TransPennine Route Upgrade
Route-wide Statement of Significance
Prepared for Network Rail
August 2019



Alan Baxter

How to use the document digitally

This document has been designed to be viewed digitally. It will work best on Adobe Reader or Adobe Acrobat Pro versions X or DC or later on a PC or laptop.

Navigation

The document can be navigated by using:

- the bookmarks panel on the left hand side of the screen (revealed by clicking ).
- the hyperlinks on the contents page and embedded in the text (identified by blue text).
- the search function (press Ctrl + F on your keyboard to bring up the search box).
- the buttons at the bottom of each page:
  - Contents
  - Previous view
  - Forward and back
  - multi-layer TRU route plan

Layered route map

The 'map' button in the bottom right hand corner of every page links you to the map of the TransPennine Route on p.4. This map consists of several layers, each displaying a different piece of information (such as ELRs, designations and geolog).

These layers can be put together in any combination using the 'layers panel', which is revealed by clicking the  button on the left hand side of the screen. On this panel, click the box alongside the layer name to turn a layer on or off.

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1.0
Executive summary

1.1 Purpose

This report has been commissioned by Network Rail from Alan Baxter Ltd to provide a route-wide overview of the significance of the TransPennine Route, the railway line linking York, Leeds, Huddersfield and Manchester.

The assessment considers the route in all its facets: the historical and technical significance of its engineering, the impact of the line on the development of industries and communities, its contribution to landscape and its place in communal memory and experience are all explored.

The function of the report is to support the TransPennine Route Upgrade project, and the analysis of its impact on the historic environment. It provides a macro level view that will underpin and sit alongside micro-level analysis of individual sites and structures as part of the project's Environmental Impact Assessment and, ultimately, planning and listed building consent applications.

The benefit of a route-wide assessment is that it provides a broader perspective, enabling designers and decision makers to make decisions informed by an understanding of the wider context and the potential national and regional impact of individual proposals.

1.2 Scope

The primary focus of the assessment is the section of the TransPennine network that is the subject of Network Rail's TransPennine Route Upgrade project. See the interactive map on page 4 and on page 6 Figure 1 This is a package of works between Church Fenton south of York and Manchester Victoria that will increase capacity and accelerate services across the Pennines.

In order to understand the significance of this section of the line it has also been necessary to consider the context of the wider route, from Newcastle and Hull to Liverpool.

1.3 Methodology

The brief was developed by Historic England.

The assessment builds on two detailed studies previously compiled by Alan Baxter Ltd:

TransPennine Route Statement of History and Significance: East of Leeds (2014)

TransPennine Route Statement of History and Significance: West of Leeds (2017)

Extensive fieldwork and desk based assessment was undertaken for both of these studies. This was supplemented by additional fieldwork and academic research in 2019.

A workshop to discuss the assessment and the significance of the route was held in Leeds on 28 September 2018. Representatives of Network Rail, Historic England, local planning authorities, the Railway Heritage Trust and the TransPennine Route Upgrade project environment team participated. The conclusions of the workshop informed the final wording of this report.

1.4 Summary of significance

A cross-section of the North

The multifaceted significance of the TransPennine Route from York, Selby and Leeds to Manchester Victoria reflects its complex origins and the diversity of landscape through which it passes.

Uniquely, the route is a slice through England, a coast to coast cross-section of its geology, landscape and character. This informs the significance of the route in multiple ways and creates recognisable changes in character. The engineering reflects the different challenges set by geography, from poorly drained coastal plains to the Pennine watershed: the geology is echoed in the materials used to construct bridges and viaducts; urban and economic development is witnessed in the contribution of the railway to the history and townscape of towns and settlements; and community experience and memory encapsulated through its association with work, sport, leisure and education.

Amalgam of different lines

The route itself is a modern amalgam of five historically separate lines. Two of these were built in the earliest or 'pioneering' era of railway construction, one of them - the Leeds & Selby Railway of 1830-34 - being the first major trunk railway to be built following the opening of the Liverpool & Manchester Railway. The other three were constructed in the intensely active period of railway construction 1844-49.

Historical and evidential values

The principal historical and evidential value of the route lies in the fact that it demonstrate how five railway companies, employing different engineers, approached the problem of constructing a railway through the difficult Pennine terrain. What they achieved is mainly to be seen in the bridges and tunnels which they designed, and in the overall engineering of the different parts of the route. The stations along the route were never as celebrated as those on some other lines, with the exception of Huddersfield Station (1846-50, Grade I).

Because of the landscape which the route traverses, the most notable surviving features are its bridges and viaducts, many surviving as built and some as sensitively extended when parts of the line were widened in 1876-91. The materials from which they are built echo the geology of the route because they were mostly sourced locally. The superbly constructed and detailed masonry arched bridges designed by James Walker for the Leeds & Selby are exceptional for their time in being designed for an intended four track railway. The surviving examples constitute 50% of all the surviving railway bridges in the world built before 1835.

Other well-preserved bridges and viaducts, designed by George Stephenson, Thomas Grainger and A.S. Jee are of less historical interest but are none the less fine examples of the way railway bridge design evolved from principles established by previous generations. As well as their historical significance they provide potential evidence of nineteenth-century construction techniques and sourcing of materials.

The seven iron bridges on the route - one by James Walker and six by Thomas Grainger- also offer constructional evidence of how they were assembled and the role of the iron founders involved. Of the tunnels, Standedge Tunnel (1847-48) is historically in a class of its own, being the third longest railway tunnel in the country built (and later augmented) to an exceptionally complex design.

Aesthetic value

Unlike some other early railways, there is little evidence that the lines which make up this route were consciously designed to achieve an overall aesthetic effect. Practical engineering considerations took priority. However, because of the way the railway was threaded through the landscape this achieved a fortuitous aesthetic value, both for those travelling along it and those seeing the line from a distance. The location and character of the bridges and viaducts are part of that effect, especially in the upper Tame and Colne valleys.

Historical value
Passengers looking out from the train can observe the way in which the route shaped communities and fostered industry. This historical value is, for example, expressed in urban areas by the buildings built around the railways for the heavy woollen industry, and uniquely in Huddersfield by the town planning focussed on the magnificent station façade.

Communal value
The ways in which passengers can observe and understand landscape, geology and historical change may also be thought of as part the route's communal value. The railway has become familiar to millions because of the way it is seen and used; together with the M62, it now forms the backbone of the North. Intended originally to be mainly a freight route it has become a major passenger line for long-distance and commuter passengers. Some are regular travellers and commuters but for others since the opening of the route a journey has been an occasional excursion to the sea, or today, the prelude to holiday trip by air. For emigrants fleeing persecution in Tsarist, Russia, the trip from Hull to Liverpool was a literally once in a lifetime journey. What the route has meant to people since it was first opened in 1834-49 is an enduring, though less recorded part of its significance.

1.5 Applying the analysis to the TransPennine Route Upgrade project

The TransPennine Route Upgrade is a significant package of engineering projects that will increase the number and speed of trains between Leeds and Manchester, and make the service more reliable.

The works, which include additional track, remodelled junctions and stations and electification of key sections (see Figure 1), will be the subject of a Transport and Works Act Order and associated Environmental Statement.

This Statement of Significance, along with the preceding studies of structures on the Eastern and Western section of the route, forms part of the evidence base for the TRU Environmental Impact Assessment. As such, it will be used and cited as required:

- in the TRU Environmental Statement
- during the engineering options selection and design development process (as part of the GRIP process)
- in support of listed building consent and planning applications
- as part of any Transport and Works Act Order process

1.6 Mapping

Mapping is integral to the assessment, and presentation of its findings. Over the page is a summary map made up of mutiple layers illustrating:

- The route, and the 'Engineer's Line References' by which railwaymen identify its constituent parts
- The underlying geology
- The different dates of construction for the constituent parts of the route
- Listed railway structures and buildings on and alongside the route
- The character zones used in this assessment to delineate the different parts of the route
- The location and density of listed buildings, scheduled monuments, registered parks and gardens and conservation areas either side of the route

1.7 Using the layered map

The layers of the map can be turned off and on in any combination, to isolate or compare information.

They are turned on and off by clicking on the layers button in the left hand panel ( ) and selecting the desired layers.


YORK
Ulleskelf
Church Fenton
Cross Gates
LEEDS
LEEDS
Garforth
East Garforth
Micklefield
South Milford
SELBY
SELBY
Cottingley
Morley
Batley
DEWSBURY
Mirfield
Ravensthorpe
Deighton
HUDDERSFIELD
Slaithwaite
KIRKLEES
Marsden
OLDHAM
Greenfield
Mossley (Manchester)
MANCHESTER VICTORIA
Ashton-under-lyne
Stalybridge
MANCHESTER
Guide Bridge
TAMESIDE
0
10
20
30
40 km

2.0
Purpose, scope and methodology

2.1 Function

This report has been commissioned by Network Rail to assess the overall significance of the TransPennine route, as a precursor to the TransPennine Route Upgrade project. This major infrastructure project will increase capacity, improve reliability and reduce journey times between York, Leeds and Manchester (see Figure 1 over the page).

The analysis contained in this report is a necessary backdrop to more focussed study of significance of specific areas and individual structures and the possible impact of works to them, providing a national and regional context.

In this way, the report will act as an overarching statement for all TransPennine Route Upgrade works and applications, to be referred to by Network Rail, stakeholders and consultants as they develop detailed solutions.

The document will therefore serve as part the evidence base for the project's Environmental Statement, any Transport and Works Act Orders and individual planning and listed building consent applications.

2.2 Scope

The scope of this report is confined to the section of the TransPennine route that is the subject of the Upgrade Programme, between Manchester Victoria in the west and Selby and Church Fenton in the east (see Figure 1 and Figure 2 on the following pages).

The totality of the route, from Liverpool to Hull and the North East, has been considered in so far as this context is necessary to understand the history and significance of the subject area.

2.3 Methodology

The brief was developed by Historic England.

The report builds on earlier analysis (research and fieldwork) carried out by Alan Baxter Ltd (ABA), which reviewed in detail the route west of Leeds (up to Stalybridge) and east of Leeds separately for the specific purpose of identifying structures for listing (see Appendix B for further details). This report unites the two halves and assesses the route much more broadly, by considering its landscape and historical setting.

Analysis is heavily informed by a consultation workshop which took place on 28 September 2018. The workshop was organised by Alan Baxter and hosted by Network Rail at their offices in Leeds. In attendance were representatives from Historic England, Network Rail, Atkins and AECOM as well as Conservation Officers from some of the affected local planning authorities (Leeds City Council, Selby District Council, Tameside District Council and Manchester City Council) and representatives from the West Yorkshire Archaeological Advisory Service and the Railway Heritage Trust.

Alan Baxter gave a presentation that was designed to prompt discussion and to draw out areas of particular interest or concern. The key themes that arose from this consultation have formed the basis for this report and include, but are not limited to, the list below:

- The TransPennine route is a cross-section of England, from coast to coast.
- The importance of geology and topography in shaping the character of the route.
- The historical value of the route and its role in place-making.
- The contribution of the railway to the landscape it passes through.

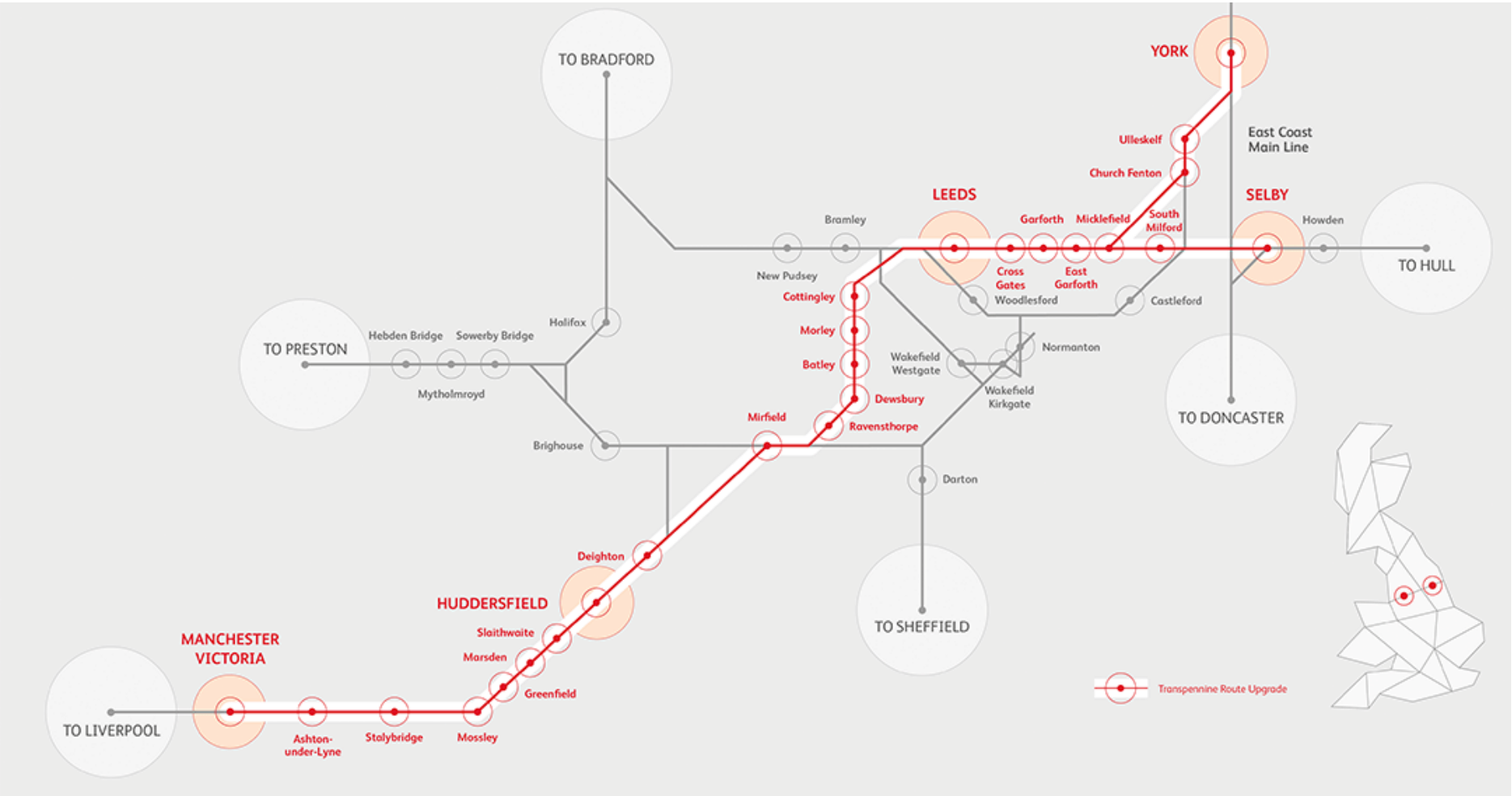


Figure 1: Diagram illustrating the extent of the TransPennine Route Upgrade (source: Network Rail)

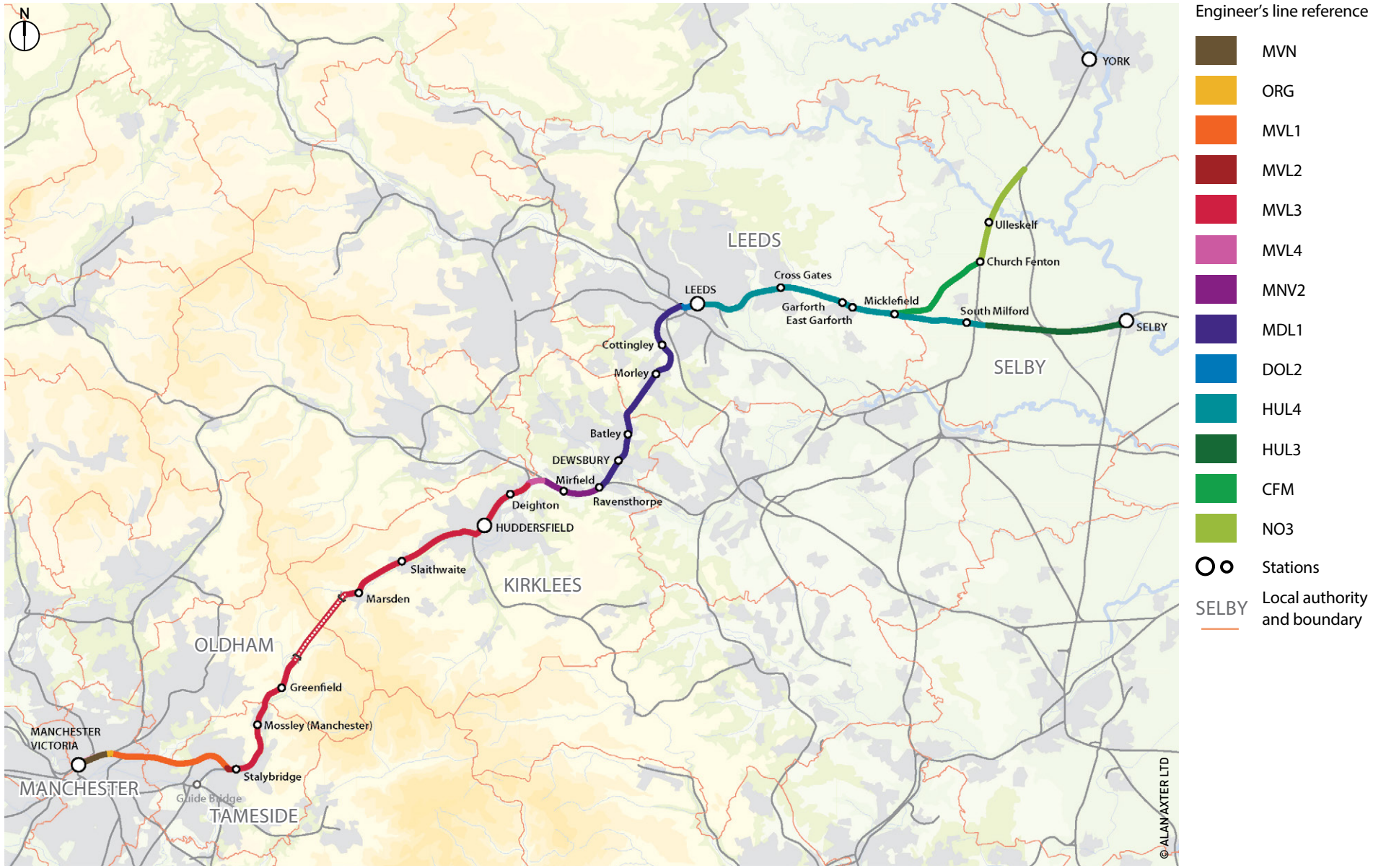


Figure 2: Map showing the 'engineer's line references' (or ELRs) used by the railway industry to identify specific sections of the network

- Views out from the train and how the route is experienced by passengers.
- The design value of the route.
- The communal value of the route, both past and present.
- The public benefit of the TransPennine Route Upgrade.
- The benefit of dividing the route into character zones to express these ideas.

2.4 Significance assessment

Historic England's 'conservation values' have been used to analyse and describe significance. These are described in the organisation's *Conservation Principles, Policies and Guidance* (2008):

- **Evidential value**: derives from the potential of a place to yield primary evidence about the past. It can be natural or man-made and applies particularly to archaeological deposits, but also to other situations where there is no relevant written record;

- **Historical value**: derives from the ways in which past people, events and aspects of life can be connected through a place to the present. A place may illustrate some aspect of the past, and thus helps to interpret the past, or be associated with an important person, event or movement;

- **Aesthetic value**: this may derive from conscious design, including the work of the artist or craftsman; alternatively it maybe the fortuitous outcome of the way a building or place has evolved; and,

- **Communal value**: regardless of their historical or aesthetic value, many places are valued for their symbolic or social role, often as a source of identity to people and communities. This may encompass a spiritual or commemorative role.

The assessment of significance is an amalgam of these different values, taking into account the significance of the route and its component parts relative to one another and by local, national and international comparison. Fig 3 here illustrates how such an analysis emerged at the workshop in September 2018:

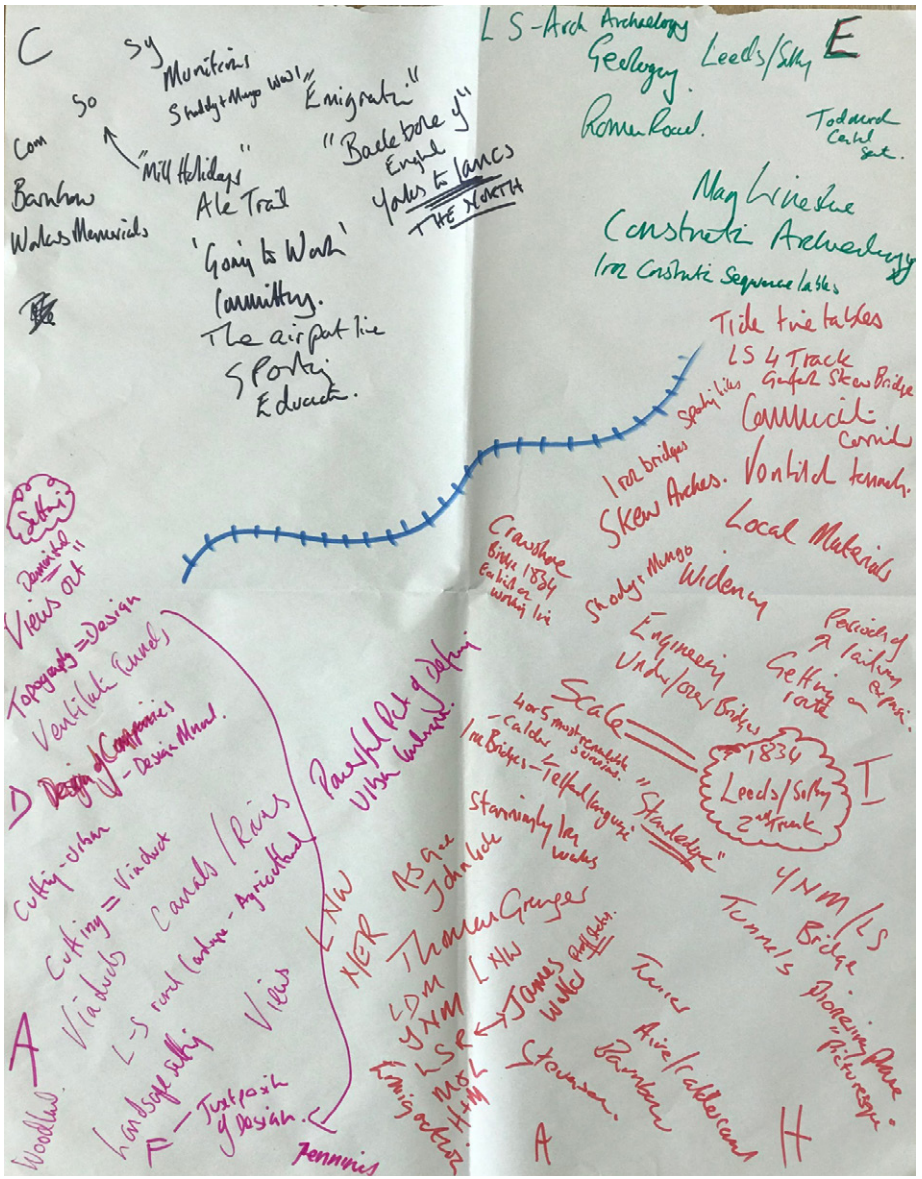


Figure 3: Significance 'mind map' from the workshop held in Leeds on 28/09/18

2.5 Structure of the report

Following this introduction, the report is organised in this sequence:

3.0 A brief history of the route: using annotated plans and including a summary of engineers and architects

4.0 Designation: maps identifying designated assets on the route and near it

5.0 Historical value: for example, the significance of the route's engineers, and the impact of the route on the towns and villages through which it passes

6.0 Evidential value: for example, evidence of nineteenth century construction techniques

7.0 Aesthetic value: for example, the quality of masonry and the contribution of the route and its structures to landscape character

8.0 Communal value: for example, the route as remembered for commuting, holidays or special occasions

9.0 Significance by structure type, summaries for bridges, viaducts, tunnels and stations, including an assessment of rarity and survival rates

10.0 Conclusion: summary of significance: an overall statement of the route's significance (repeated in 1.0 Executive Summary)

Appendix A Character zones: the route analysed as nine different areas of different character

Appendix B Bibliography: including sources consulted in preparing the report

2.6 Authors and acknowledgements

This report was written by Robert Thorne, Clemency Gibbs and Richard Pollard of Alan Baxter Ltd (ABA). Special thanks are due to Katie Rees-Gill and Matthew Jenkins of Atkins and Amy Jones of AECOM for reviewing the drafts and contributing suggestions that have strengthened the final version. And finally, to Tony Rivero, who commissioned the study and made sure that the importance of Dewsbury was not any point overlooked.

3.0
A brief history of the route

3.1 Overview

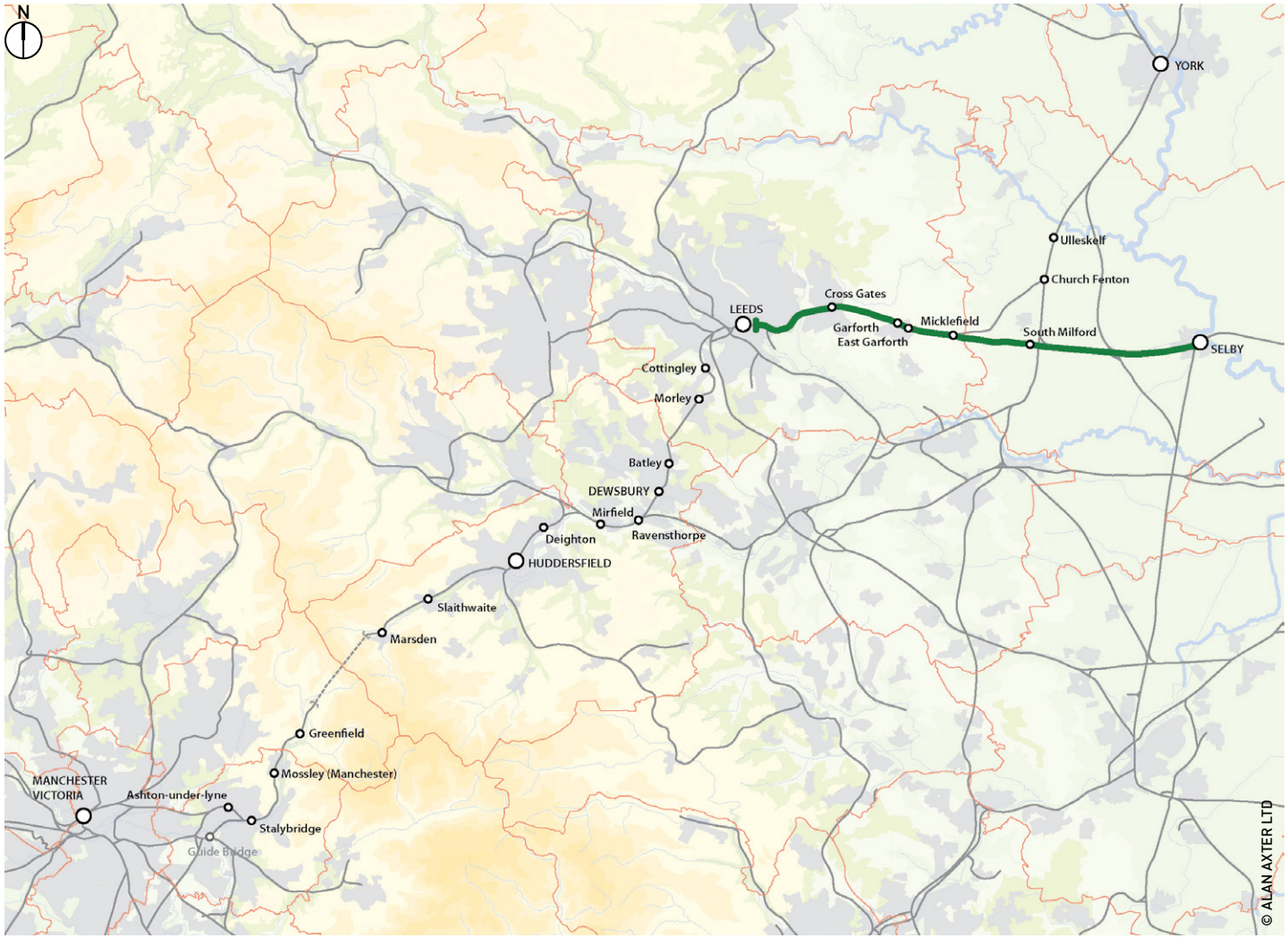
Unlike other historic railway routes, such as the Great Western Main Line or the East Coast Main Line, the TransPennine Route is a modern amalgam of lines that were created at different times by different and sometimes competing companies. Its history is therefore complex.

Over the following pages, a series of maps and notes summarise this evolution. The key points are:

- The earliest section is the Leeds & Selby Railway of 1834, which is the second oldest trunk route in the world. This later became part of the North Eastern Railway, which two decades later built a more direct 'cut off' line to speed connections to its main hub at York.
- The line between Manchester and Leeds was almost all constructed in parts between the 1840s, and completed by a company from the west coast – the London & North Western Railway – seeking access to West Riding markets and Yorkshire coal.
- These lines had two tracks; in the later nineteenth century, much of the route was reengineered with two additional tracks, to separate slow-moving freight trains from passenger services.
- As part of rationalisation in the 1960s and 1970s, most wayside stations were closed and most of the additional freight tracks were removed.
- Historically, a number of different routes across the Pennines were used by principal passenger services between the North East and Lancashire; the current service patterns along what is now understood as the TransPennine route from the 1970s.

More detailed information about the history and evolution of the route can be found in sources listed in Appendix B, including *TransPennine Route Statement of History and Significance: East of Leeds* (2014) and *TransPennine Route Statement of History and Significance: West of Leeds* (2017).

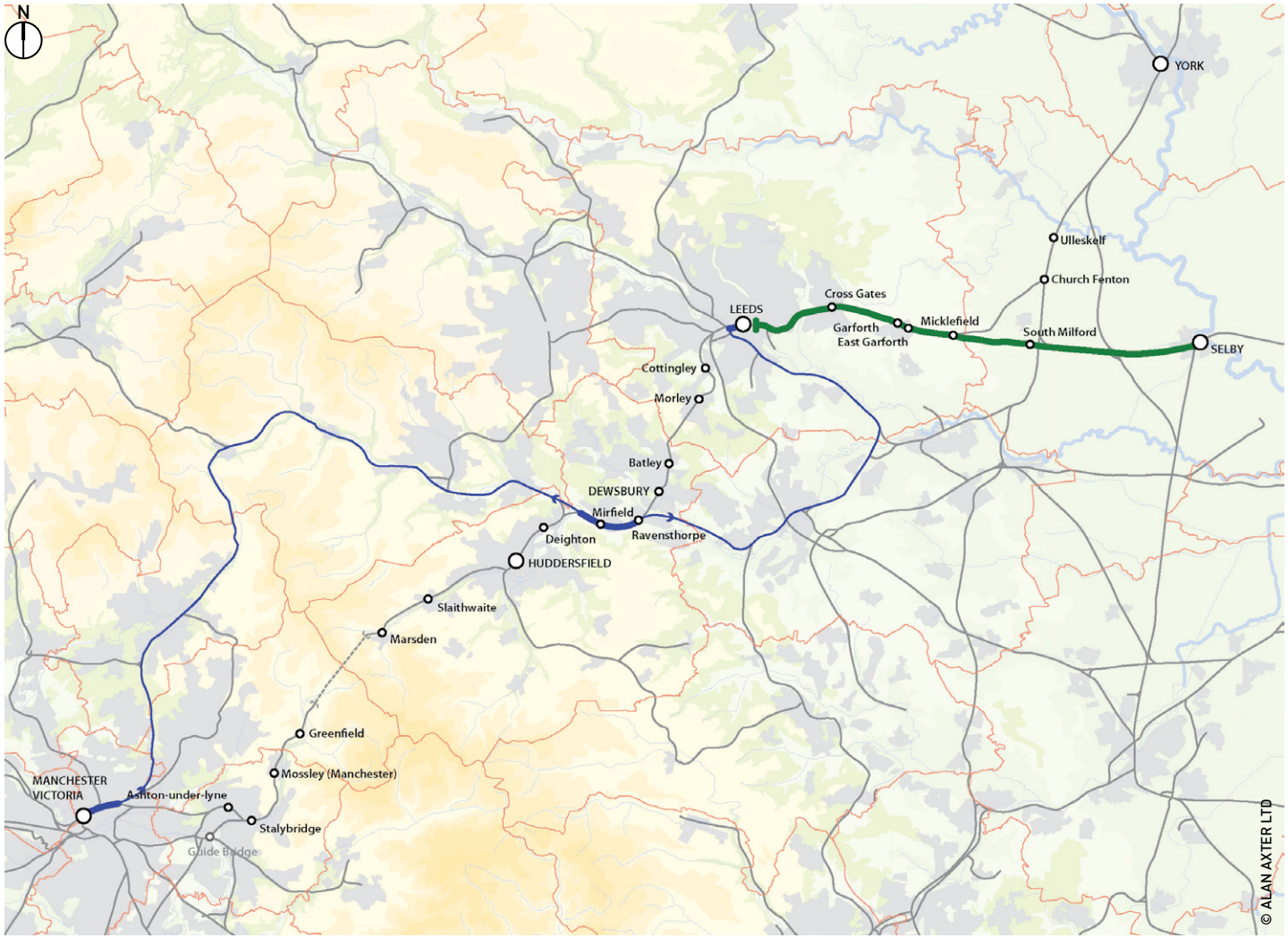
3.2 Phase 1: 1830–34



Leeds & Selby Railway 1830–34

- Designed by engineer James Walker, better known for docks and harbours
- Promoted by Leeds business interest to facilitate the seaborne export and import of goods and raw materials, via the River Ouse
- The country's second trunk route after the Liverpool & Manchester, and the first railway in the world to be designed for four tracks (though only two were ever laid)
- Fine stone bridges where it cut through the Magnesian Limestone ridge east of Leeds.
- Across the Vale of York level and largely straight, with multiple culverts and level crossings

3.3 Phase 2: 1836-39

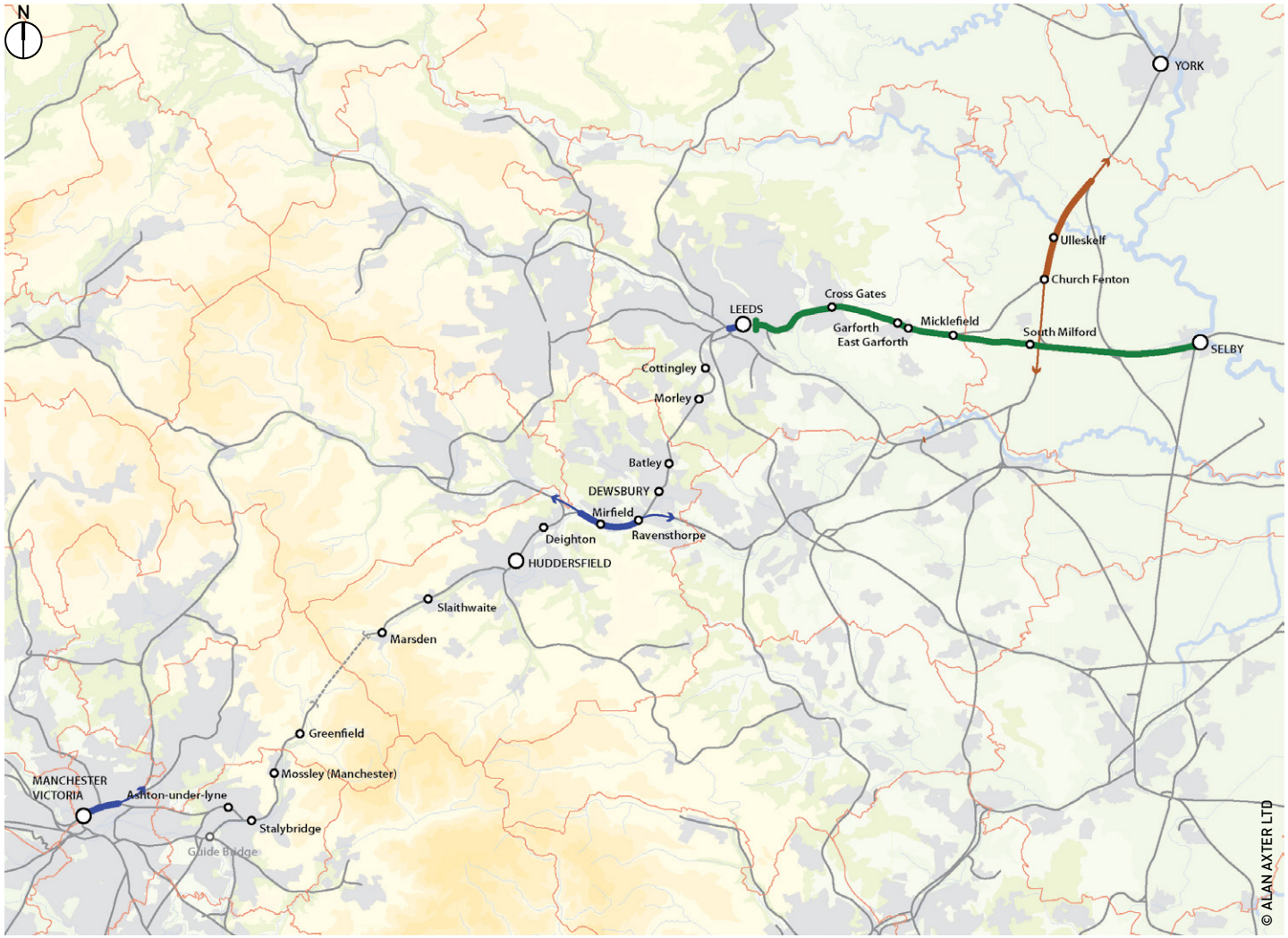


Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

- Opened in stages 1839-40
- George Stephenson engineer in chief but the detail and individual structures were largely in the able hands of his assistant Thomas Gooch
- The first railway linking Lancashire and Yorkshire, taking a northerly route via Rochdale and Calderdale and to minimise gradients and tunnelling
- It was the chief constituent part of the Lancashire & Yorkshire Railway, which was incorporated in 1847

3.4 Phase 3: 1839-40



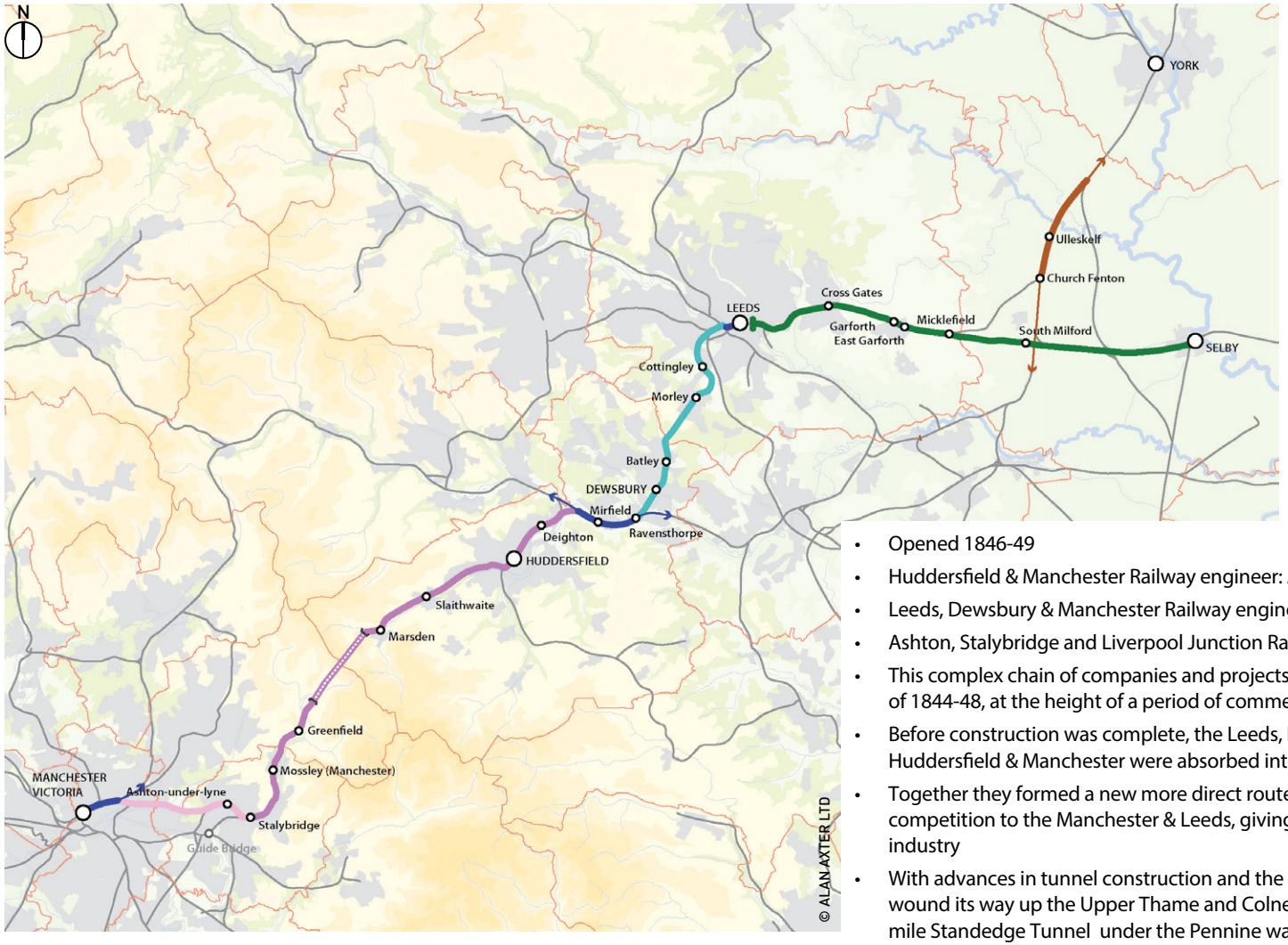
Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

Phase 3
York & North Midland Railway 1839–40

- Opened 1840
- Designed by George Stephenson for George Hudson, and forming (with the North Midland Railway) the first trunk route from Yorkshire and the North East to London (via Birmingham
- Traversing mostly flat country and therefore with limited engineering.
- Where structures were required they were built of local brick

3.5 Phase 4: 1845-49



Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

Phase 3
York & North Midland Railway 1839–40

Phase 4

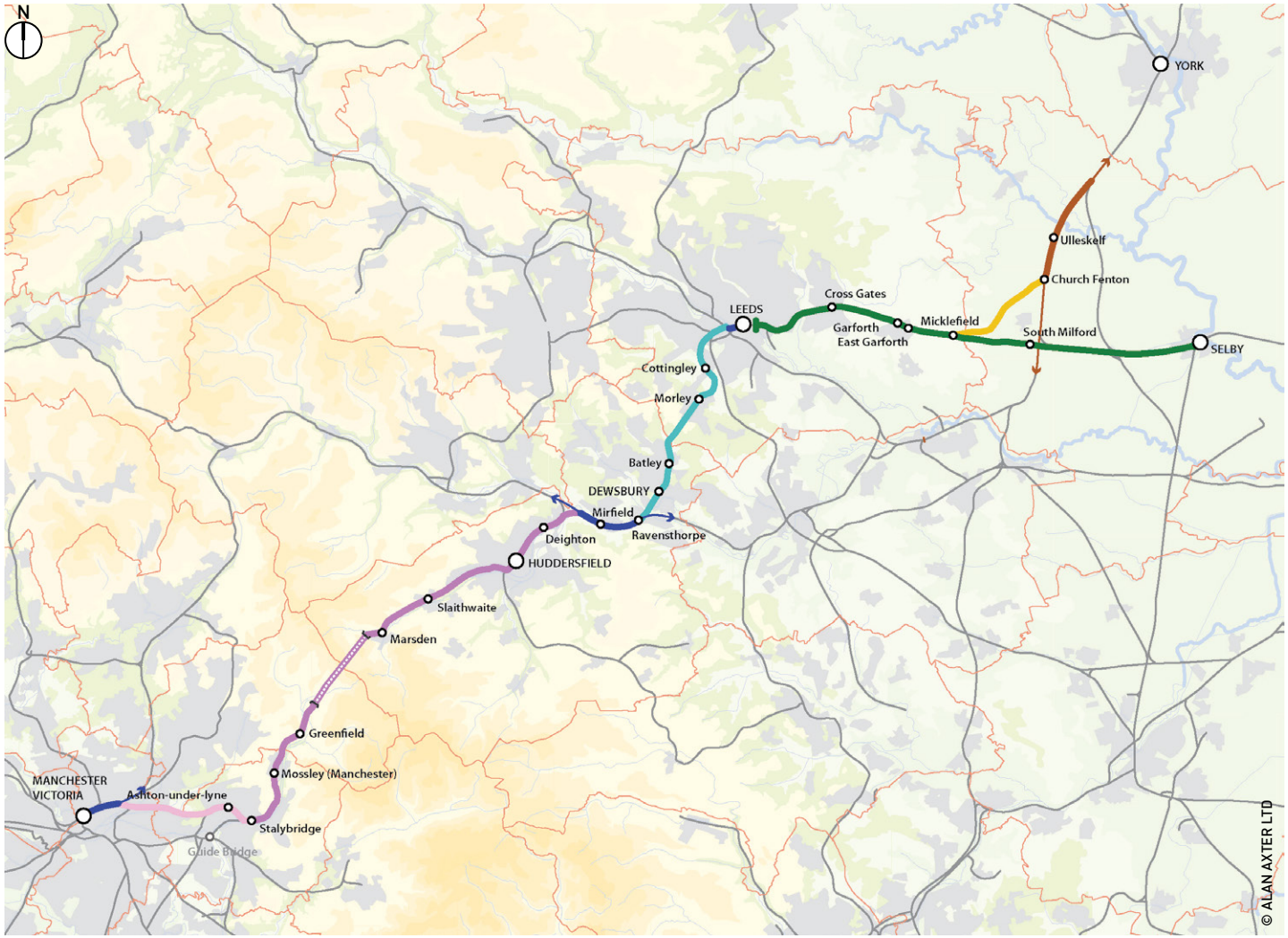
Leeds, Dewsbury & Manchester Railway 1845–47

Ashton, Stalybridge & Liverpool Jctn Railway 1844–46

Manchester & Huddersfield Railway 1846–49

- Opened 1846-49
- Huddersfield & Manchester Railway engineer: A.S. Jee (with Joseph Locke)
- Leeds, Dewsbury & Manchester Railway engineer: Thomas Grainger
- Ashton, Stalybridge and Liverpool Junction Railway engineer: Thomas Gooch
- This complex chain of companies and projects is a typical product of the 'Railway Mania' of 1844-48, at the height of a period of commercial confidence and expansion
- Before construction was complete, the Leeds, Dewsbury & Manchester and the Huddersfield & Manchester were absorbed into the London & North Western Railway
- Together they formed a new more direct route from Manchester to the West Riding, in competition to the Manchester & Leeds, giving the LNWR access to the Yorkshire textile industry
- With advances in tunnel construction and the power capability of locomotives, the route wound its way up the Upper Thame and Colne Valleys, connecting the two with the 3 mile Standedge Tunnel under the Pennine watershed. Multiple viaducts were required
- Ashton, Stalybridge and Liverpool Junction route – providing access to Manchester Victoria – was originally part of the rival Lancashire & Yorkshire network. TransPennine trains via Standedge started using this route regularly by 1970

3.6 Phase 5: 1865-69



Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

Phase 3
York & North Midland Railway 1839–40

Phase 4
Leeds, Dewsbury & Manchester Railway 1845–47

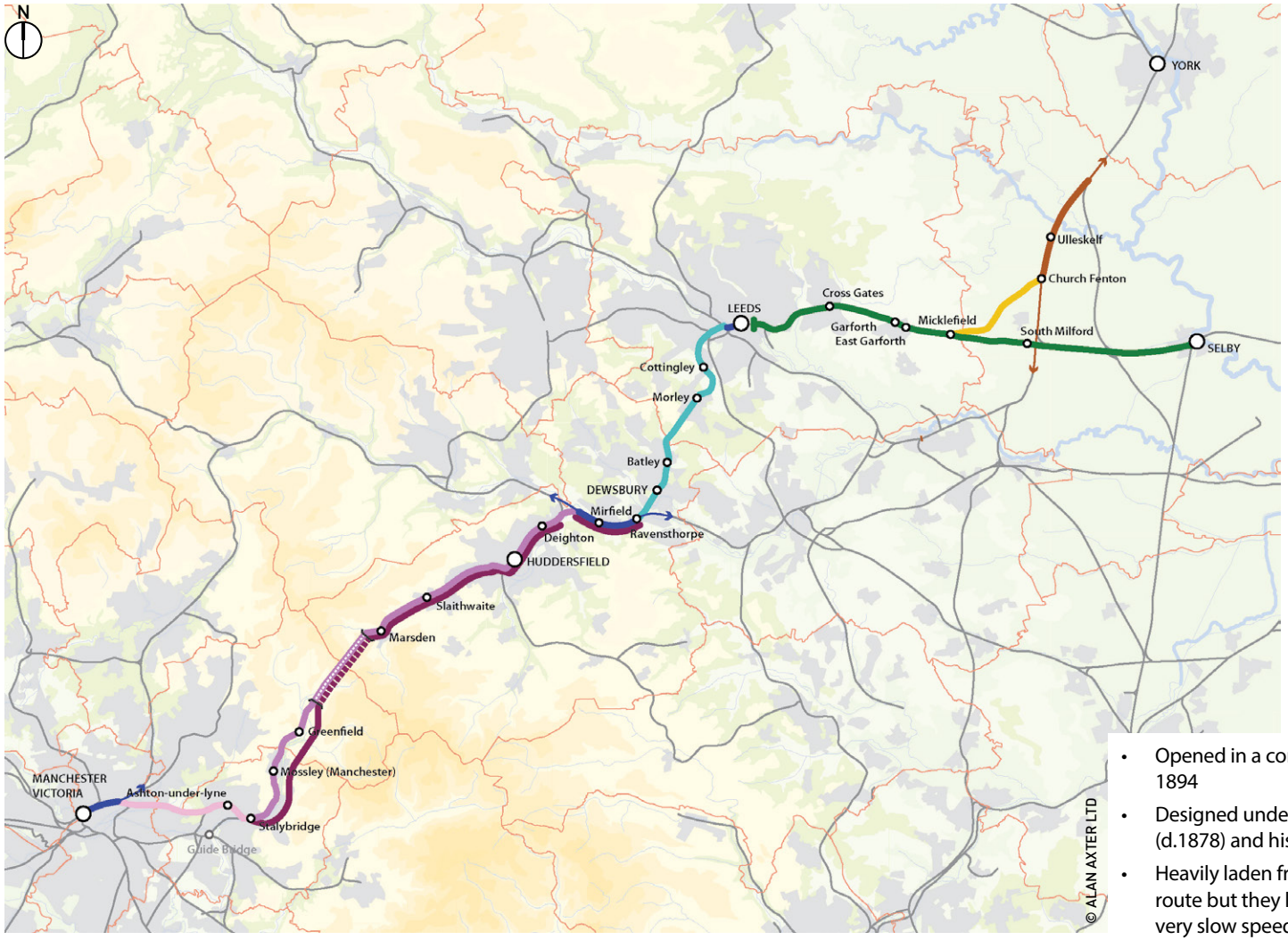
Ashton, Stalybridge & Liverpool Jctn Railway 1844–46

Manchester & Huddersfield Railway 1846–49

Phase 5
North Eastern Railway 1865–69

- Opened 1869
- Designed by the North Eastern Railway (NER) civil engineering department
- Via an acquisition with by the York & North Midland Railway, the Leeds & Selby became part of the NER at its formation in 1854
- The new cut off line cut into the Magnesian Limestone between Micklefield and the old York & North Midland route at Church Fenton accelerated timings between Leeds and York and the North East
- Constructed using standard masonry structures built of local Magnesian Limestone. No tunnelling was required

3.7 Phase 6: 1881-91



Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

Phase 3
York & North Midland Railway 1839–40

Phase 4
Leeds, Dewsbury & Manchester Railway 1845–47

Ashton, Stalybridge & Liverpool Jctn Railway 1844–46

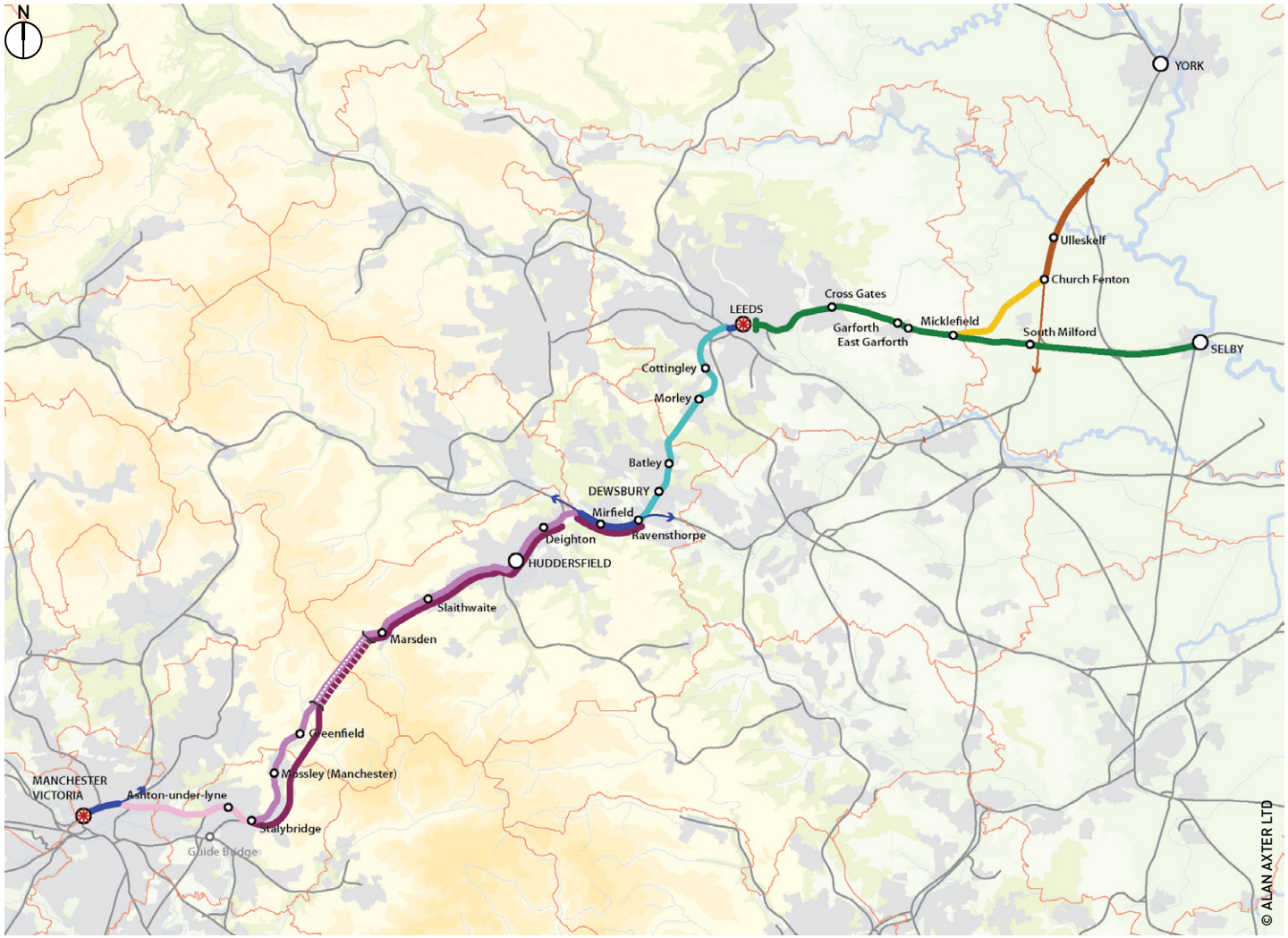
Manchester & Huddersfield Railway 1846–49

Phase 5
North Eastern Railway 1865–69

Phase 6
London North Western Railway quadrupling 1881–91

- Opened in a complex series of stages between 1881 and 1894
- Designed under the LNWR's chief engineer's, William Baker (d.1878) and his successor Francis Stevenson
- Heavily laden freight trains were the staple traffic of the route but they laboured up the steep Pennine gradients at very slow speeds
- To prevent faster passenger trains being impeded by these freight services, two additional tracks were constructed between Stalybridge and Mirfield (including new tunnels bores and the Micklehurst loop in the Upper Tame Valley).
- Widened viaducts and bridges matched the 1840s stonework with great care

3.8 Phase 7: subsequent history



Phase 1
Leeds & Selby Railway 1830–34

Phase 2
Manchester & Leeds Railway 1836–39

Phase 3
York & North Midland Railway 1839–40

Phase 4
Leeds, Dewsbury & Manchester Railway 1845–47

Ashton, Stalybridge & Liverpool Jctn Railway 1844–46

Manchester & Huddersfield Railway 1846–49

Phase 5
North Eastern Railway 1865–69

Phase 6
London North Western Railway quadrupling 1881–91

Phase 7
Major station capacity improvements c.1890 ⟶

- Throughout the late nineteenth and early twentieth centuries, the railways continued to invest in projects to relieve heavily congestion and increase speeds. In particular:
- In and around major city stations, tracks increased in number and complexity. For example the original Leeds & Selby tunnel in east Leeds was widened into a four-track cutting
- In the Calder Valley, the London Midland and Scottish Railway (LMS) finally completed four tracking during the early 1930s

3.9 Engineers and architects

As an amalgam of different projects, the route was the creation of a number of engineers and architects:

James Walker (1781-1862) is better known as an engineer of docks, lighthouses and marine works than as a railway engineer. He was the chief engineer to the Surrey Docks and to Trinity House. The Leeds & Selby, which he later extended to Hull, was his most important railway project.

George Stephenson (1781-1848), chief engineer for the Manchester & Leeds Railway, was the pioneer of the railways as we understand them, designing both the Stockton & Darlington and Liverpool & Manchester Railways. The Manchester & Leeds was one of the second wave of routes that he oversaw, which together formed a network linking the North and the Midlands to London. On these projects most of the responsibility was delegated to a stable of assistants, each highly competent engineers in their own right. One of these, **Thomas Gooch** (1808-82), was the principal engineer of the Manchester & Leeds.

Joseph Locke (1805-60), lead engineer for the Huddersfield and Manchester, is the forgotten civil engineer of the pioneering phase of the railway network. Along with the Stephensons and Brunel he made up the trinity that dominated this period. His principal works are the Grand Junction and Manchester & Sheffield railways.

John Hawkshaw (1811-91), engineer (with James Brunlees) of the line from Miles Platting to Stalybridge, was a leading figure in the heroic phase of railway development. He was chief engineer to the Lancashire & Yorkshire before branching out as consulting engineer to a wide range of rail and canal projects across the globe, including Charing Cross Station, the Severn Tunnel, the first Channel Tunnel project, the Amsterdam Canal and the port of Buenos Aires.

Alfred S. Jee (1816-58) is an example of an engineer who might have achieved much more had he not died at early age. Having worked with Joseph Locke on the Sheffield, Ashton-under-Lyne & Manchester Railway he took more full responsibility, though still under Locke, for the Huddersfield and Manchester Railway: all that company's dealings concerning its construction were with him.

Thomas Grainger (1794-1852) was one of the leading railway engineers in Scotland, where he designed a number of pioneering lines, but is less well known in England. His main works south of the border link the West Riding to Middlesbrough: the Leeds, Dewsbury & Manchester and the Leeds & Thirsk Railway. He died in Stockton-on-Tees in 1852 as a result of injuries sustained in a train collision.

William Baker (1817-78) and **Francis Stevenson** (1827-1902) were responsible for the widening of the route from Stalybridge to Huddersfield, for which it appears Stevenson provided most or all of the designs. Baker, as the Chief Civil Engineer of the LNWR from 1859, was the engineer in chief of the project. He spent his entire career at the company.

J. Butler and Co. of Stanningley near Leeds is a firm that contributed to a number of significant railway structures, by supplying ironwork for cast-iron bridges along the route as well as the famous trainshed of York Station. The firm went bankrupt in 1892.

J.P. Pritchett (1789-1868) is an architect whose name is attached to countless early nineteenth century buildings across Yorkshire, including Huddersfield Station.

4.0 Designations

4.1 Heritage assets

For this project, heritage assets have been identified and analysed as part of three groups:

1. Listed structures and buildings associated with the railway, either on the route or adjacent to it. These are identified on the map on the following page Figure 4.

2. Designated assets within approx. 5 miles of the route: listed buildings, scheduled monuments, registered parks and gardens and conservation areas. These are plotted on the map on page 21 Figure 5).

3. Undesignated railway assets on the route, such as bridges, tunnels, stations and other railway structures, that are of local interest and were identified in *TransPennine Route Statement of History and Significance: East of Leeds* (2014) and *TransPennine Route Statement of History and Significance: West of Leeds* (2017).

   These are not individually listed in this report, but they were taken into account in assessing the significance of the route and the different character zones along it.

4.2 Mapping designated heritage assets

The maps on the following two pages are instructive about the distribution and density of designated heritage assets along the route. The first (Figure 4) shows all listed railway structures on the TRU section of the network. Their distribution reveals three influences:

- Date: in particular, the concentration of 1830s Leeds & Selby Railway bridges, east of Leeds
- Topography: to cross the Pennines, tunnels and viaducts were required, which are listed for their scale and ambition
- Alteration: a greater density of listings on sections of the route which have not been widened from two to four tracks, meaning bridges are more likely to be substantially unaltered

Figure 5 plots designated assets along a corridor 10 miles wide, 5 miles either side of the route. Distribution primarily mirrors the location and size of settlements and urban areas, which itself reflects factors such as topography, geology and means of communication – including the railway itself

Other observable patterns follow the line of the Magnesian limestone ridge. This dry lowland area has been favoured for communication and occupations for thousands of years. Concentrations of scheduled monuments and registered parks and gardens are evidence for this.

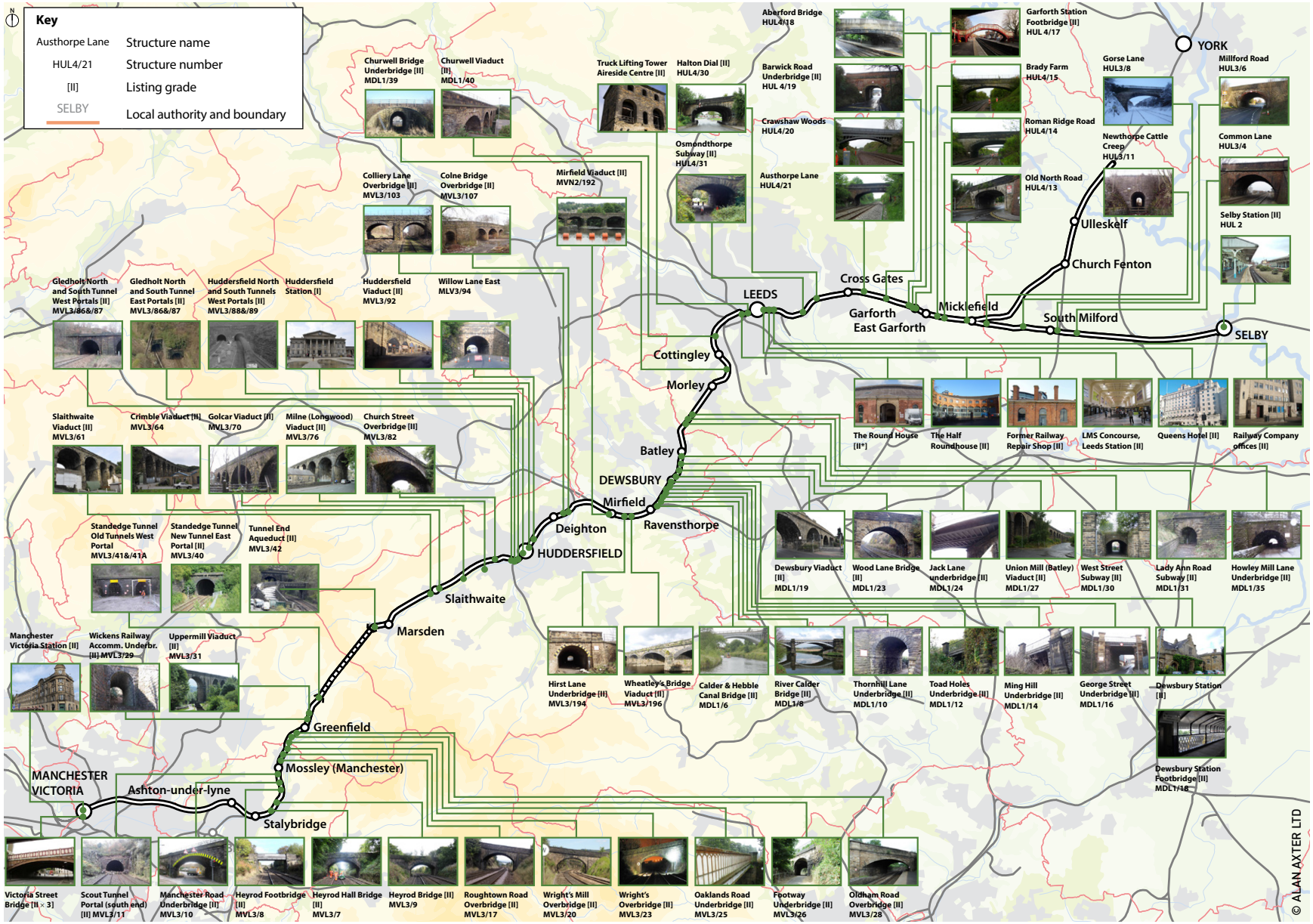


Figure 4: Map of listed railway structures (grade of listing in brackets, Network Rail 'structure number' beneath that)

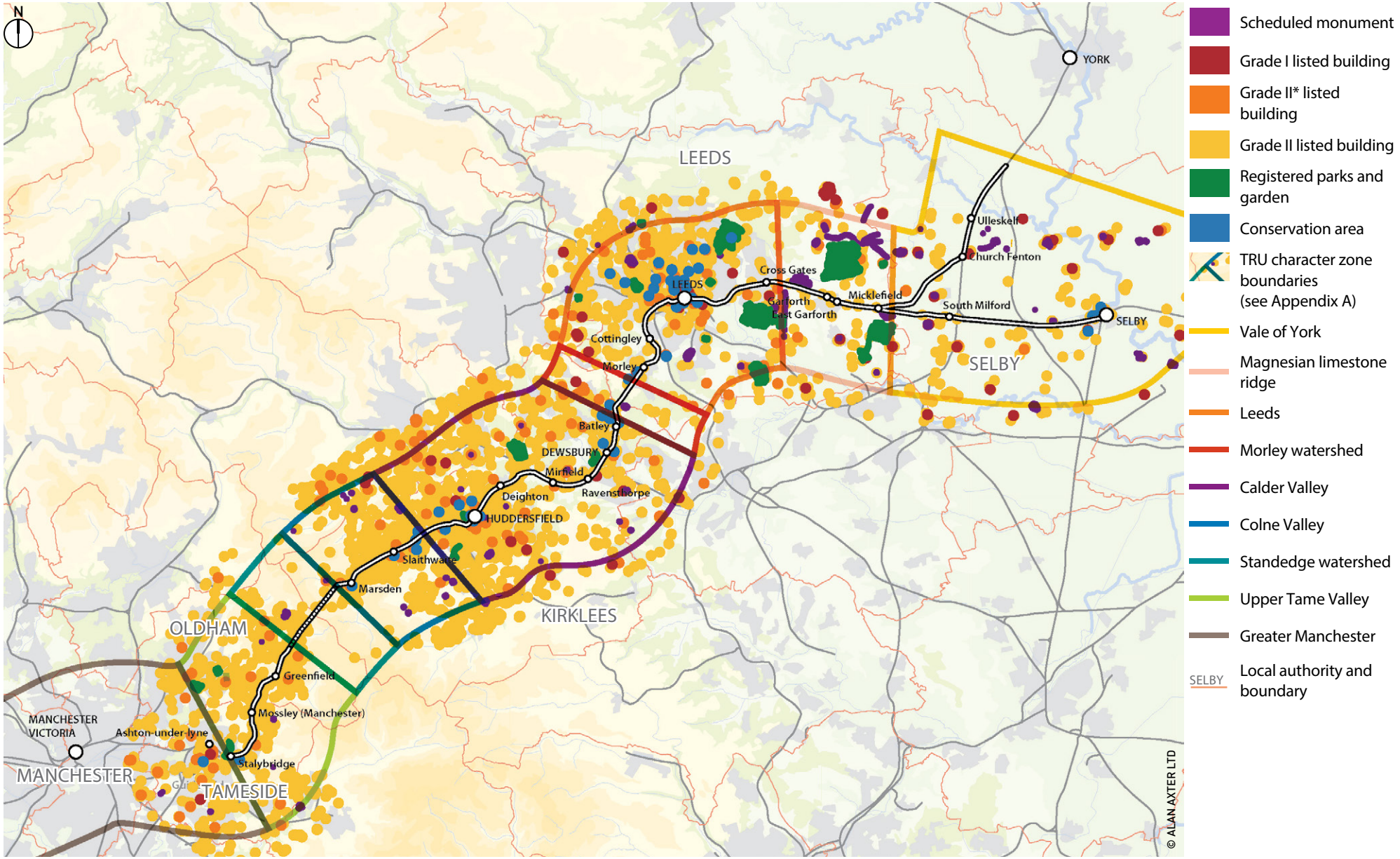


Figure 5: Map of designated heritage assets within approximately 5 miles of the route (see section 4.2 on p.19 for further explanation and analysis)

5.0
Historical value

5.1 The different components of historical value

The historical value of the lines which make up the TransPennine route derives from the way each line illustrates the development of the railway system and its impact on the places it served, plus the association of the route with designers (engineers, architects and ironfounders) whose contribution helped create its distinctive character. How far the lines and those who built them were innovative for their time is an important consideration. Also to be taken into account is the question of survival: completeness and authenticity are fundamental to historical value, though there are aspects of change and adaptation which are in themselves important.

This commentary on the historical value of the route starts by considering the dates of construction of the five lines. It then discusses the designers involved. Finally, it examines what is known about how the lines transformed the towns, villages and landscapes through which they passed.

5.2 The History of the Lines

5.2.1 The heroic period

Historic England designation advice draws an important distinction between the pioneering phase of railway building, from the opening of the Stockton and Darlington Railway in 1825 to 1841, and the second or heroic phase, the huge expansion of the network from 1841 to 1850. Two of the lines which make up the TransPennine route were built in the first phase. Consequently their surviving structures and buildings are as a group, in the words of Historic England, "of international significance as amongst the earliest railway structures in the world". The other three lines fall within the heroic era of railway-building.



© SMG

Figure 6: 'View taken from the railway eastward showing Mr Walker's house and the surrounding country'. R Martin, High Holborn, London. This undated lithograph now at the National Railway Museum is the only known early illustration of the Leeds & Selby Railway. It appears to be a view at Halton looking east, with Halton Dial bridge (HUL 4/30) in the centre, and the turnpike from Tadcaster. The naïveté with which the railway is drawn (including e.g. horse power) evokes the novelty of the railways in the mid 1830s, before the rapid expansion of the network later that decade

5.2.2 Leeds and Selby Railway

The Leeds and Selby, built in 1830-34, is particularly significant because it was the only major railway scheme completed in the slight lull which followed the opening of the Liverpool and Manchester Railway in 1830. The Newcastle and Carlisle Railway, authorized in 1829, came hot on its heels but was only finished in stages 1835-39. It was the Liverpool and Manchester and the Leeds and Selby which set the template for the mini-boom in trunk line construction in the late 1830s, notably Robert Stephenson's London and Birmingham Railway and the Grand Junction Railway, both authorized in 1833, and Brunel's Great Western Railway, authorized in 1835.

5.2.3 Manchester and Leeds Railway

Also in the late 1830s mini boom was George Stephenson's Manchester and Leeds Railway, to link the two major cities of the north via Rochdale and Todmorden, opened in stages 1839-41. This was a significant 51 mile long line involving onerous, much-celebrated engineering works. However only a short section of it, c.3 miles between Heaton Lodge Junction and Ravensthorpe, is incorporated in today's TransPennine route.

5.2.4 Railway Mania

The commercial confidence engendered by the completion of these early main lines fueled the Railway Mania of 1844-48 when about 12,000 miles were authorized. Although many proposals of these years never saw the light of day, the result was an expansion of the railway system from 2,345 miles in 1845 to 7,272 miles in 1852. The other three lines of the TransPennine route date from these Railway Mania years: the Huddersfield and Manchester and Leeds, Dewsbury and Manchester, both authorized in 1845 and completed in 1849 after their absorption into the London and North Western Railway, plus the short branch from Miles Platting in Manchester to Ashton-under-Lyne and Stalybridge built in 1844-46. Inevitably, given the amount of railway-building going on at the time none of these three lines can claim uniqueness or indeed innovation in their overall conception, but that is not to gainsay that within their total of c.38 miles there are features of real significance.

5.2.5 Subsequent improvements

In what survives today the other conspicuous historical elements are the alterations made since their completion, especially the widenings from two track to four track. These are most evident between Stalybridge and Huddersfield, including two additional tunnels at Standedge the second of which is the one used by trains today. These projects, carried out in stages by the London and North Western 1876-91, were not unique for their time: many other companies sought to shorten or improve the capacity of their routes, notably the Great Western with its more direct 'cut off lines'. What is special is the conspicuous care with which the additions were made, especially in doubling the size of bridges and viaducts.

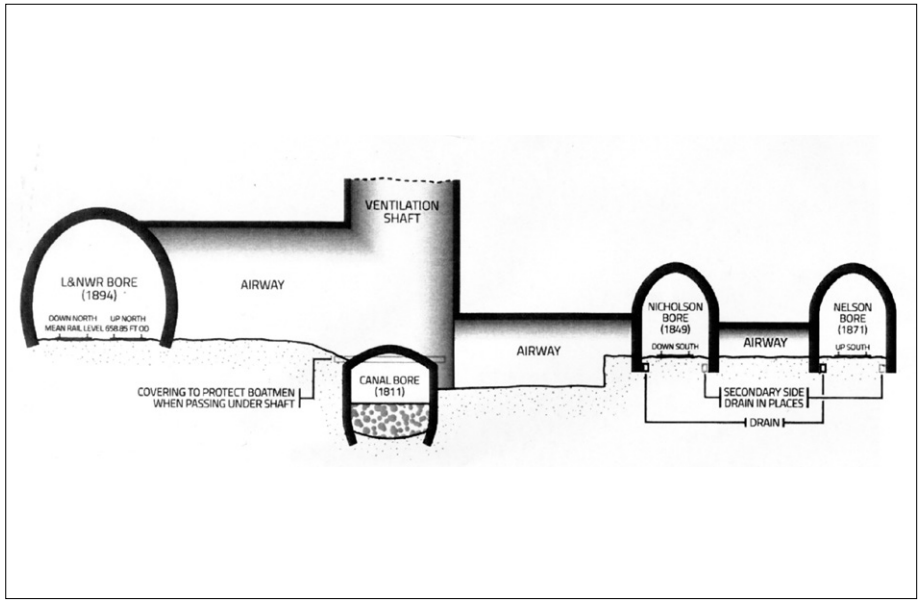


Figure 7: Section through Standedge Tunnel, showing the complex relationship between canal and rail bores (based on a 1925 LMS illustration)

5.3 The Designers

In attributing value to the work of a designer there may be two considerations; on the one hand the way a project adds to the understanding of a designer's overall career and output and on the other hand the way a project or even a single structure throws a spotlight on a designer who might otherwise be less well known. The designers of the different parts of the TransPennine route sit indifferent positions on this reputational scale:

James Walker. What makes the Leeds & Selby particularly interesting is the broader experience Walker brought to that project as an engineer of docks and lighthouses than as a railway engineer, almost if he set out through its overall and detailed design to show fellow engineers what a railway should be. The Leeds and Selby, which he later extended to Hull, was his most significant railway project.

George Stephenson, **Joseph Locke** and **John Hawkshaw** are all examples of civil engineers of the first rank who built their reputation on railway work and had a long list of such projects to their name. Of none of the three can it be said that their contribution the TransPennine route was such that it was outstanding in their careers, though in its totality the Manchester and Leeds was a major achievement for George Stephenson and his colleague **Thomas Gooch** – the first rail crossing of the Yorkshire / Lancashire watershed.

Alfred S. Jee died at early age. He deserves to be better known, especially for the design and careful supervision of building Standedge Tunnel 1847-49.

Thomas Grainger is ranked highly amongst the railway engineers of Scotland. Looking comprehensively at his work north and south of the Border his English projects, notably the Leeds Dewsbury & Manchester and the Leeds & Thirsk Railway stand out for the way he threaded his lines through the landscape and the care he took over the design of individual structures.

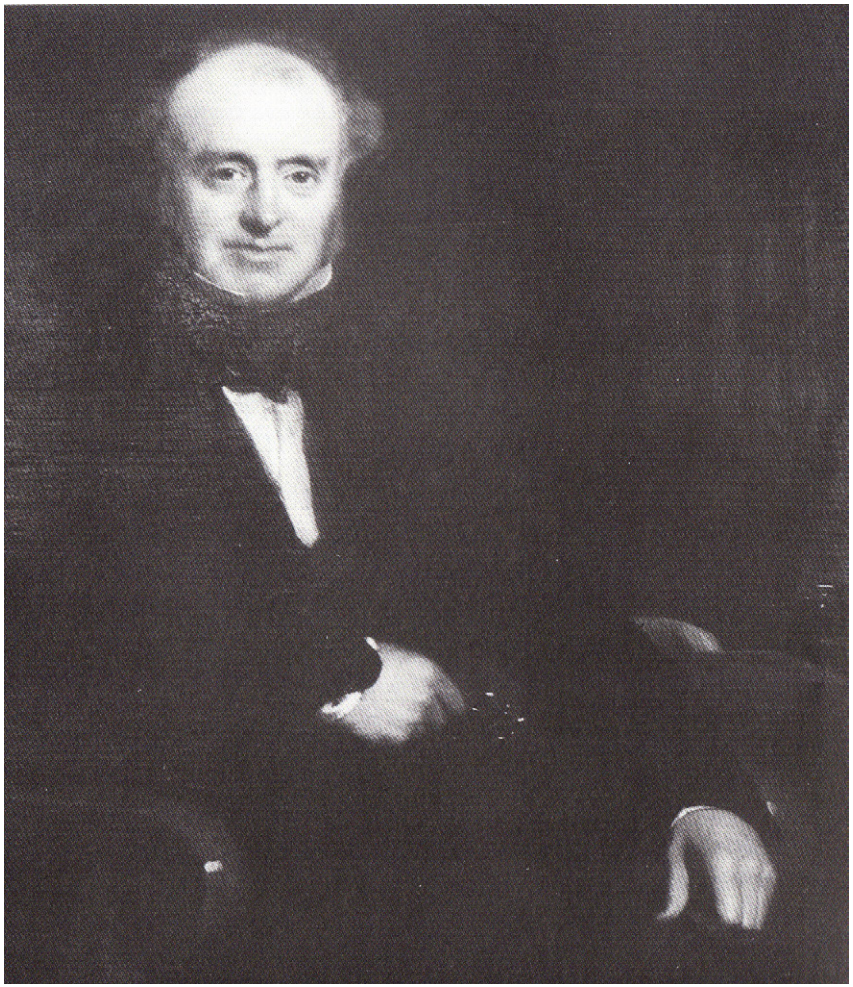


Figure 8: James Walker (1781–1862)

Francis Stevenson, responsible for the widening of the route from Stalybridge to Huddersfield for the LNWR "was careful", it was said, "to so arrange his designs that they should leave undisturbed, as far as practicable, any prominent or pleasing features in the vicinity"(Min. of Proc. of ICE, 149, 1901-2, p.354).

As with many ironfounders of the time, the role of **J. Butler and Co.** of Stanningley overlapped with engineers in the design of such structures in addition to supplying the castings. The TRU project is an opportunity to be better understand this.

J.P. Pritchett was a prolific regional architect, but in most instances his architecture lacks originality or sparkle. In his oeuvre, therefore, Huddersfield Station is outstanding in its composition, detailed design and prominence.

Inevitably, given the way in which the different parts of the TransPennine route were built and the number of designers involved it is impossible to speak of the route as a single entity, conceived of and developed as the coherent vision of one designer. In that respect it is the polar opposite of, for instance, Brunel's Great Western or Robert Stephenson's London and Birmingham Railway. What is important about this route is that a journey from one part to the next provides a cross-section of how different engineers and designers approached a broadly similar range of problems. And within that cross-section some of the solutions are of outstanding quality, in the design of buildings and structures and in the overall engineering of the line.



Figure 9: George Stephenson (1781–1848)

5.4 Railways and Place-Making

5.4.1 How the railways shaped places

The impact of the TransPennine route naturally varied depending on the areas through which it travelled. In larger towns such as Leeds and Huddersfield, with earlier infrastructure and competing railway companies, the impact was less significant than in many rural areas, where the railway for the first time provided reliable and affordable access to markets and imported goods. Nevertheless, the railway on its own was insufficient to boost urban and industrial development; it also required the right combination of ready access to power, raw materials, labour and other elements of complex interdependent economic systems. A good example of this is the Leeds - Selby route. Despite being a pioneering enterprise linking the regional powerhouse of Leeds to sea going shipping at Hull, this did little to stimulate urban development of the sparse settlements through which it passed.

The impact of the route is thus difficult to quantify, but the railways unquestionably contributed to the growth of towns and cities in the nineteenth and twentieth centuries. The following section illustrates this by looking at a reasonably typical town of the region, Dewsbury, as a case study of some of the place-making effects of the TransPennine railway on the settlements it passed through.

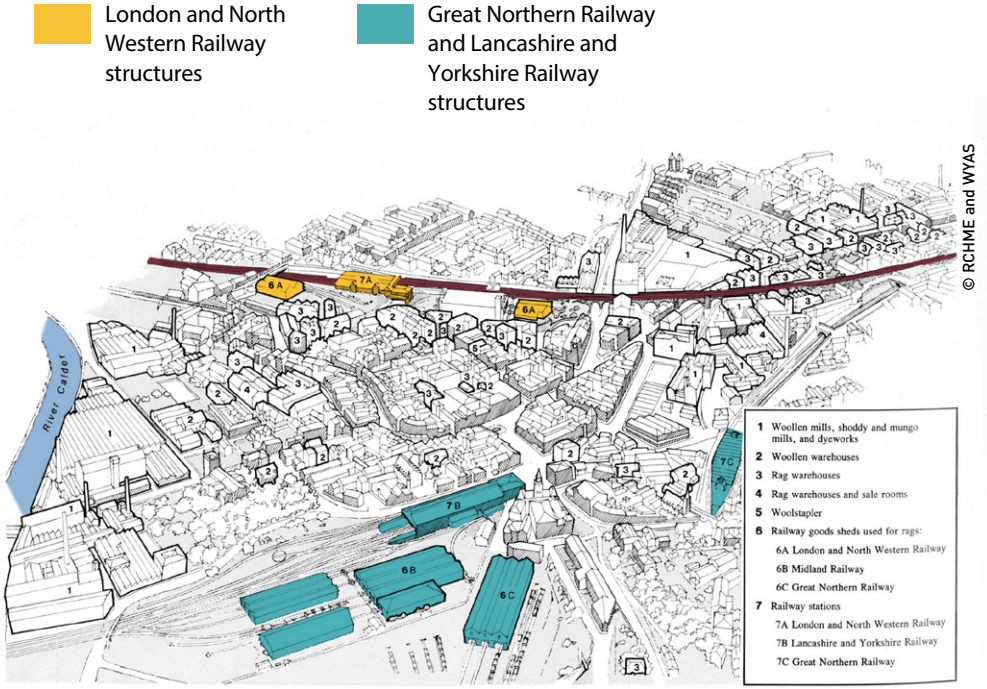


Figure 10: Dewsbury stations and industrial structures, 1911

5.4.2 Case Study: Dewsbury

Dewsbury is a minster town in the Kirklees district of West Yorkshire and was historically one of the prominent centres of the 'heavy wool' industry that developed in the region in the early nineteenth century (see topic box at the end of this section for an explanation of this trade). As a mid-sized town, Dewsbury is used here as a case study to demonstrate the impact of the Trans Pennine railway on the settlements it passed through.

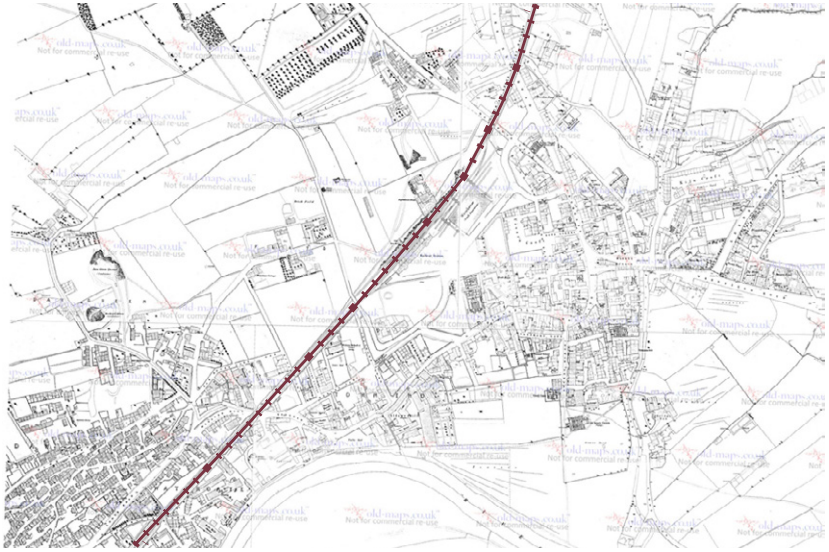


Figure 11: Dewsbury, 1852 Ordnance Survey



Figure 12: Dewsbury, 1855 Ordnance Survey



Figure 13: Dewsbury, 1894 Ordnance Survey



Figure 14: Dewsbury, 1908 Ordnance Survey

As with other towns along the route, Dewsbury's industrial sector predated the arrival of the railway, but the new infrastructure hugely improved the town's connectivity and enabled its continued expansion. Prior to the railways, Dewsbury's main transportation link was the canal system; the River Calder had been navigable as far upstream as Wakefield since the beginning of the 18th century via the Aire and Calder Navigation, and the Calder and Hebble Navigation extended this in 1770.

The railways were especially important to the prosperity and growth of Dewsbury because it established itself as one of the centres of the heavy woollen industry, which used reclaimed wool as its raw material. Rags were collected from all over the country and delivered to the mills of the West Riding for processing; rags were even shipped from overseas to the port of Hull, from where they were transported onward via the railway to Dewsbury and other towns. Being so heavily reliant on both the import and export of materials, the heavy wool benefitted more obviously than other areas of the textile industry from the improved transport links the railways offered.

Competing railway companies opened multiple facilities in Dewsbury in order to capture a share of this market, as they did in many parts of the West Riding. These stations and goods yards are highlighted in Figure 10. This drawing also illustrates how the warehouses and offices of the heavy wool trade were constructed in convenient proximity to these points of transhipment. In these ways, the arrival of the railways created distinctive clusters of commercial townscape that are still recognisable today (despite closures and demolitions).

The success of the heavy wool trade that the railway network made possible stimulated the expansion of Dewsbury. This is revealed in the sequence of Ordnance Survey maps reproduced over the page, which show the town growing outward from its pre-nineteenth century core, and in particular the continuous and extensive spread of new housing for the workers of the textile trade.



© HISTORIC ENGLAND

Figure 15: Aerial view of the centre of Dewsbury in 1935, with the railway curving across the top left corner, and mills and warehouses in the foreground , 1935 (Britain from Above EPW048048)

Reclaimed wool industry

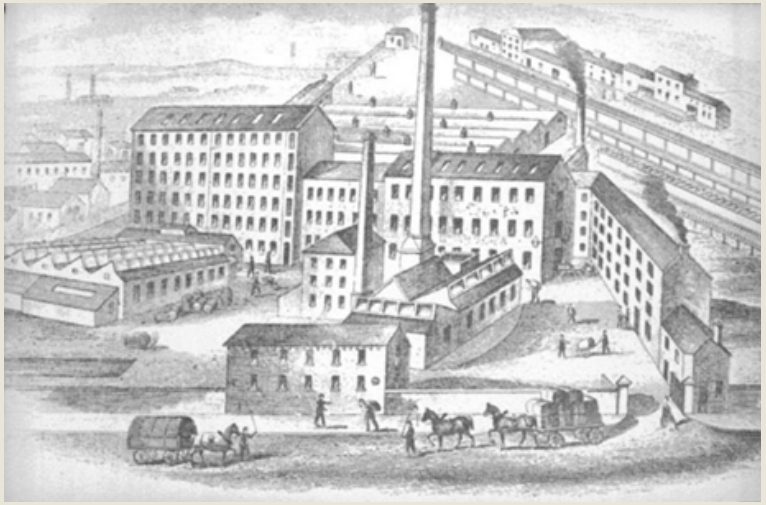
The reclaimed or heavy woollen industry refers to the process of using old rags to produce new, heavy cloth which was commonly used for military uniforms and blankets. The recycling of soft rags was known as 'shoddy' and the technique was developed in Batley, in 1813. The recycling of hard rags was known as 'mungo' and was not invented until the 1830s.

Reclaimed wool was entirely a product of mechanisation and involved shredding scraps of woollen rags into fibres, grinding them and then mixing them with small amounts of new wool. The reclaimed wool in Britain was concentrated in the triangle of land between Dewsbury, Ossett and Morley to this day still known as the Heavy Woollen District. By the middle of the nineteenth century, America and Canada were a large export market for the cloth.



Kirklees Digital Archive

Figure 16: Rag Grinder, Joiner's shop, Dewsbury, c.1922



Kirklees Digital Archive

Figure 17: Batley Carr Mills (Joshua Ellis & Co.) - taken from 'A Descriptive Account of Dewsbury' 1895

6.0 Evidential value

Railways are generally well-documented, through maps, historic company reports, parliamentary records and newspaper accounts. In that regard the five lines which make up the TransPennine route are no exception. However, as with any railway the tangible physical evidence of all the lines and their structures has the potential to reveal yet more about the process of construction and use or to corroborate what the documents say.

6.1 Documentary evidence

At the widest overall level, what surviving documents tend to say least about are the fundamental engineering decisions which determined design of a route. Disputes with landowners or haggling with other interests may be recorded as are the physical challenges that had to be considered, but the discussions which led to their resolution are not so well documented; how the balance was struck between utilitarian or economic priorities and wider design ideals, notably how a line would be moulded to the landscape. On this particular route it is immediately obvious that James Walker as engineer to the Leeds and Selby Railway adhered to somewhat different engineering ideas than, for instance, John Locke and A.S. Jee on the Huddersfield and Manchester Railway. Only by studying the different constituent lines as they have survived today, and matching that analysis against what the historic documents say, is it possible to understand these differences.

6.2 Masonry and sourcing

The individual structures and buildings along all five lines also have the potential to yield more evidence about the process of their construction. For instance on the sourcing of stone and brick for bridges and stations, company records are often helpful, especially in recording when a contractor was lackadaisical or late, but it is the structures themselves which give more definitive evidence. On the Leeds and Selby, for example, we know that Bramley Falls sandstone was barged in via Selby but Magnesian limestone was quarried locally, often in conjunction with the works themselves, but far more remains to be found out about where the quarries were, how the stone was transported and used, and how the bridges were constructed.

6.3 Construction archaeology

The construction archaeology of tunnels is equally important, especially in the case of the widely-renown Standedge Tunnel. The bare outline story of how the first railway tunnel was dug at Standedge in 1847-8 using adits from the adjacent canal tunnel leaves many questions unanswered about working methods, the removal of spoil and the final shaping of the tunnel. The same is true of the two later tunnels of 1868-71 and 1890-94. Even less is known about other tunnels on the route, for instance how the long Morley Tunnel was dug and the excavated material (sandstone and clay) reused elsewhere.

6.4 Cast iron construction techniques

The five lines were built in the era when the advantages of bridge construction in iron were well known, and those advantages were brought into play on two of the lines: Walker's cast-iron arched bridge at Crawshaw Woods on the Leeds and Selby and six surviving Thomas Grainger cast-iron bridges on the Leeds, Dewsbury and Manchester Railway. Close examination of the ironwork of Grainger's bridges reveals construction marks not unlike the marks found in timber construction, suggesting the construction sequence used. This and other structural evidence amplifies what is known from surviving drawings and is particularly interesting because all these examples (both Walker's and Grainger's bridges) seem to be the product of one foundry, J. Butler and Co. of Stanningley, which also supplied bridge castings for other lines. Thus, the examination of these bridges offers the chance to advance our understanding of how they were built, and the relationship between the company engineer and the ironfounder in their design.


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Figure 18: River Calder Bridge (MDL1/8). The detail below shows one of the letters that is believed to relate to the construction sequence


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Figure 19: Ventilation tunnel (centre left) and construction spoil heap (centre), above Standedge Tunnel

7.0
Aesthetic value

7.1 Conscious and fortuitus beauty

Just as in the case of a building or place, the aesthetic value to be found in a railway route can be of two kinds; the conscious design aesthetic deployed in the way the route was laid out and constructed and in the design of individual structures and buildings, and the fortuitous aesthetic arising from the way aspects of the route are experienced. Of course there is always considerable overlap between these two kinds of aesthetic, especially in the case of a railway line where the relationship between the line and the places and landscapes through which it passes has evolved over the years.

7.2 Selection of route

In the design of a railway route the main priority was to link towns and cities in the easiest and least expensive way the terrain would permit. This meant identifying a route on which gradients could be kept to a minimum (Robert Stephenson achieved an average of 1:330 on the London Birmingham), avoiding the need for tunnels, and designing the earthworks so that spoil from one stretch could be used in another. In addition to these necessities some engineers of the pioneering lines sought to select and design a route in the hope that it would be experienced by the traveler as if riding through a landscape park punctuated with picturesque views and buildings. Promotional descriptions of the routes, such as J.C.Bourne's *The History and Description of the Great Western Railway* (1846), stressed the pleasures to be had from that experience. But by the mid-1840s that view of the railway seemed to be too over-idealistic to be worth the additional costs of diverting a line and embellishing the buildings along it. Thereafter the aesthetic quality of a line might be said to be more fortuitous than consciously embedded in its design.

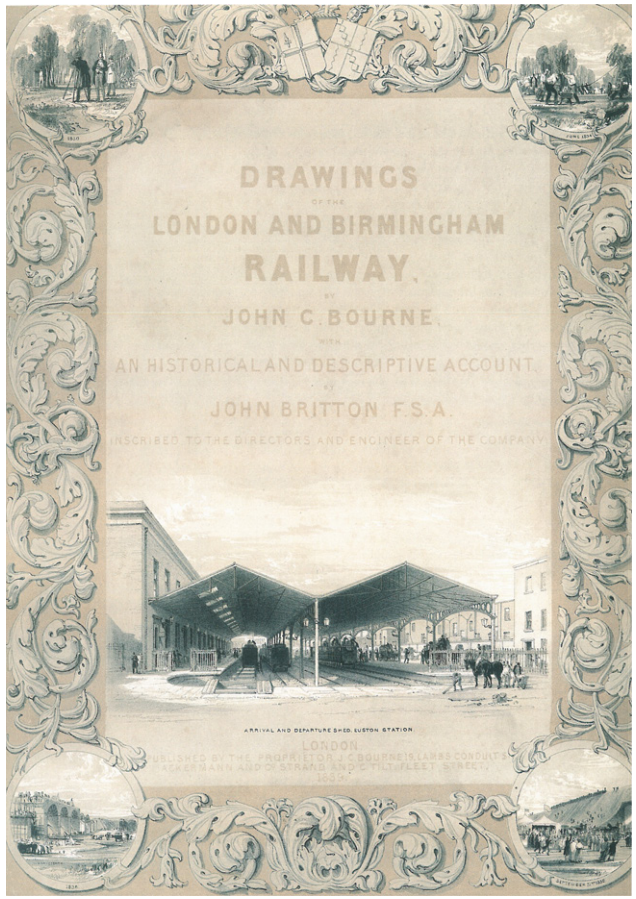


Figure 20: J. C. Bourne, *Drawings of the London and Birmingham Railway*, 1839

7.3 Design of structures

Because of its date, it would not be surprising to learn that James Walker was one of those engineers who sought to design his railway on the basis of more than just practical considerations. But he left no record of his intentions, and descriptions of the Leeds and Selby when new say almost nothing about its landscape effects or its relationship to the many adjoining planned landscapes. However the bridges which he designed, whether seen from the train or by the road user, do suggest that he had an overall aesthetic in mind. The dignity of his elliptical arches (a necessity for the wide track) is immensely enhanced by the quality and detailing of the stonework, including the use of different types of stone for the architectural details (impost bands, voussoirs and parapets) and the facings, plus the carefully-tooled curved ends to the parapets (see fig 21).

On the sections of the TransPennine route built in the 1840s there are structures of almost comparable quality, using the same range of architectural detailing. Grainger's arched iron bridges are in a class of their own in the manner that set out the cast iron ribs and gothic spandrels (see fig 18). Yet like Walker neither Grainger nor other engineers of that part of the route made explicit reference to their design ethos, which has to be surmised from their surviving works.

7.4 Enhancing the landscape

Whatever the intentions of these engineers the fortuitous aesthetic effect of their lines in the landscape is immense. From the train going eastwards there is a splendid sequence of views as the line rises along the Upper Tame valley towards the Standedge summit, followed by similar if not better views along the River Colne to Huddersfield. Beyond Huddersfield towards Leeds the line may not be as obviously scenic but the way it was engineered gives a clear sense of the Calder valley and the hills which follow. By contrast the railway itself provides delights in the way it can be viewed against the landscape. This is at its most dramatic around Saddleworth, where railway, canal and river come together at Uppermill Viaduct (MVL3/31, fig 22) but with more subtle effect as, for instance, in the way Grainger's iron arched bridges are seen from banks of the river and canal which they cross.



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Figure 21: Example of the superb quality of masonry in Walker's bridge for the Leeds & Selby. This is Austhrope Lane (HUL4/21)



© ALAN AXTER LTD

Figure 22: Railway contributing to landscape: Uppermill Viaduct (MVL3/42)

8.0 Communal value

8.1 What is the communal value of a railway route?

The communal value of a railway lies in the way a line is perceived and used, and the associations which it holds in the collective memory. It is harder to trace these qualities in a railway than in a well-known monument or building and particularly difficult to trace in this instance because, as already emphasized, the TransPennine route was not developed and promoted as a single coherent entity. Some railway lines, particularly the Great Western, were launched to wide publicity or like the East Coast route to Scotland (another composite route) achieved renown for their trains and scenery; others acquired a reputation because of their stations or particularly events (real or in films or novels) which happened on them. Generally the TransPennine route has gathered what might termed 'fortuitous communal value' rather than a communal value consciously invested in it from the outset.

8.2 Passenger uses

8.2.1 Original purpose

The lines that make up the route were mostly conceived for goods traffic. The Leeds and Selby was promoted as a way of supplanting the slow and onerous river and canal route from Leeds to the River Ouse and the sea, conveying raw wool, dyestuffs and grain in one direction and finished woollens and worsteds in the other. It could also transport coal and stone from mines and quarries along the route. The lines of the 1840s west of Leeds could carry West Riding woollens to Liverpool for export or Lancashire cottons to Hull for the European market. Passenger traffic was secondary and does not appear to have been fiercely promoted, though the novelty of the Leeds and Selby justified the publication of a passenger guidebook (*The Tourist's Companion (to) the Rail-Road and Steam Packet from Leeds and Selby to Hull*, 1836). Nevertheless, there are a number of distinct ways in which passenger uses have contributed to communal experience and memories of the route:



Figure 23: TransPennine passenger train passing Batley Station, 1978

8.2.2 Port to port: emigration and business

Between 1851 and 1914 2.2 million emigrants passed through the port of Hull. A sizeable portion of these are likely to have travelled from a special platform at Hull Paragon station, along the full length of the Trans Pennine route, to Liverpool. There they would embark on another ship to take them to the new world, because the Merseyside city was the principal port of departure for the United States up to c.1910. For emigrants fleeing persecution in from Tsarist Russia in the late nineteenth century that link between the North Sea and the Atlantic via Liverpool was especially significant.

The importance of the TransPennine route in connecting Hull and Liverpool - the largest ports on the east and west coasts and two of the four largest ports in England - was long part of the popular perception of the line. With the decline in the wealth and influence of these ports cities since the 1960s, this is no longer so strongly felt, but for older generations the TransPennine route remains associated with smart Port-to-Port expresses, timetabled to convey businessmen and the passengers of ocean liners.

8.2.3 Excursions and holidays

For most people along the route the first experience of train travel was on a cheap day excursion or a holiday trip to the countryside or the sea, perhaps in the annual Wakes Week summer holiday that was for more than a century part of the fabric of life for towns and communities across the industrialised West Riding and Lancashire. Excursion trains were organized from the 1850s onwards, often by Sunday Schools, mechanics institutes or 'Going-off' clubs in the towns along the route. On summer Saturdays dozens of such trains would depart for resorts on both the Lancashire and Yorkshire coasts.

Such trips are now a far off memory but they have a present-day equivalent in the many tens of thousands journeys taken every year to Manchester Airport, the principal airport of the North of England. For these passengers, the TransPennine is the first stage of annual holidays to Europe and the rest of the world, and in this form the route is still associated with the excitement and memories of vacations.

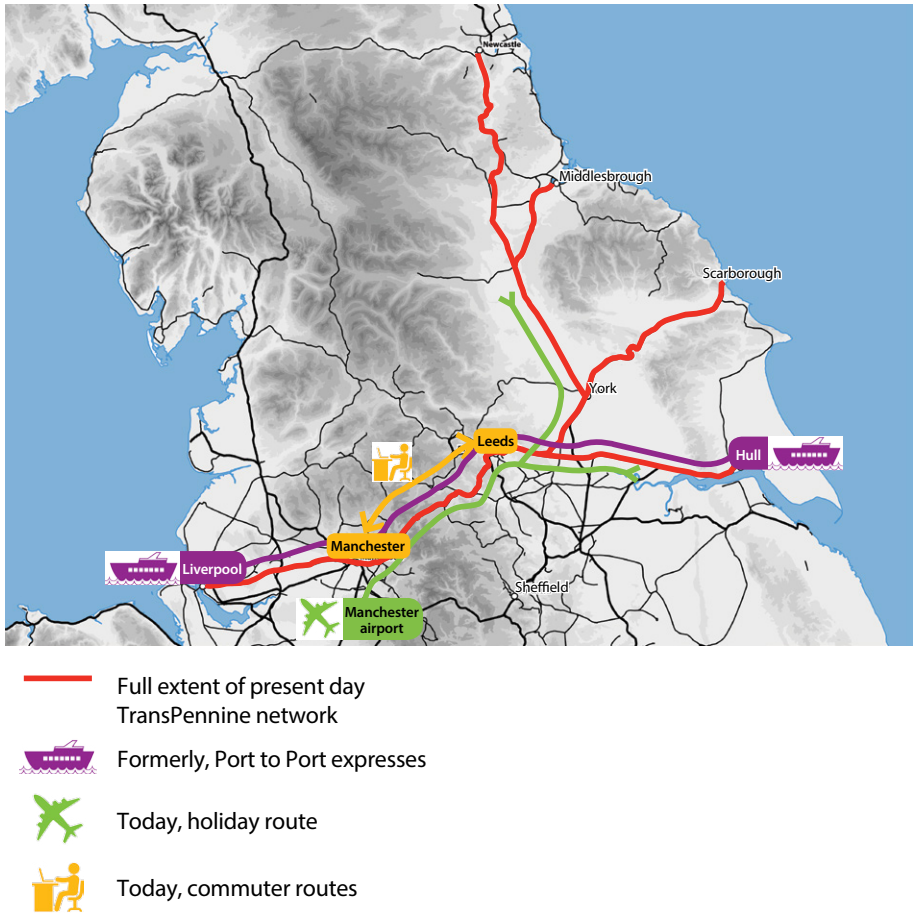


Figure 24: Different public associations with the TransPennine Route

Day excursions are also making a comeback, for example in the growing popularity of the TransPennine 'Ale Trail', inspired by the real ale revival of traditional platform buffets at stations such as Stalybridge and Dewsbury.

8.2.4 Commuting

Many rail routes are closely linked in the public consciousness with the daily journey to work. On the TransPennine, commuting to the principal towns, which for so many people is now their main experience of the line, is essentially a twentieth century phenomenon. Suburban stations such Crossgates in Leeds began to have a recognizable commuter traffic in the 1890s but between the wars a town such as Dewsbury saw very few people commuting – only 161 a day to Leeds in 1921, for example.

8.3 Association with events

Every railway line carries memories and associations, most of them personal and not recorded but some of them embedded in the public memory. For many people Huddersfield and its station is forever associated with the founding in 1895 of the Rugby League at the George Hotel across the square from the station. The route itself traces the geography of 'League – from Hull in the east to St Helens in the West.

Near Crossgates lies a site of a quite different memory - the Barnbow ammunition factory where 35 women lost their lives in an explosion in 1916. Their route to the factory (the site of which is now a scheduled monument) was across Walker's cast-iron Crawshaw Woods bridge, famous as a structure for quite different reasons.

8.4 Backbone of the North

Prior to the Beeching cuts of the 1960s, what is known today as the TransPennine route was one of a number of railway lines that crossed the Pennines, originating in competing companies and offering a similar level of service connecting major towns and cities.

The rationalisation of the network over the last 50 years – the closure of routes and services – has had the effect of elevating the status of the Leeds – Huddersfield – Manchester route above others that at one time were considered equal, such as the Woodhead (closed) and Calder Valley lines (local services only).

In part this is because the route is the primary rail link between Manchester and Leeds, the two cities whose resurgence and commercial and cultural energy have done most to lift the North of England from its post-Industrial decline. Along with the M62, the TransPennine has become the backbone of the North, uniting both sides of the Pennines every day and every week in the lives of millions of workers, students, families and holidaymakers. Its impact on communal experience has arguably never been higher.

9.0
Significance by structure type

9.1 Overview of survival rates

One means of understanding the significance of individual engineer structures is to assess their rate of survival. Broadly speaking, there is a good degree of survival, with the exception of secondary stations, lesser iron bridges and the civil engineering of the small section of Stephenson's Manchester & Leeds Railway that forms part of the route.

In particular, masonry civil engineering structures - bridges, viaducts and tunnels - are preserved in very good numbers. They have group value for this, though individually most are not of the greatest historical or aesthetic value – as explained below. The exceptions are the pioneering age bridges of the Leeds & Selby Railway, which constitute the largest single group of early railway bridges in the world.

9.2 Masonry bridges

9.2.1 Date and survival

Masonry bridges are the most common historic civil engineering on the route.

West of Leeds

The majority of those constructed west of Leeds survive, many in a condition not significantly altered. These bridges are of local interest, and the more complete and substantial ones are of regional interest, because of:

- the aesthetic qualities of their handsome masonry
- their contribution to landscape in local views,
- their contribution to the historical interest of the route; and, because of
- their group value with other aspects of civil engineering on the route.

They are not, however, of substantial national interest, because they date from the heroic age of railway development, when thousands of similar structures were erected, and those that have been altered are of less significance because they are no longer complete and in original condition.

Leeds - Selby

By contrast, the surviving Leeds & Selby Railway bridges are both earlier and much rarer. According to Francis Whishaw writing in 1840, there were originally 43 Walker & Burges bridges on the route. Of these, 17 survive in a largely complete/recognisable state, seven partially survive (that is, in a heavily altered state) and three were rebuilt when a section of the line was widened in 1892. Twelve of the surviving bridges are now listed. This means that on a route of 19 miles, the Leeds-Selby line has a greater concentration of listed surviving bridges than any other early railway, that is early bridges built before the great trunk routes of Robert Stephenson and I K Brunel. By contrast the much better known Liverpool & Manchester Railway had at least 64 bridges in 30 miles of which 10 are now listed (again, excluding viaducts).

Of the 41 listed pre-1835 bridges in England, 12 are Leeds & Selby. Since the 41 includes 10 tramway bridges that predate the railway age proper, the significance of the Leeds & Selby bridges is actually greater. Moreover, aside from the Leeds & Selby, this group includes only 4 other bridges spanning locomotive hauled railways, which are on the Liverpool & Manchester. (Note that these figures would only be marginally different if bridges in Scotland, Wales and Ireland were taken into consideration.)

This statistical analysis illustrates that, as a group, the surviving bridges of the Leeds & Selby are of international significance because they constitute such a high proportion of surviving early railway bridges. Individually, the masonry bridges are not of quite such high significance, for reasons now explained:

9.2.2 Design interest

In the design of stone and brick masonry bridges railway engineers could draw on well-established traditions of bridge construction, particularly stemming from the rebuilding of medieval river bridges and the construction of canal bridges and aqueducts. The treatment of voussoirs, spandrels and parapets might vary but the design language remained essentially the same. There was nothing fundamentally novel in the methods they adopted for sourcing materials, the design of different types of arch or construction techniques. Yet the problems which railway engineers faced were in many respects quite novel, calling for a fresh range of solutions:

- **Scale.** Most railway overbridges were of 27-30ft (8-9m) span to suit two track lines, not much wider than a typical elliptical arched canal bridge of 22ft 6in (7m). What is utterly distinctive about Walker's overbridges on the Leeds and Selby is that they were designed to a 53ft. 6in span (16.7) to suit a four track line, as exemplified in surviving examples such as Aberford Road (HUL4/18) and Brady Farm (HUL4/15, fig. 25, right). This was a bolder innovation than on any other pioneering line (the London and Birmingham was first conceived of as a four track line but built as two track).

- **Viaducts.** Multiple-arched river bridges or canal aqueducts such as John Rennie's Lune Aqueduct at Lancaster (1797) provided a precedent for railway viaduct design but railway engineers developed the same principles for use in much longer, and often higher, structures, such as George Stephenson and Jesse Hartley's nine-arched Sankey Viaduct (1830) on the Liverpool and Manchester. The hilly terrain of the TransPennine route called for a succession of viaducts, from Stephenson's five-arched Mirfield Viaduct, to Grainger's 12-arched Dewsbury Viaduct (fig. 26, right) and the astonishing 45-arch Huddersfield Viaduct of A.S.Jee. Where viaducts have been widened, this was undertaken with great care to match details and materials so that the impact of these works on their aesthetic value is negligible



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Figure 25: Brady Farm Bridge (HUL4/15). Design to span four tracks



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Figure 26: Dewsbury Viaduct (MDL1/19)

- **Skew Bridges.** From the 1780s onwards canal engineers had resorted to skew designs to meet the problem of providing a bridge which did not cross a canal at an exact right angle. Methods for setting out skew arches (and a descriptive geometry for them) were included in construction manuals, notably Peter Nicholson's *Treatise on Masonry and Stone Cutting* (1827). Stephenson adopted that thinking for the design of skew bridges on the Liverpool and Manchester (1828-30), and not long after Walker used the same techniques to bold effect for the wider spans of the Leeds and Selby: six of his skew-arched over- or underbridges survive. At a slightly later date skew bridges of comparable quality but smaller span were designed by A.S. Jee, for instance at Oldham Road (MVL3/28) and Church Street Bridge (MVL3/82).

- **Widenings.** The need to widen the two track sections of the route to four tracks produced a range of solutions for the masonry bridges. Smaller underbridges were often widened in engineering brick or with an iron or steel deck, but Francis Stevenson, the engineer responsible, took particular care in the widening of viaducts, as can be seen for instance at Slaithwaite Viaduct (MVL3/61) and Crimble Viaduct (MVL3/64). Although the arched vaults were extended in brick, the facings and piers were repeated in rock-faced stone in sympathetic deference to the quality of the original design.

9.3 Iron Bridges

There are less than ten surviving nineteenth century iron bridges on the route. By virtue of their rarity and their historical interest, these are all significant.

By the beginning of the pioneering phase of railway development the benefits of iron arched bridge construction well known, thanks especially to the segmental arched bridges of Thomas Telford such as the Galton Bridge at Smethwick (1829). James Walker had already designed an iron bridge over the Thames at Vauxhall (1819, demol.) when he was appointed engineer for the Leeds and Selby. His surviving Crawshaw Woods bridge (HUL4/20, fig. 27) on that line - a 50ft (15.6m) segmental arched span, the spandrels cast integrally with the ribs - is a remarkable survival, the earliest such bridge on a working railway. Other engineers adopted the same thinking, as can be seen in the surviving Victoria Bridge in Manchester (1844) by George Stephenson. Thomas Grainger's two arched bridges on the route west of Dewsbury (MDL1/6 and MDL1/8, fig. 18) are also in the same mode, benefitting from the contribution of the same ironfounder as Crawshaw Woods. They are particularly distinctive that both are skew bridges, involving complex setting-out of the arches. Grainger designed eleven cast iron bridges for the Leeds, Dewsbury and Manchester, of which six survive- three arched bridges and three short beamed structures. By virtue of their age and rarity, these survivals are all nationally significant.



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Figure 27: Crawshaw Woods overbridge (HUL4/20)

9.4 Tunnels

There are nine tunnel bores on the route between Manchester Piccadilly and Selby (though two at Standedge are disused). Thirteen portals are listed. None of these portals is architecturally ambitious or impressive, compared for example with those designed by Brunel for the Great Western Railway (see fig. 29) or Stephenson and Frederick Swanwick for the North Midland Railway.

Only one of the tunnel complexes represented a significant engineering achievement at the time of construction. That is Standedge, which by any measure must be ranked as one of the most important railway tunnels in the country. At over three miles long, it is the third longest railway tunnel (only the Severn Tunnel and the Dore Tunnel between Sheffield and Grindleford are longer) and it has the added interest that its first bore (1847-48) was dug with the aid of cross-workings from the adjoining canal tunnel, itself famous as the longest and highest canal tunnel in the country. The tunneling methods used, involving trial borings, the making of working shafts and headings, and finally the opening-out to the full section and lining the bore, were learnt from coal-mining tunnels and early canal tunnels. But these methods were taken to a new level of complexity at Standedge, including the construction of no less than eight ventilation shafts. The two later bores of 1868-71 and 1890-94 (the sole operational bore today) are almost equally interesting for the way they were threaded alongside the original tunnel.

The other tunnels on the route between Leeds and Stalybridge are of much less interest despite the listed portals, with the exception perhaps of Morley Tunnel (1845-48), 3370 yards long built beneath the town of Morley where its four ventilation shafts are still conspicuous features. The Richmond Hill tunnel on the eastern outskirts of Leeds, built by the Leeds and Selby in 1830-34 was for its time remarkable: it was the first tunnel through which passenger trains were pulled by locomotives. However the need to widen the line in the 1890s led to most of the tunnel being opened out as a cutting.



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Figure 28: Standedge Tunnel, new tunnel east portal (MVL3/40)



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Figure 29: Brunel' Middlehill Tunnel, Great Western Main Line (grade II*)

9.5 Stations

Despite including amongst their number one of only eight Grade 1 listed stations in the country, the stations along the TransPennine are not collectively as significant as other aspects of the route. Three reasons of this are worth highlighting:

1. None of the outstanding station architects, such as G.T. Andrews or Francis Thompson, are associated with the route. The outstanding building, therefore, is J.P.Pritchett's Huddersfield Station (1846-50), designed on a country house scale as the focus for a new part of the town, which features in every history of station architecture. Had Pritchett's seven smaller wayside stations for the Huddersfield and Manchester Railway survived they would constitute an important group of their kind, but only part of his Mossley station still remains.

2. The major city stations – Leeds and Manchester Piccadilly – have been extensively rebuilt since the 1960s, reflecting the substantial growth in their use. This in turn is linked to the post-industrial success of these cities in the last two decades. So, in each case, only parts of the complex are today historical (Leeds: the Midland concourse; Manchester Victoria: the station frontage)

3. The minor and secondary stations are either late nineteenth century rebuildings (Selby 1871, Garforth 1873, Stalybridge 1885) or, more frequently, they were closed and demolished as part of the withdrawal of loss making facilities in the 1950s and 1960s. Of the survivors, Dewsbury and Batley stations, on the Leeds, Dewsbury and Manchester part of the route, one Tudor the other classical, still have parts of their original buildings, though much altered. With its canopies and footbridge, Dewsbury is by far the more cohesive whole, with significant aesthetic and historical value.

One final station should be mentioned, though it has not been part of the operational network for many years. Remarkably, James Walker's original Selby Station of 1834 survives, latterly as a goods shed and now in a non-rail business. A utilitarian brick structure with a timber roof, barely altered from the dock warehouses and transit sheds with which Walker was so familiar, it is nevertheless the oldest covered station – the oldest trainshed – in the world, and therefore a building of some international importance. (Structures – extensively altered - survive from one other station on the Leeds & Selby: Milford. Most significant is the depot, which is one of the oldest surviving goods sheds in the world.)



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Figure 30: Huddersfield Station

10.0
Conclusion: summary of significance

A cross-section of the North
The multifaceted significance of the TransPennine Route from York, Selby and Leeds to Manchester Victoria reflects its complex origins and the diversity of landscape through which it passes.

Uniquely, the route is a slice through England, a coast to coast cross-section of its geology, landscape and character. This informs the significance of the route in multiple ways and creates recognisable changes in character. The engineering reflects the different challenges set by geography, from poorly drained coastal plains to the Pennine watershed: the geology is echoed in the materials used to construct bridges and viaducts; urban and economic development is witnessed in the contribution of the railway to the history and townscape of towns and settlements; and community experience and memory encapsulated through its association with work, sport, leisure and education.

Amalgam of different lines
The route itself is a modern amalgam of five historically separate lines. Two of these were built in the earliest or 'pioneering' era of railway construction, one of them - the Leeds & Selby Railway of 1830-34 - being the first major trunk railway to be built following the opening of the Liverpool & Manchester Railway. The other three were constructed in the intensely active period of railway construction 1844-49.

Historical and evidential values
The principal historical and evidential value of the route lies in the fact that it demonstrates how five railway companies, employing different engineers, approached the problem of constructing a railway through the difficult Pennine terrain. What they achieved is mainly to be seen in the bridges and tunnels which they designed, and in the overall engineering of the different parts of the route. The stations along the route were never as celebrated as those on some other lines, with the exception of Huddersfield Station (1846-50, Grade I).

Because of the landscape which the route traverses, the most notable surviving features are its bridges and viaducts, many surviving as built and some as sensitively extended when parts of the line were widened in 1876-91. The materials from which they are built echo the geology of the route because they were mostly sourced locally. The superbly constructed and detailed masonry arched bridges designed by James Walker for the Leeds & Selby are exceptional for their time in being designed for an intended four track railway. The surviving examples constitute 50% of all the surviving railway bridges in the world built before 1835.

Other well-preserved bridges and viaducts, designed by George Stephenson, Thomas Grainger and A.S. Jee are of less historical interest but are none the less fine examples of the way railway bridge design evolved from principles established by previous generations. As well as their historical significance they provide potential evidence of nineteenth-century construction techniques and sourcing of materials.

The seven iron bridges on the route - one by James Walker and six by Thomas Grainger- also offer constructional evidence of how they were assembled and the role of the iron founders involved. Of the tunnels, Standedge Tunnel (1847-48) is historically in a class of its own, being the third longest railway tunnel in the country built (and later augmented) to an exceptionally complex design.

Aesthetic value
Unlike some other early railways, there is little evidence that the lines which make up this route were consciously designed to achieve an overall aesthetic effect. Practical engineering considerations took priority. However, because of the way the railway was threaded through the landscape this achieved a fortuitous aesthetic value, both for those travelling along it and those seeing the line from a distance. The location and character of the bridges and viaducts are part of that effect, especially in the upper Tame and Colne valleys.

Historical value
Passengers looking out from the train can observe the way in which the route shaped communities and fostered industry. This historical value is, for example, expressed in urban areas by the buildings built around the railways for the heavy woollen industry, and uniquely in Huddersfield by the town planning focussed on the magnificent station façade.

Communal value
The ways in which passengers can observe and understand landscape, geology and historical change may also be thought of as part the route's communal value. The railway has become familiar to millions because of the way it is seen and used; together with the M62, it now forms the backbone of the North. Intended originally to be mainly a freight route it has become a major passenger line for long-distance and commuter passengers. Some are regular travellers and commuters but for others since the opening of the route a journey has been an occasional excursion to the sea, or today, the prelude to holiday trip by air. For emigrants fleeing persecution in Tsarist, Russia, the trip from Hull to Liverpool was a literally once in a lifetime journey. What the route has meant to people since it was first opened in 1834-49 is an enduring, though less recorded part of its significance..

Appendix A: Character zones

Purpose and methodology

It is a fundamental characteristic of the TransPennine Route that its context, setting and constituent structures are not uniform. This reflects its varied geology, geography and historical origins.

Identifying these different character zones is useful because it enables designers and decision makers to better understand the significance of a structure, or group of structures or area.

In turn, this can help the project and statutory planning bodies to understand where the impacts of the projects on significance might be greatest, and help the project and its engineers to develop designs that respond appropriately to context.

The character zones were identified by analysing the combination of:

- geology
- landscape
- urban spread
- historical evolution of the route
- historical engineering and architecture on the Route

Fieldwork was undertaken in summer 2018 and the results debated at the project workshop in September 2018. From this, nine character zones were identified, as described on the following pages.

Because of their nature, these character zones do not have hard boundaries.

The Character zones are:

- **Vale of York**
- **Magnesian Limestone ridge**
- **Leeds**
- **Morley watershed**
- **Calder Valley**
- **Colne Valley**
- **Standedge watershed**
- **Upper Tame Valley**
- **Greater Manchester**

The plan on the following page shows the route divided into these character zones. This is followed by descriptions of each zone.

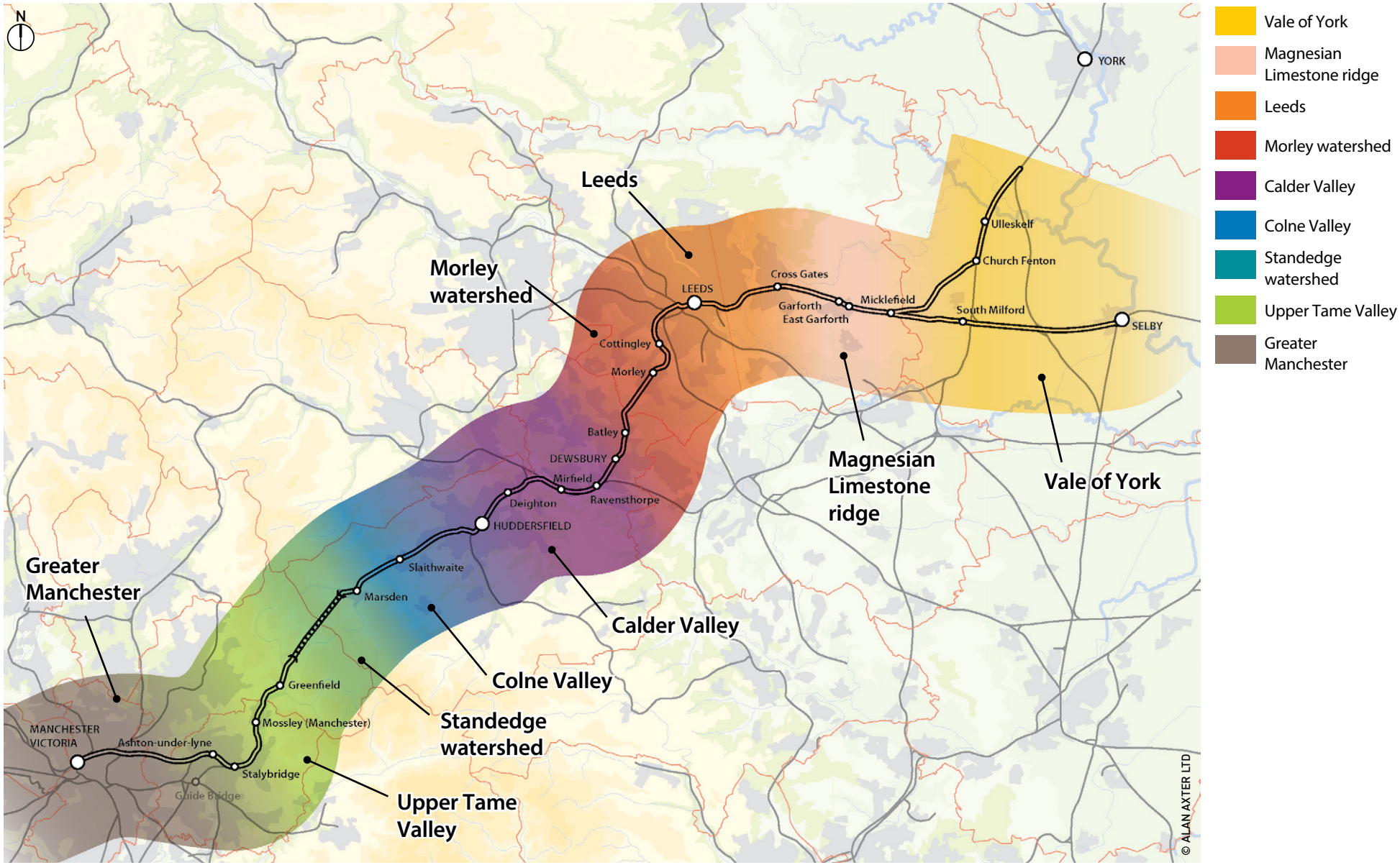


Figure 31: TransPennine Route character zones

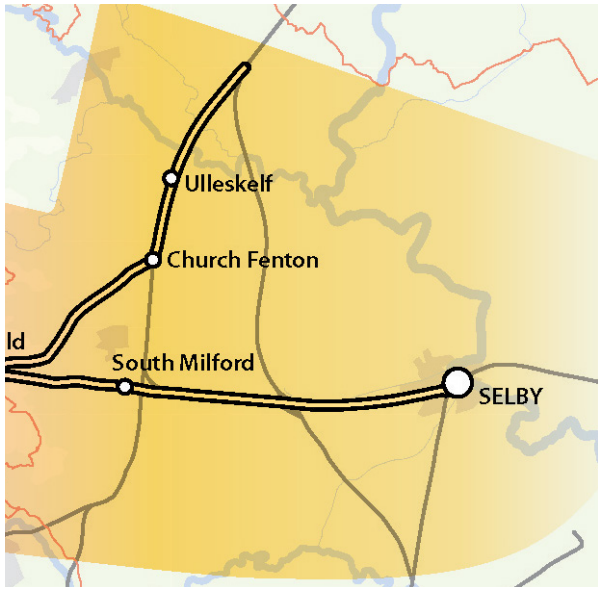
Vale of York

Character

- Extensive alluvial plain crisscrossed by linear man-made features: drainage channels, land boundaries and roads. These illustrate how the land has been controlled and managed by man.
- The railway is slightly raised above the plain, for drainage, but is not prominent because it itself is a flat linear construction with few projecting structures.
- There are few major railway structures and no good local building stone.
- There are few settlements and therefore few stations.

Significance

- The railway contributes to the significance of the Vale of York as an example of the way in which humans have engineered this landscape and built infrastructure to cross it.
- Because of the flat topography and absence of large structures, the engineering of the line is not a significant aspect of the experience of the Vale of York – though the journey along the route is a good way to experience and understand the landscape.
- Selby, the end of the route, has two significant stations listed Grade II: the present station (of the 1870s) and the original Leeds & Selby trainshed of 1834 (now commercial premises).







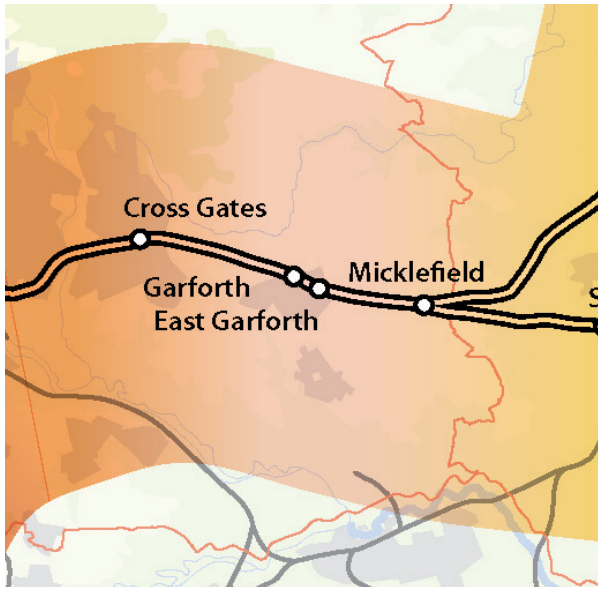
Magnesian limestone ridge

Character

- North-south outcropping of limestone, producing a gently sloping landscape.
- Dry higher land that has been used for settlement and communication for millennia (e.g. Roman). Concentration of country estates and parks.
- Railway largely in cutting so not prominent and in few long views.
- But a concentration of highly significant historic structures because the Leeds & Selby had to traverse multiple roads.
- Locally dug stone of variable quality (e.g. the Magnesian limestone was only used for rubble walling by the Leeds & Selby Railway).

Significance

- Railway structures do not make a significant visual contribution to the landscape because they are almost all in cuttings.
- However, individually and as a group the structures are historically significant because of their early date and high quality design.
- In their use of local materials, the bridges express local geology.







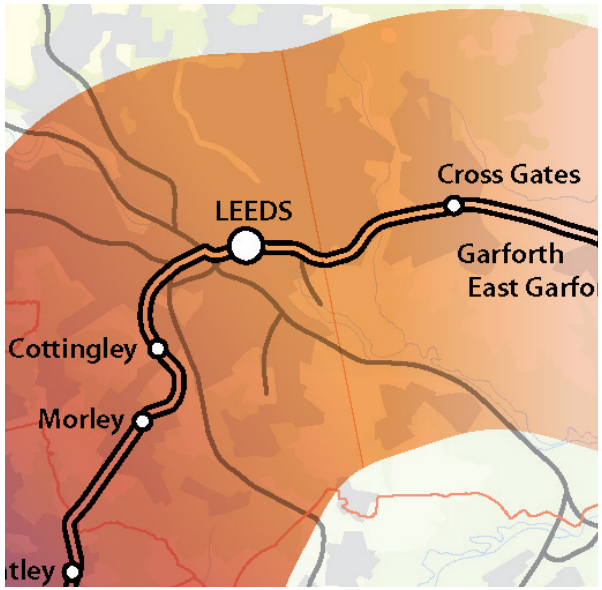
Leeds

Character

- Major urban area, spreading up the sides of the lower Aire valley from the historic riverside settlement.
- Threading the railway through the city and its topography results in a high concentration of complex railways structures including deep cuttings and long viaducts.

Significance

- The railway is elevated through the city centre on a viaduct which makes a substantial contribution to the townscape in close context and in some wide views.
- The view from the train is a good way to understand the topography, urban geography and architecture of the city.
- The most significant structure is the masonry undercroft beneath Leeds Station, including the highly atmospheric Dark Arches that carry the railway over the River Aire.







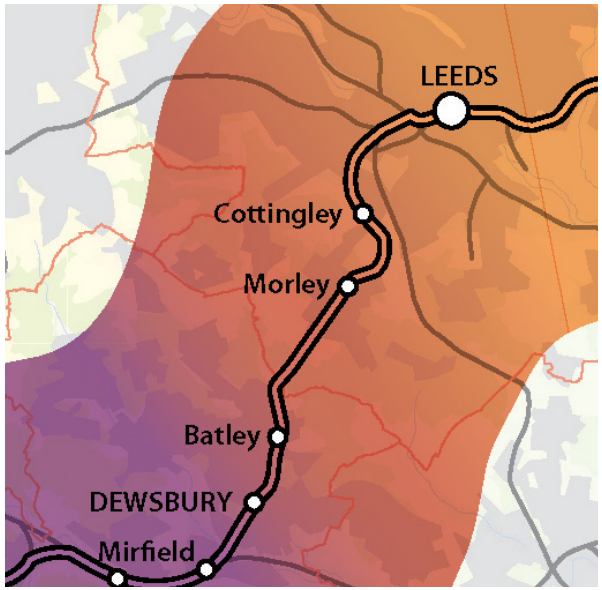
Morley watershed

Character

- The route passes under the watershed between the Aire and Calder valleys by passing through the Morley Tunnel.
- Emerging from the west portal of Morley Tunnel, the landscape context is quite changed: the route has entered the Leeds Green Belt and the rolling Pennine edge landscape is largely agricultural.

Significance

- The route here is still two track and as a result a number of the fine masonry bridges designed by Thomas Grainger survive little altered.
- Mostly these are experienced in short views, for example when roads pass beneath the railway. The line is not prominent in longer views because it is not generally on embankment and because of the extent of linside vegetation.







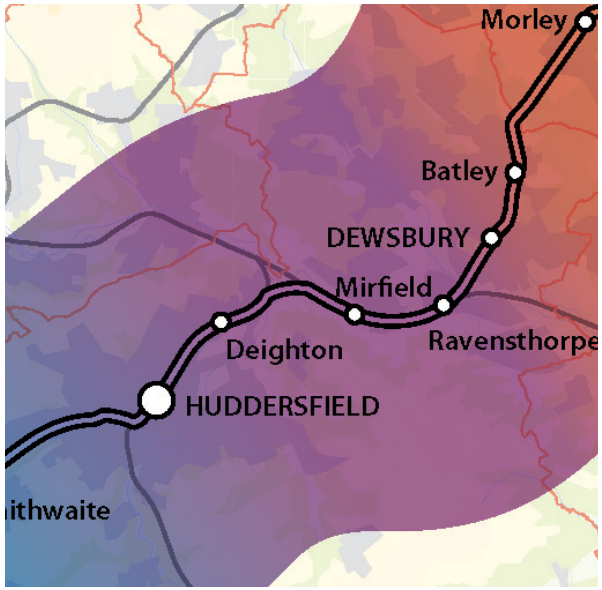
Calder Valley

Character

- The line descends towards the Calder Valley and then follows it upriver before turning west up the lower reaches of the Colne Valley to Huddersfield. There is urban development more or less continuously along this stretch of the route.
- The rivers, supplemented by the Calder and Aire Navigation, fostered industrial development. The railways further sustained this expansion.
- This section of the railway has been widened to four lines because of the intensity of its use.

Significance

- There are five significant river / canal crossings which are prominent in local views, and from where the landscape can be understood from the train.
- Because the line has been quadrupled, no structures survive in their original state, though in some instances bridges and viaducts have been widened carefully in closely matching materials and details, and so retain much of their significance.
- In towns such as Dewsbury, Batley and Mirfield the impact of the line is measured in the surviving mills, warehouse and other woollen industry buildings that cluster around stations and sites of former siding and goods facilities. The infrastructure of the railways can itself be significant part of this townscape, for example Dewsbury Viaduct. In Huddersfield, the railway was the cause of a major piece of urban and civic planning, centred on the magnificent station frontage.







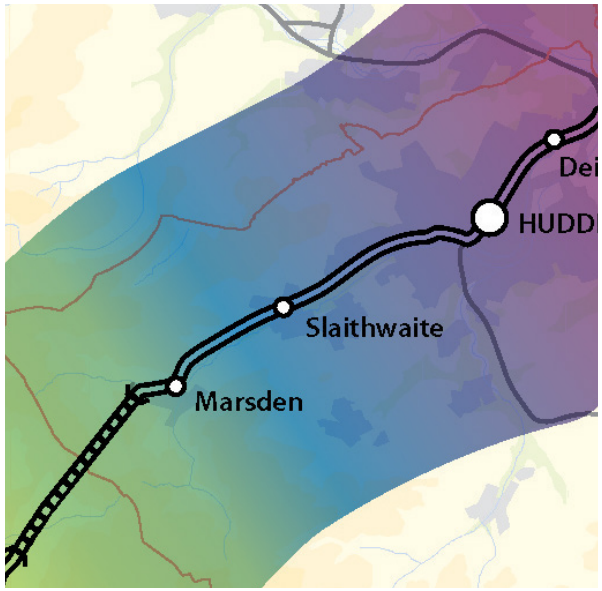
Colne Valley

Character

- West of Huddersfield, the character of the route and its setting changes, as the continuous urban development in the lower valley gives way to Pennine dales landscape, dotted with mill towns and farming settlements.
- As the route climbs up the side of this valley, it plays a strong role in the character of the landscape.

Significance

- At a distance, the line of the railway winding its way along the hillside and crossing side valleys on substantial viaducts is integral to its character and an understanding of how man has shaped and managed it. Close up, it contributes to the townscape of settlements such as Marsden and Slaithwaite, powerfully expressing the part played by the railway in their economic and urban history.
- Viaducts and bridges were widened sympathetically, using carefully matched materials and details. This has aesthetic and historical value, so that alteration does not diminish from the positive contribution these structures make to the landscape and townscapes of the valley.
- Because the bridges and viaducts are constructed of locally sourced stone, they blend comfortably with the landscape and the settlements, buildings and structures of the valley, contributing to their significance.







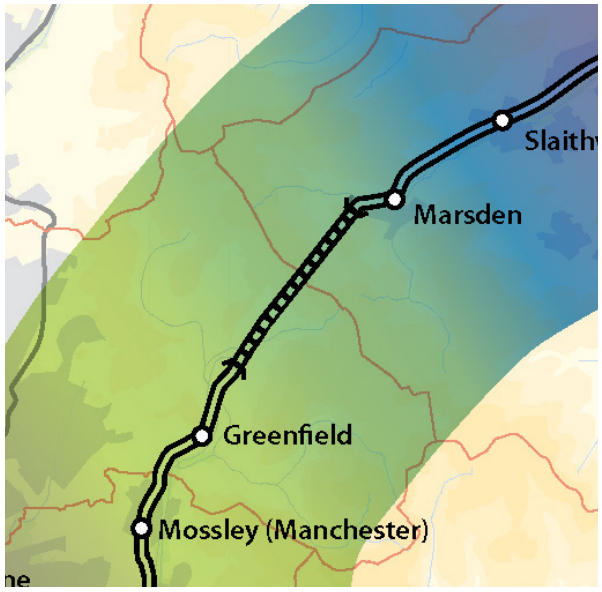
Standedge Watershed

Character

- The railway passes under the Pennine watershed through the 3 mile Standedge Tunnel.
- The engineering leaves extensive marks in the landscape. Most complex is the east portals of the tunnel, where the interface of rail, canal and watercourse result in interwoven and ingenious civil engineering.
- On the moors, the evidence of construction and operation are prominent over long distances: spoil heaps, tramways, ventilation shafts and other structures

Significance

- The Standedge Tunnels are of great significance, for their engineering achievement, for their historical importance to trans-Pennine trade and movement and for illustrating the major developments in infrastructure – canal and then rail – that were instrumental in stimulating and sustaining the Industrial Revolution. These aspects of significance are most memorably expressed at the eastern entrances, which is historic infrastructure site of national importance
- On the moorland above the tunnels, the visible (and buried) archaeology of construction and operation are an integral part of the significance of the landscape.







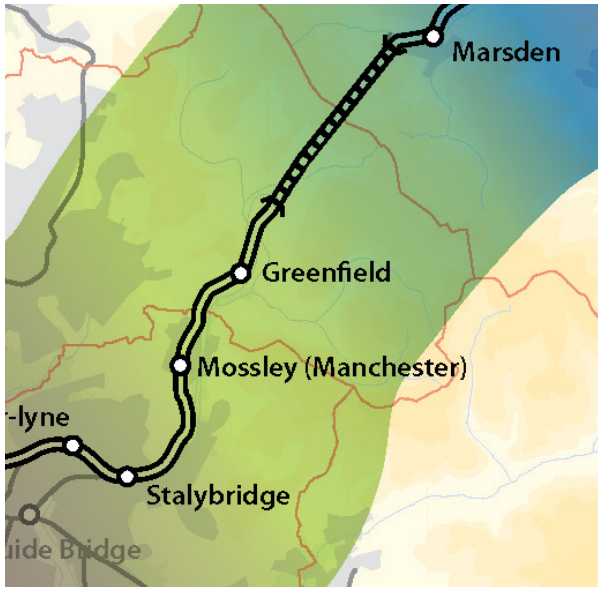
Tame Valley/Saddleworth

Character

- By contrast to the Colne valley, the Upper Tame Valley is much more enclosed and the descent to Manchester more rapid: in this the passenger is experiencing the different geological and landscape characters of the Pennine's western scarp compared to its more gentle eastern incline.
- This makes for a more picturesque landscape setting, of upland farming interspersed with former mill centres (once powered by the River Tame and its feeders).

Significance

- The railway makes a positive contribution to this picturesque managed landscape, by the skill through which it was engineered and the quality of the masonry structures.
- These structures are constructed of locally sourced stone, which helps them to blend with the landscape and the settlements and structures of the valley.
- The structures survive little altered in large numbers, because the line was not quadrupled (but stations do not survive in good condition, as indicated by the absence of listing).
- The railway is experienced from public vantages points both in close up (most spectacularly beneath Uppermill Viaduct) and in long views of it snaking down the valley. Its contribution to these views is significant for the reasons explained here.







Greater Manchester

Character

- West of Stalybridge, the route transitions from the character of the Tame Valley to that of Greater Manchester. Topographically, this is the alluvial plain formed at the foot of the Pennines by the rivers that converge on the Mersey. The resultant landscape is quite flat.

- It is also heavily urbanised, and the line passes through a cross section of this: from former satellite mill towns, part absorbed in postwar housing, to interwar housing, then the nineteenth century expansion of Manchester and finally at Victoria Station the historic commercial hub of the city created at its medieval core on the River Irwell.

Significance

- The contribution of the railway to the significance of east Manchester is quite small. Visually this is because much of it is in cutting and architecturally and historically this is because structures are of little interest, often because they have been extensively rebuilt.

- The exception is in and around Manchester Victoria Station, where the massive approach viaducts and bridges are substantial elements of townscape and streetscape. Some of these iron bridges and the historic parts of the station itself in themselves structures of historical and aesthetic value..







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