexes, of which this is one, each of which described a section of the preliminary route options in some detail. The routes themselves were derived from discussions with local authorities and other interested bodies, backed up by cycling the routes as far as this was possible.

In order to avoid too much repetition in the text and explanation of details, a selection of photographs of appropriate arrangements and details from both the UK and the Netherlands is included here to indicate the sort of quality of route the HS2 Cycleway aspires to realise.
Second Stage

The second stage of the study was carried out during 2015. It comprised meeting with the local Highway Authorities and with the principal institutional landowners, such as Network Rail and the Canal & River Trust. Following on from these meetings, and any necessary further fieldwork, the route proposals were revised, and a series of "workbooks" prepared covering the details of how the proposed cycleway would interact with Network Rail, HS2 and others. In addition 4 further Annexes were prepared covering links to the Peak District, and HS3 cycle routes from Manchester to Liverpool, Sheffield and Leeds.

Considerations of a National Cycleway associated with a future new high speed railway from Manchester to Leeds

Over 2014-2015, the Department for Transport has been considering the feasibility of creating a National Cycleway from London to Birmingham, Leeds and Manchester. The objective of this work has been to consider how best to provide cycling (and walking) routes of the highest standards common in Europe, through towns and settlements along a general corridor 3 miles either side of the HS2 Railway route. As well as opening up local opportunities for everyday journeys, the linking of these numerous local routes would give the opportunities for longer trips and even an end to end journey from London to remote destinations including the Peak District. The Study Team have also been asked to consider the options for a similar National Cycleway to correspond with a northern west/east high speed railway in order that opportunities for creating such a route are not lost in planning of such a railway. 

Our report on this route has been broken down into three separate documents, from Liverpool to Manchester, Manchester to Sheffield and Manchester to Leeds. This document covers the section from Manchester to Leeds.
Design Standards - Summary

A set of design standards was developed as part of the first stage of the feasibility study. These are available as a separate document. The design standards strongly emphasise the need for continuity and integration of cycle infrastructure, and that facilities should be appealing to the end user and also consider the needs of non-users. The design standards are a working document, and will be reviewed throughout this stage of the feasibility study in order to best take into account differing local contexts.

The design standards are consistent with the project's overall aim of the National Cycleway being a domestic exemplar of what high-quality integrated modern cycling infrastructure looks like: safe, direct, coherent, comfortable and attractive. The design standards also emphasise that adaptability will be important as the UK grows its cycling mode-share.

A strong focus is on the best practice seen in places with high levels of utility cycling like the Netherlands and Denmark. Attention is also paid to inclusivity, which not only covers all potential types of cyclists – including those with mobility impairment – but accessibility for all types of other users who will interact with the infrastructure. Benefits to the wider community should also be encouraged: even if individuals do not directly use the route for transport or leisure purposes, the design should take the opportunity for place-making along the route to improve the attractiveness of town centres or other areas through which the route passes.

The default position of the design standards is that cyclists should be afforded their own dedicated space with physical separation from other users. This is an effort to move away from infrastructure strategies that default to a shared use path, or on-carriageway facilities with limited protection from motor vehicles on busy roads. The design standards, however, do allow for sharing with motor traffic, pedestrians or equestrians in certain circumstances – normally where volumes are low. Steps may nevertheless be required to engineer these conditions where they are not currently present. It is likely that many extant greenways through open space or in the countryside which are shared with pedestrians and equestrians would already be suitable for use by the National Cycleway with few changes necessary. In more built-up environments, however, the design standards promote the implementation of dedicated infrastructure for cyclists, consistent with the best practice found elsewhere in the world where cycling for everyday journeys is commonplace.

The design standards acknowledge the varied contexts of the areas through which the route is likely to pass. Quality of infrastructure should be highest where potential for the route to be used is greatest, which is in urban areas or between sizeable settlements in rural areas. However, designs should not be put forward that prevent further expansion as usage grows or new journey possibilities are created that stimulate demand for movement.
# HS2 Cycleway: A visual checklist of proposed standards

Throughout the section of HS2 Cycleway route described in these notes, it is intended that the overall route is created to the highest standards of design, of surface, of continuity and attractiveness all based on current best practice guidelines, including the Dutch CROW manual. The following examples drawn from England and Holland indicate what is intended, even though the brief descriptive notes attached to the route section maps may not explicitly say so. The photographs are loosely arranged to run from the town to the countryside ending up with the all-important junction and crossings details. These are required at each and every intersection with trafficked roads.

<table>
<thead>
<tr>
<th>Number</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>The HS2 Cycle route will start in the traffic calmed core of the town where cyclists share the road space on equal terms with motor vehicles. (Massluis)</td>
</tr>
<tr>
<td>1</td>
<td>Almost without exception cyclists will be permitted 2 way down one way streets in order to maximise their direct networks. (Gouda)</td>
</tr>
<tr>
<td>2</td>
<td>Sympathetic treatment of main street in typical small town</td>
</tr>
<tr>
<td>3</td>
<td>Closure of main street to traffic. (Rotterdam)</td>
</tr>
<tr>
<td>4</td>
<td>Typical English town with “pedestrianised” town centre already paved to delineate cyclists. (Stafford)</td>
</tr>
<tr>
<td>5</td>
<td>The Embankment, London, showing the space created for the Cycle Superhighway</td>
</tr>
<tr>
<td>6</td>
<td>Where space is limited the removal of the central white line and introduction of advisory cycle provision emphasises the presence of cyclists. (Gouda)</td>
</tr>
<tr>
<td>7</td>
<td>One lane of the road made into a two way cycling track (Redcliffe Bridge, Bristol)</td>
</tr>
<tr>
<td>8</td>
<td>Reallocation of road space through residential development to create 2 way cycle route. (Breda)</td>
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</tbody>
</table>
9 Cycle track set well back from main road and separated by avenue trees. (Rotterdam)

10 Wide promenade in urban park. (Tamworth)

11 New cycle track in Warwick University grounds with lighting

12 Typical railway path, 2.5m wide rural areas, 3.0m minimum urban areas. (Derby, Melbourne)

13 Wide towpath on Calder navigation

14 Narrow 2m wide towpath on Erewash Canal; note sealed surface with appropriate coloured gravel

15 Typical National Route in rural areas on lightly trafficked road. (Boxtel to Eindhoven)

16 Typical measures to show traffic on lightly trafficked rural roads on routes advertised for cyclists

17 Quiet lane approaching Lichfield – 20mph

18 Typical minor cul-de-sac in Holland, links to ongoing path for cyclists. No motor vehicles permitted except farm vehicles
19 Similar farm access on the way to Waddesdon

20 National Cycleroute (LF) parallel to main road in rural Holland. (LF13 Alphen)

21 Stone based cycle route through National Forest near Ashby-de-la-Zouch

22 Field boundary path with cattle grid and wicket gate approaching Kenilworth

23 Single stage toucan crossing of dual carriageway in Aylesbury

24 Dual use crossing of side road in Gouda

25 Cycling zebra at Aylesbury

26 Priority crossing of side road at Gouda

27 Path continuing parallel to main road (Gouda). Note the crossing is arranged on the desire line
28 Priority crossing in Rotterdam

29 Continuity of route on London Cycle Superhighway to Canary Wharf

30 Direct priority crossing in Lancaster

31 Direct crossing in York on the desire line

32 Treatment of approaches to splitter island at roundabout in Aylesbury

33 New shared use bridge over railway at Aylesbury Station

34 Tank Top bridleway bridge over M1

35 Major new cycle route attached to railway bridge approaching Nijmegen

36 Wide, on the level, underbridge at Tamworth
Manchester and Leeds options and recommendations

1 Introduction

Preamble

During 2014-2015, the Department for Transport has been considering the feasibility of creating a National Cycleway from London to Birmingham, Leeds and Manchester. The objective of this work has been to consider how best to provide cycling (and walking) routes of the highest standards common in Europe, through towns and settlements along a general corridor 3 miles either side of the HS2 Railway route. As well as opening up local opportunities for everyday journeys, the linking of these numerous local routes would give the opportunities for longer trips and even an end to end journey from London to a range of destinations including the Peak District.

The Study Team have also been asked to consider the options for a similar National Cycleway to correspond with a northern west/east high speed railway in order that opportunities for creating such a route are not lost in planning such a railway.

Our report on this route has been broken down into three separate documents, from Liverpool to Manchester, Manchester to Sheffield and Manchester to Leeds. This document covers the section from Manchester to Leeds.

The challenges of achieving a popular cycling route from Manchester to Leeds highlight the multiple ambitions of a true national route. Local cycling levels will never be more than modest in the steep terrain of these Pennine towns and for many people who might want to cycle, the national route along the valley floor will be their only real chance to take up cycling.

The View of Standedge from above Uppermill. The proposed route runs down the right hand side of the railway in this picture.

At the same time the achievement of a memorable crossing of the Pennines will act as a magnet to encourage people to cycle and we have no doubt that a route through the Standedge tunnels would generate numerous trips from local people and visitors alike. Additionally the 53 mile journey from Manchester Piccadilly to Leeds is well within the range of many people who might never have thought of making a long journey by bike, and the frequent railway stations along the route provide for trips of every length. Combining two of the crossings – Standedge and Woodhead for example – would create a most attractive weekend ride taking in the two cities, numerous places of interest, and the raw splendour of the Pennines.

All in all these Trans Pennine routes exemplify the wide range of opportunity, and the extent of the ambition, for the role of these National Cycling routes to transform cycling as a popular way of travelling in the experience of many people.

2 Summary of options

There are three main routes from Manchester to Leeds, all with advantages and challenges, any of which would be worthwhile promoting as each would benefit their own local populations, and offer the possibility of substantial traffic free sections:

i) The central and most direct route is via the Huddersfield canal corridor. There are a number of variants for the approach to Leeds of which the shortest gives an overall route 81 km long, with a total climb of 520m. This route requires Network Rail and Canal & River Trust’s agreement to the use of one of the 4.8 km unused Standedge railway tunnels. Without the tunnel cyclists and walkers are faced with a formidable climb over the top of Standedge (390 meter AOD) and the route is not viable.

Portal to Standedge Tunnel on the eastern – Diggle side

ii) The southern route follows the Trans Pennine Trail, over Woodhead, as far as Penistone, and then turns north via Barnsley and Wakefield for Leeds. It is 102 km long and has a total climb of 700 m.

View down the Longdendale Valley showing the point at which the Trans Pennine Trail has to cross the Trunk Road, A new bridge is required here.

iii) The northern route follows the Rochdale Canal and the Calder Valley cycleways, mostly via NCN66. This offers the easiest crossing of the Pennines, with the canal cutting through at Summit (1841 m AOD). It is the longest route, at 103 km long, and has a total climb a 500 m. Note though that the length of this route could be greatly reduced, to 85kms, if the Queensbury Tunnel was to be reopened. However it would rely on much of the route following canal towpaths which have a limited capacity.

The Calder and Hebble Navigation towpath west of Brighouse.

If the Standedge Tunnel is available we recommend the central route. This is the most direct and the most interesting of the three and has the least climb. It also sits well with the proposals to electrify the trans-Pennine express rail route for Huddersfield. If the Standedge tunnel is not forthcoming, then we recommend the southern route. This would provide a consolidated route from Manchester to both Sheffield and Leeds. It is the route most likely to mimic the corridor of any future high-speed Railway. Clearly the development of any of the other routes would be valuable to numerous communities through which they passed.

This report discusses the preferred central route in some detail, in section 3, and then summarises the northern and southern routes in sections 4 and 5.
Overview of Manchester and Leeds options

Table of distances and climbs*

<table>
<thead>
<tr>
<th>Option via</th>
<th>Recommended route (kms)</th>
<th>Via Saltaire, and the Leeds &amp; Liverpool Canal</th>
<th>Shortest route via Gildersome or Queensbury Tunnel</th>
<th>Total climb (m)</th>
<th>Least climb (m)</th>
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<tbody>
<tr>
<td>ia) Central Route</td>
<td>81.0</td>
<td>na</td>
<td>na</td>
<td>520</td>
<td>520</td>
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<tr>
<td>Manchester - Huddersfield - Dewsbury - Ossett - Wakefield</td>
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<tr>
<td>ib) Central Route</td>
<td>85.8</td>
<td>96.4</td>
<td>76.6</td>
<td>510</td>
<td>340</td>
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<tr>
<td>Manchester - Huddersfield - Bradford and Bradford Superhighway</td>
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<tr>
<td>(Canal sections)</td>
<td>16.4</td>
<td>36.5</td>
<td>16.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ii) Southern Route</td>
<td>101.6</td>
<td>na</td>
<td>na</td>
<td>700</td>
<td>620</td>
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<tr>
<td>Manchester - Barnsley - Bradford - Leeds</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(Canal sections)</td>
<td>none</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>iii) Northern Route</td>
<td>103.4</td>
<td>114.0</td>
<td>84.9</td>
<td>500</td>
<td>410</td>
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<tr>
<td>Manchester - Rochdale Canal - Spen Valley - Bradford - Leeds</td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Canal sections)</td>
<td>45.0</td>
<td>65.1</td>
<td>40.0</td>
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</table>

*Note: climbs have been calculated on total from lowest points to highest plus 100m in each case to allow for minor climbs etc.
The most direct route between Manchester and Leeds follows the same corridor as the Huddersfield Canal and the Trans Pennine Express Railway. Both canal and railway cross the Pennine divide at Standedge through long tunnels – in the case of the canal, the largest and deepest underground canal in the country (5.2 kms long) as well as the highest waterway at 196m AOD, amount exactly the same as its depth below the highest point of the moors above.

This is a corridor which the local authorities have been working at for a long time, and like the Rochdale, the Huddersfield Narrow Canal was reopened in 2000 as the result of some hugely imaginative and ambitious works to restore lost sections, all with the help of a significant Millennium Award. And only this year, 2015, the Canal and Rivers Trust has reconstructed 8 kms of canal towpath from Manchester to Ashton under Lyne.

Higher up that valley, the Mossley and Greenfield railway path provides a number of very good sections, and there are plans to complete the missing sections to give a very considerable length of traffic free path.

Although not as high as the southern Woodhead summit, Standedge is a tougher crossing over the moors, as the route has to climb nearly 200m from the valley floor. (At Woodhead the railway paths rise either side and provide for a much easier summit crossing.) However this obstacle can be removed by utilising one of the Standedge Tunnels.

Altogether four tunnels were constructed, first the canal completed in 1811, then three railway tunnels in 1849, 71 and 94. Only the most recent remains in use by the Trans Pennine Express Railway. The other two are used by the Canal and River Trust as access roads.

The route put forward here can be split into a number of key components.

**Manchester to Ashton-under-Lyne** by a combination of a direct route along the Manchester Road, a leisure route via the Ashton Canal, and a second largely traffic free route via the Matlock Valley. Whilst none of these options can offer a perfect solution, together their choice may be sufficient.

In Kirklees there are plans to piece together a complete cycling route by a combination of towpath and minor roads through to Huddersfield from where the existing railway path links through join the Calder route at Colne Bridge. This would follow the canal for a comparatively short distance – from Marsden at the east end of the Standedge Tunnel to the outskirts of Huddersfield. Then the route could pick up, and enhance the existing NCN route as far as Ravensthorpe.

From this point the options for coping with the last steep ridge between the Calder Valley and the Aire are discussed in some detail, as without a good solution to this barrier, the overall route will be less direct than it might be.

A sub-option might be via the planned Fenay Greenway running northwards down the valley to the east of Huddersfield from Hightburn to Calderdale with excellent connections to Huddersfield Town Centre, University Campus and Stadium. This would connect with the Woodhead crossing from Winscar Reservoir via largely quiet roads through Shpley and Lane Head. Yet another option would be to use a section of NCN 68 but this would much too circuitous.

**Huddersfield to Ravensthorpe** via completed cycling routes.

Overall the route described in these notes is 81 kms long. Most of it has the potential of being constructed and refurbished to meet the highest standards envisaged for this national cycle route from Manchester to Leeds. The route can be shortened by taking the Gildersome Tunnel, or the Bradford option made easier, but longer, by following the Leeds and Liverpool Canal, taking in Shipley. Both are discussed at the end of this section.
Manchester to Ashton under Lyne (10.5kms)

The Ashton Canal is now resurfaced all the way through and is perhaps an obvious route to follow. However it does have a number of narrow sections and some awkward road crossings where the bridge is hard downstream from a lock resulting in a narrow and steep passage. Near the City centre there may be opportunities for an enhanced route via selected roads. The best option for this whole section is open to debate with a view to understanding what would be the single most desirable route which could be achieved if funds were available.

1. Whilst long lengths of towpath have a generous width, and space to widen if required, problems at bridge holes and locks constrained by downstream bridges limit the capacity of the towpath for popular cycling. At a number of locations at-grade road crossings would need to be developed or possibly some heavy engineering in the vicinity of the lock itself.

2. In some cases problems can be overcome as for example at the National Cycling Centre where a diversion via a local residential street (Stuart Street) does enable one to bypass the particularly tricky approach to Alan Turing Way with its otherwise good space under.

3. It might be better to consider developing a cycle “superhighway” along the Ashton Old Road or adjacent streets. Alternatively the Fallowfield Loop Line provides a high quality route as far as Clarendon Road, but unfortunately does not lead direct from the city centre. Alternatively one might bypass as much towpath as possible via the route which has been developed along the Medlock Valley.

4. The least satisfactory section of the canal route is east of the Stockport Road, at Guide Bridge, where the canal is hemmed in by railway sidings with perhaps little scope for improvement. Over this section we suggest coming off at the former railway bridge to reach South Street, and then devising a route via residential roads through to the town centre and link to Stalybridge (and the railway path to Oldham).

View of canal towpath hemmed in by railway sidings
Ashton to Stalybridge (3.4 kms)

The Huddersfield Narrow Canal is not suitable for a cycling route with any real capacity as it has some narrow sections of towpath which cannot readily be widened. The route shown here envisages a direct link largely parallel to the railway.

1. Arrange for a direct crossing of King Street from Hill Street to the Asda path.
2. Mill Road is a quiet access road with an interesting passage beneath the railway viaduct.
3. Construct new gently graded ramps to the Bank Tops Pocket Path.
4. Drop down gradually on railway land to pass under the spare arch of Countess Street.
5. Arrange for 4m wide corridor along edge of caravan storage area.
6. New bridge on existing abutments across Clarence Street. All the works over this section need to be integrated with any electrification scheme.
7. Follow railway sidings down toward Viridor site and negotiate a way through to Stalybridge station either at track level or nearer the recycling site (which may need to be rearranged to allow the path through). The alternative “minor” roads in the area are all quite heavily used by commercial vehicles.
8. Work a way through Stalybridge on existing town roads.
Stalybridge to Diggle (10.9 kms)

Almost the whole of this whole section can follow the line of the original railway which was abandoned when the operational tracks through the Standedge Tunnel were reduced from 4 to 2. Most of the formation remains and Tameside with Oldham Councils have been constructing a good route up this valley. These notes build on this work to make a continuous way through to Standedge. Note that the numerous local side links needed to bind the main route into the local communities are not shown here, but are nonetheless essential components of an effective scheme.

1 The Council is devising an on-road link as part of the current funding schemes.

2 First section of railway path extends to Grove Road. This excellent work links to new housing developments. New ramps are required at either end, constructed no steeper than 1:20.

3 Railway route and extensive colliery sidings remain in place and offer an attractive way through. A new alignment at the southern end should very gently and evenly rise to reach formation level. This can all readily be done in earthworks. The adjacent canal path will not do on account of the 188m long Scout Tunnel with its narrow towpath with a low headroom.

4 The disused railway (which is at a higher level and so avoids the use of a tunnel) stops abruptly at a massive brick abutment. Construct a new ramp at a gentle gradient to link from the railway to the towpath just above Lock 12.

5 This section of towpath is required to bypass the large industrial site. Here the towpath is particularly wide with a boundary of a “railway” wall set 4m back from the water’s edge.

6 Link back to the railway with a widened footway up Egmont Street.

7 The railway path starts again a little up Station Road and is complete to the Roaches.

8 At the Roaches the railway is lost and work is needed to ease the gradients of the current path down to 1:20 as well as specific provision to cross both the Manchester and Huddersfield Roads.

9 The section to Greenfield has been extensively regraded off the even railway alignment and some thought is needed to ease the climbs. On the approach to the river bridge just south of the Leisure Centre, a new path more or less following the river would remove a steep up and down climb.

10 Through Greenfield and Uppermill the whole path is most impressively continuous, even and good with a number of new bridges over and under roads.
Crossing the Pennines is a challenge for all the Manchester and Leeds options. From Diggle to Marsden the climb is over 170m, and a new path would be required to avoid 1.3kms of the Manchester Road through the summit cutting. The challenges of this climb would exclude all but the most able cyclists. By contrast if this National Cycle Route could use one of the “spare” railway tunnels then not only would this make for a direct and level crossing, but at 4.8 kms this would be the longest cycling tunnel in Europe and an undoubted attraction for every aspiring cyclist, young and old, in the country. Without the use of a Standedge Tunnel this would not be viable as the main Manchester and Leeds cycling route.

1. Access from Diggle is from the bus turning circle off Lee Side. This is an interesting feature because the road runs beside the remains of the original canal alignment before it was diverted to accommodate the construction of the current double tunnel in 1894.

2. The cross section through the Standedge Railway Tunnels shows their fascinating relationship to earlier canal tunnels. The Trans Pennine Express railway runs in the double tunnel to the west. The central 1849 tunnel is used on an almost daily basis by a C&RT support vehicle accompanying the passage of boats though the tunnel. There are a total of 20 cross passages connecting the tunnel to the canal. The eastern tunnel would be the most suitable for public use as any cross passage could be gated off to prevent the public gaining access to the canal. Along the length of this eastern passage the floor of the tunnel needs to be asphalted and low level LED lighting installed.

3. On account of its length it would be desirable to install works of interest at intervals, such as was done on the 2 Tunnels project in Bath where the 1.6 kms long Coombe Down Tunnel has a number of musical pieces activated by the passage of the public. The length of the Standedge Tunnel would be rather daunting for pedestrians and the current walking route over the top should be clearly signed as an alternative.

4. At the Marsden end the approach is currently not fenced off from the operational railway. This will have to be done for the first 150m to beyond the river Colne, at which point the route can divert into the attractive open space above the canal path.

5. This leads to High Les, for the railway station, and Station Road to Marsden Town Centre.
Standedge Tunnels: Diggle to Marsden (6.2 kms)

11. At Brownhill the short approach cutting has been infilled but as far as could be seen from the north end this useful level link is intact, and if the cutting is excavated out the route could continue to Diggle.

12. The former railway is fenced off from the main line throughout and used by occasional vehicles.

13. At Alice Footbridge (69) downstream from Cast Iron lock (29W) there is a narrow passageway under the railway which would allow cyclists to reach the towpath for the last interesting mile to Standedge Tunnel.
Marsden to Huddersfield (12.1 kms)

For much of the way the towpath of the canal is most attractive and generally could be reconstructed to a sufficient width for a good level of use by both walkers and pedestrians. As one approaches Huddersfield, particularly east of Milnsbridge, alternative routes need to be sought in order to bypass a number of narrow sections of towpath which could not readily be improved or widened. From Huddersfield the route can pick up established cycling routes and bypass the navigation altogether.

There has been a good deal of discussion about the desired width of the shared use sections of these National Cycle Routes. In areas where cycling is well established 3.5m might be considered appropriate as this picture from the riverside path in Cambridge shows. However such a width would probably be considered inappropriate in areas where usage is much lower, and along towpaths at least will be rarely achievable. Having said that it would be most desirable to make the towpath 2.5m wherever possible. This dimension equates to the 8ft width of new towpaths as original built. Even here there will be narrow sections, under bridge holes and the like and these each needed to be treated with care with regard to sightlines, surface, balustrades and options.
Marsden to Huddersfield (12.1 kms)
Huddersfield to Ravensthorpe and Bradford (30.1 kms)

For the remainder of this route via Bradford we propose to follow existing cycle routes and to make a number of necessary enhancements to them. Note that here in Huddersfield, and all along the established paths and cycle routes to Leeds, there are numerous excellent sections, but also some crucial deficiencies and obstacles which greatly diminish the value and usage of the works. These issues are the result of the piecemeal assembly of these routes, often with inadequate funds. These notes will only touch on some of the outstanding issues which a route of national standard would be required to resolve.

1. Devise an on road route with appropriate measures, through the pedestrianised Town Centre, past Huddersfield Station and through to the Beck Road Industrial Estate (all the subject of previous studies).

2. Reinstall bridge over Willow Lane.

3. The urban section of railway cutting has been infilled resulting in an inconvenient route with steep gradients. Careful discussions on site will be needed to establish how best to overcome the issues because the route does not work for local people at present.

4. Make carefully graded links here and elsewhere, to maximise the popularity with a useful access to the line.

5. Potential link to Fenay Greenway and Fenay Bridge.

6. Leeds Road link and crossing needs to be improved through to Colliery Bridge.

7. Excellent cycle route across viaduct.

8. Crossing of Bog Green Lane required – the railway bridge is still in place although partially infilled.

9. The on road section through Mirfield leaves much to be desired. There have been proposals to utilise a section of the Calder and Hebble Navigation in the past.

10. The Ravensthorpe Line runs on attractive level residential streets and through Holyroyd Park on its way to join the Spen Valley Line.

11. The Spen Valley Line stretches for 11kms and is continuous and of a high quality throughout.
Huddersfield to Ravensthorpe and Bradford (30.1 kms)
Ravensthorpe – Dewsbury – Ossett – Wakefield preferred option to Leeds

The most direct route to Leeds runs east from this point via Dewsbury, Ossett and Wakefield, whilst the existing NCN route offers a readymade basis for another good route via Bradford.

1. Turn south on the Spen Valley railway path and cross safely over the Huddersfield Road on its new bridge.

2. Make a new steel ramp off the Aire Viaduct to reach down to the riverside path.

3. Good riverside path all the way to Dewsbury.

4. Review the existing route through Dewsbury to ensure that it connects, and serves, the town centre as well as possible.

5. Existing railway path including the 165m Preston Street Tunnel.

6. The routing of the existing path as it approaches Ossett does need to be modified so as to iron short sections of steep gradients.

7. The route runs through the pedestrianised centre of Ossett past its magnificent Town Hall.

8. At Eldon Street pass under the main road on the drive to Owler’s Farm and then make a new path along the boundary of the main road to reach Park Mill Lane to cross the M1.

9. Follow the track beside Alverthorpe Beck to reach the outskirts of Wakefield.

10. Follow the general line of the old colliery tramway to reach the main HS2 route proposed to run through the Park.

11. Follow proposed HS2 route through to Middleton Park and Leeds.
There are two options for shortening the route:

i) The Leeds New Line from Liversedge on the Spen Valley Line through to the main line to Leeds near Cottingley Station saving 11kms.

ii) Adopting a Bradford Bypass which would save 3kms and the considerable climb to Thornhill.

iii) Note that the level route via the Aire valley ADDS 11kms in distance.
Bradford to Leeds

The climb to the summit, 60m cannot be avoided, and NCN 66 takes the existing cycle lane on Brierley Lane. A more attractive and more easily graded route could be developed in the valley of Brierley Hill Wood, a little to the west.

Whilst one would not wish to bypass the centre of Bradford, for cyclists the descent and climb back to Thornhill is quite a challenge. So there may be merit in also making a bypass route along the ridge as shown here.

The descent to the centre of Bradford (110m) has a number of outstanding sections – Bowling Park, the Manchester Road Connect 2 Bridge, the Park Road greenway and the magnificent fountain pool of City Park. There are also a number of details of onward continuity and provision which are being resolved by Bradford Council.

### Leeds New Line

This achieves the shortest possible route 77kms, but may not be realisable

A route along the course of the Leeds New Line would be hugely ambitious and could only be considered in the context of making a flagship route of the highest standard and profile. It would need to be justified from a whole series of standpoints of which encouraging cycling was only one.

The route offers a way through the hills passing deep beneath the M62 junction 27 complex via the 1.6km long Gildersome Tunnel. This is reputed to be in a fair condition although its western approach cutting is infilled just to the west of the motorway. In addition a number of the cuttings have been infilled, especially around Birstall, but the whole route is generally traceable, easy gradients could be achieved and the shorter Gomersal tunnel (750m) has access to each end.

The particular benefits of this option would be to connect Batley and Gomersal to central Leeds, as well as Morley, in what otherwise is a rather difficult area for cycling.

Parts of the southern sections of the line through Oakwell Country Park, Gomersal, and through Liversedge and Heckmondwike already carry a path, the latter through a spectacular sequence of monumental arched bridges.

Then at the northern end a route along the Leeds New Line could link to the Holbeck Viaduct for a magnificent final approach to Leeds. The route would be a high ambition of national significance already identified as a potential catalyst for wider urban regeneration and a key component in the emerging Holbeck Neighbourhood Plan.

1. Completed path through Heckmondwike still requires a section through this deep cutting to connect with the Spen Valley path.
2. The formation is generally intact but a new bridge span will be required to cross Spen Bank.
3. Exceptional station link from Cleckheaton across listed viaduct.
4. Landfill and embankment loss could be somewhat restored to minimise gradient changes.
5. Access to Gomersal Tunnel has been maintained at its eastern end through to Summerbridge Crescent.
6. Railway route is now a path curving around the Country Park with magnificent views to the south.
7. The Birstall Cutting is infilled but a way through largely maintained.
8. The Gildersome Tunnel is intact but its southern approach infilled. This could be excavated out. However, unlike the Standedge Tunnel, Gildersome does not offer a huge benefit in saving height and it might be more beneficial to create a way over the top even if this involved an ambitious crossing of the motorway complex.
9. Make a way through along the general line of the former railway and partly on land adjacent to the operational railway.
10. Holbeck Viaduct could be a centrepiece in the renewal of this quadrant of Leeds.
ii) Bradford shortcut

The Bradford and Leeds Cycling Superhighway is currently under construction. The route climbs 90 m from Bradford city centre to Thornbury, and is really electric bike territory or for regular and fit cyclists. Whilst this may be attractive for hardened long distance commuters it cannot be said to be attractive to cycle adjacent to a main arterial road for such a distance, however safely it has been engineered. At this stage the works are under construction and it remains to be seen what level of patronage, and what type of user this route attracts.

For this reason it may be useful to also complete a level route along the ridge which would also act as a feeder to the superhighway. Part of such a route is already included in the current programme along Dick Lane.
Bradford to Leeds: Leeds & Liverpool Canal and Bradford Canal

The Bradford Canal link and the Leeds and Liverpool Canal to Leeds are the easiest way through as they are largely in place and with modest works at key points could be considered a route to the highest standards. In the context of local cycling trips its circuitous way to Leeds is hardly important as each part of the longer route will be of value to local people.

1 The Bradford to Shipley Greenway is in course of completion along the floor of the Valley.
2 A short diversional ride along the canal towpath takes you to Saltaire World Heritage Site.
3 The Aire Valley Greenway along the canal towpath completes the route to Leeds. This has recently been partly resurfaced by the Canal & River Trust. The canal is a broad canal and generally has ample width for making an excellent route. However the towpath is not well connected to communities either side, and some real effort is needed to bring about a position where the towpath acts as the core spine of a skein of routes along the length of the Aire valley.
4 The Bradford and Leeds cycling superhighway currently under construction (2015).
4 The Southern Route – Trans-Pennine Trail, Woodhead, Barnsley and Wakefield

The southern route follows the same Woodhead route as does the Trans Pennine Trail as far as Penistone, and then turns north via Barnsley and Wakefield for Leeds. It is 102kms long. We have put some work into finding a direct route from Wakefield to Leeds and have concluded that whilst an expressway might be possible along the Leeds Road A61, its appeal would be limited to long distance commuters and it would have little attraction to a wider range of potential cyclists. The evolving usage of the nearby Bradford and Leeds Superhighway will test this viewpoint. So we show an equally direct, more lightly trafficked route via Middleton Park which we consider has considerable potential.

This route is covered in detail in Annex 21 (Manchester to Sheffield) and Annex 8 and 9 Leeds to Wakefield, and Wakefield to Barnsley.

The elements of the route can be described as follows.

1 Manchester to Hadfield
   This section follows a number of well-established railway paths, crossing from the Tame Valley to that of the Etherow via the very deep cutting beside the operational railway at Hattersley. Although most definitely a greenway traffic free path this route serves to link a string of built up areas – Reddish, Haughton Green, Hyde, Hattersley, Broadbottom and Gamesley all to Hadfield. Although most definitely a greenway traffic free path this route requires the most work to overcome the gaps and discontinuities which the TPT has only slowly been able to overcome.

2 The Longdendale Trail
   takes one up into the Pennines past a whole series of reservoirs to Woodhead. This is a long established and deservedly popular railway path.

3 The Woodhead crossing
   follows the old packhorse road and is wonderfully remote, but troubled by 3 crossings of the extremely busy A628 trunk road. The first crossing above the site of the former Woodhead Station requires a bridge, whilst the second and third could be bypassed by a new path around the contour of Longside Moss and Salter’s Brook.

4 Dunford Bridge to Penistone, Oxspring, Silkstone and Worsbrough follows well established railway paths with a short road link at Four Lane End.

5 A new link to Barnsley Town Centre is required to make a direct route to the town, rather than the current long circuitous approach via Stairfoot.

6 From Barnsley to Wakefield there are a number of options all building on the long years of development of the Trans Pennine Trail, a Millennium Project taken through to a first stage completion in 2000 but continuously improved over the years since then.

7 Wakefield to Leeds via Middleton Park offers the chance of a direct route only slightly longer than the main road route. Although this route is longer than the direct route option via Huddersfield it does have the greatest chance of being created to the highest standards, similar to the best in Europe, because it has more space away from the crowded valleys followed by the two historic canal routes. It also builds on the work of the TPT consortium and takes their route to an even higher standard of surface, continuity and connectivity.
This route is largely in place and follows Rochdale Canal and the Calder Valley cycle route. A great deal of work having been done by the local authorities and others over the years, much of it to a very good standard. It probably serves the largest population, as well as the greatest number of people per mile of the three routes considered. It is the longest of the three, at 114 kms, and the flattest. The route could be shortened by 11 kms using the Queensbury tunnel described below. The Leeds Superhighway described in section 3 above would shorten the route by a further 10 kms, but with significant climbs.

The route can be broken down into the following sections:

- Manchester to Chadderton (10 kms) where it may be useful to develop a superhighway route through this wholly built up area, with a parallel route on the canal towpath for the wide range of everyday trips and novice cyclists for whom a route along the main road corridor would not be attractive.
- The Rochdale Canal from Chadderton to Walsden (18 kms) just beyond the summit. Much of the towpath has been rebuilt over this section particularly through Rochdale where it was funded by a Sustrans Connect2 lottery grant.
- The Rochdale Canal to Brighouse (30 kms) over the section known as the Calder Valley Cycleway. This is Route 66 of the NCN.
- From Brighouse to Ravensthorpe the Calder Valley Greenway is either in place or in the course of development.
- The Rochdale Canal to Brighouse (30 kms) over the section known as the Calder Valley Cycleway. This is Route 66 of the NCN.
- The Spen Valley Greenway provides the basis of a completed route to the centre of Bradford.
- The Bradford to Shipley Greenway is in course of completion along the floor of the Valley.
- The Aire Valley Greenway along the canal towpath completes the route to Leeds.

The Queensbury Tunnel option for shortening the route

The Leeds New Line and the Bradford shortcut would reduce the length of this route, and these are discussed elsewhere. In addition, a route via the Queensbury Tunnel would greatly shorten the overall route and be of considerable local value.

Via Halifax, and the Queensbury Tunnel saving 11 kms overall

This is a very challenging terrain and there has long been an aspiration to create a more evenly graded route via the Queensbury Tunnel (2.3 kms long) so as to avoid a climb up to 350m. The tunnel approaches on the Halifax side have been filled with consequent flooding of the tunnel. Whilst this has been recently pumped out, a permanent solution would require enlightened negotiation to achieve a gravity drainage system and easy gradients for the path, and with some 450m of the bore lining in a parlous state the opening up of this tunnel would be a costly affair, but might well be justified if the works required for a public path correspond reasonably closely with the cost and (we would say) the undesirability of permanent closure.

Without the use of the Queensbury Tunnel, this option is not a practical route for the National Cycleway although it must be admitted that a tunnel of this length would be something of a highlight, and popular too, because of the 2 metropolitan districts with 610k large populations it connects, and if usage of the Bath Two Tunnels route is anything to go by. If cycling is to be encouraged in the very hilly town of Halifax then this Highways England owned tunnel for an easy route to Bradford would be a most worthwhile investment. If by deciding to take the main Manchester and Leeds route this way, it would tilt the balance of decision in opting to reopen the Queensbury Tunnel, then this would certainly be a factor to take account of.
5 The Northern Route - Rochdale Canal and Calder Valley