FUTURE OF THE SKIPTON-COLNE RAILWAY FORMATION

Future of the Skipton-Colne Railway Formation

Report

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Prepared for:

Lancashire County Council
C2 Guild House
Cross Street
Preston
PR1 8RD

Prepared by:

Steer Davies Gleave
1 York Place
Leeds
LS1 2DR

[t] +44 (0)113-242 9955
[i] www.steerdaviesgleave.com

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1. INTRODUCTION

Background to the Study

1.1 Steer Davies Gleave was commissioned by Lancashire County Council (in association with North Yorkshire County Council) to advise the authorities on the potential for reinstating the disused rail alignment between Skipton and Colne.

1.2 The line has been closed since 1970 but the railway formation has largely been protected from development since this time. Some of the structures on the route have been removed but, on the whole, the track bed is free from development. There has, however, been *some* development on the route.

1.3 The railway formation runs largely parallel to the A56. The road has experienced a significant growth in traffic in recent years. This has to some extent been fuelled by the development of the M65 in East Lancashire which has increased the attractiveness of the M65/A56 axis for certain types of trans-Pennine traffic flows. The villages through which the A56 passes are ill equipped to handle such levels of traffic (in particular the HGV component).

1.4 Lancashire County Council has pursued a bypass proposal for the A56 to relieve the villages of the negative impacts of this traffic. The scheme was identified in the 2001-2006 Local Transport Plan (LTP) as third on the County's list of highway major scheme priorities. The 'Villages Bypass' scheme is essentially a series of linked bypasses around Earby, Kelbrook and Foulridge. North Yorkshire County Council has a proposal for a Thornton-in-Craven bypass and which it has agreed would be developed in conjunction with the Lancashire-led scheme. In developing the road proposals for the A56, Lancashire County Council engineers have produced a preferred option that would build over almost half of the 11.25 miles of track bed. The geographical context for the study is shown in Figure 1.1.

1.5 In 2001 a pressure group was formed with the aim of initially protecting, but eventually reinstating the rail link between Skipton and Colne. The Skipton & East Lancashire Rail Action Partnership (SELRAP) is committed to safeguarding the track bed for the route so that it can be reinstated at some point in the future. Later in 2001 SELRAP undertook a study of the potential for reinstating the route. This study identified a number of significant engineering issues that would have to be overcome and taking this into account suggested an outline cost for reopening the route.

1.6 The main findings of the SELRAP study were:

- That no significant obstacles (in structural or engineering terms) to prevent the line from being reopened;
- That at two points on the route, road developments have encroached on the alignment (Skipton Western Bypass and Vivary Way in Colne); and
- That the capital cost of reinstating a double-track railway would be in the order of £28m.

FIGURE 1.1 LOCAL CONTEXT MAP OF SKIPTON-COLNE RAILWAY LINE

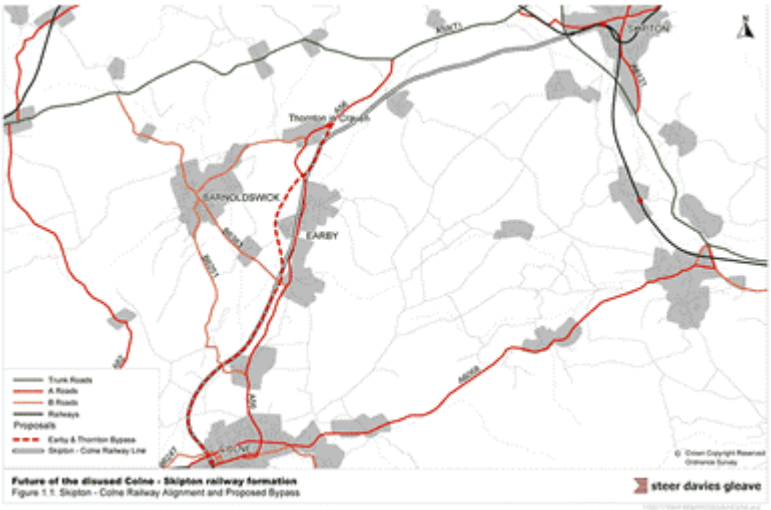
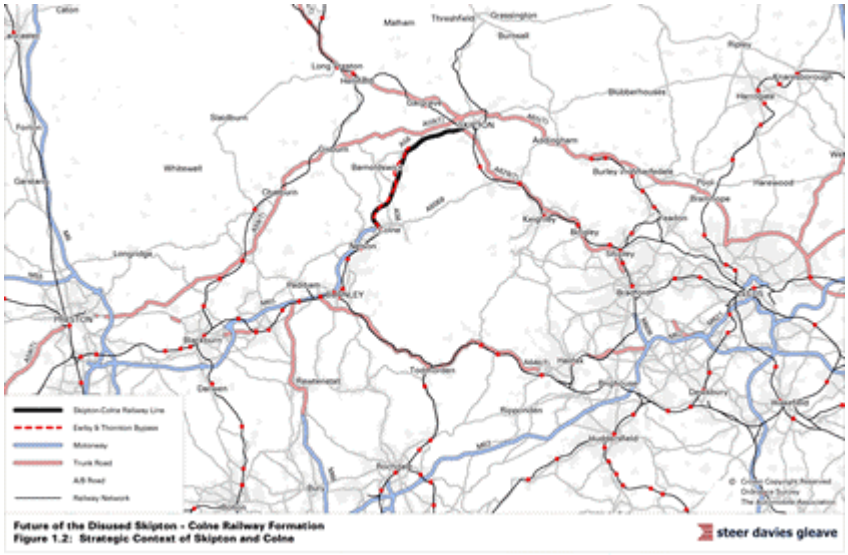


FIGURE 1.2 MAP OF SKIPTON-COLNE SHOWING STRATEGIC CONTEXT



The Authority recognises that if its current preferred alignment for the Village Bypasses remains as such, a decision to proceed would compromise the railway formation and would effectively prohibit the reinstatement of the railway on the established formation.

Study Remit

1.7 This study was tasked with providing reasoned advice as to whether:

- Lancashire County Council should protect (or not) the former track bed in the adopted Lancashire Joint Structure Plan for future public transport use (i.e. rail reinstatement);
- North Yorkshire County Council should consider an alternative alignment for the Thornton-in-Craven bypass;
- The alternative of building a new railway alongside the A56 proposals where the former track bed is used is a realistic (or not) proposal based on a preliminary assessment and using the present criteria for the appraisal of major schemes.

1.8 Specifically this study comprised the following tasks:

- Consultation with a range of stakeholders;
- Engineering study of the road and rail proposals to determine the costs and issues involved in reinstating the railway, the road schemes and the two in conjunction;
- Review of potential passenger demand for services that might use the reopened link (both local and inter-regional service options potentially exist);
- Review of the role of the link as a freight artery, again for more locally generated freight flows and as part of a national freight routing strategy;
- An appraisal of the rail scheme to assess potential value-for-money and affordability and performance against a wider range of economic, social and environmental objectives.

2. BACKGROUND

Profile and History of the Line and Adjacent Lines

Blackburn – Burnley

2.1 The line between Blackburn and Colne via Burnley was opened as two separate sections in 1848, providing services from Manchester Victoria to Colne and Blackburn via Bury and the formerly triangular station at Accrington. The section between Radcliffe and Bury now forms part of Manchester Metrolink and from Bury to Rawtenstall is now a heritage railway. Trains between Manchester and Blackburn now run via Bolton and Darwen. There is no longer a direct service from Accrington or Burnley to Manchester, except on Sundays.

2.2 The section from Blackburn to Burnley (Gannow Junction) is twin track throughout, controlled by Preston signalbox. From Blackburn station, line speed is 50mph (15mph on crossovers) until Daisyfield Junction, where the route to Clitheroe diverges. The linespeed then rises to 70mph, aside from a few restrictions, until Rose Grove West Junction, where a short branch from Padiham Power station joins. From there it is one mile to Gannow Junction, where the single-track branch to Colne diverges from the main route to Hebden Bridge (the Copy Pit route). The single-track branch has a line speed of 50mph.

2.3 Line speed is further restricted west of Rishton tunnel (60mph towards Blackburn, 50mph towards Burnley), and at Accrington station, where there is a maximum speed of 10mph due to severe curvature.

2.4 Stations are at Blackburn, Rishton, Church & Oswaldtwistle, Huncoat, Hapton and Rose Grove. Express trains to Leeds and York call at Burnley Manchester Road. There is a level crossing on the line at Huncoat, which is operated from an adjacent crossing box.

2.5 The line is classified as Route Availability 8 (RA8): virtually all types of diesel unit and locomotive are permitted to run over the line. Route Availability ratings run from 1 (most restrictive) to 9 (least restrictive) and correspond to permitted maximum axle loadings.

Burnley - Colne

2.6 The line through Burnley to Colne was part of the East Lancashire Railway's system opening in 1849, being the northernmost section of their line from Manchester Victoria via Bury. By 1910, Colne had services to a variety of destinations, including London, and 11 local trains and 20 express trains operated in each direction. In recent years, rationalisation of service patterns has produced an hourly train from Blackpool South. Singling of the line to save on maintenance costs occurred in 1986, coinciding with the restarting of express services over the Copy Pit route from Burnley Manchester Road to Bradford and Leeds.

2.7 The existing route runs from Gannow Junction for 6½ miles to Colne station. The line is single track throughout, with no passing loops and two level crossings at Brierfield and Barkerhouse Road in Nelson (Chaffers Sidings). The line is controlled from Preston signalbox, and is subject to One Train Operation (effectively a single signal block extending over the whole of the branch). It is only accessible to and from the Blackburn direction.

2.8 Line speed is generally 50mph, except for restrictions at Gannow Junction (20mph on junction), and Burnley Central station (20mph). Stations on the branch are at Burnley Barracks, Burnley Central, Brierfield, Nelson and Colne. The level crossing at Brierfield is operated by means of manned barriers. The level crossing at Chaffers Sidings is operated by traincrew via a control wire and plunger. The train must therefore stop before passing over this crossing.

Colne – Skipton

2.9 The line was built as an extension of the Leeds and Bradford Railway in 1848. It provided the first access across the Pennines to Colne, a year before the line from Colne to Accrington opened. The line closed in February 1970, but was not one of those proposed for closure in the Beeching Report.

2.10 The former stations between Skipton and Colne and the dates when they closed are shown in Table 2.1. While passenger services on the branch ceased in 1970, Elslack and Foulridge had already closed by 1960. Passenger services on the Barnoldswick branch followed in 1965.

TABLE 2.1 STATIONS ON THE SKIPTON - COLNE LINE (SOURCE: JOWETT'S ATLAS, 2000)

Station	Closed
SKIPTON	
Elslack	1952
Thornton-in-Craven	1970
Earby	1970
Barnoldswick (on branch)	1965
Foulridge	1959
COLNE	

2.11 The route is better graded than any other cross Pennine route, with a maximum gradient of 1 in 141 over a short distance, but otherwise rises at less than 1 in 200.

Skipton – Shipley – Leeds / Bradford

2.12 The Leeds – Bradford line, built by the Leeds & Bradford Railway opened in 1846, and was followed by an extension north westwards from Shipley along the Aire Valley to Skipton, which opened in 1847. The line was effectively an extension of the Midland Railway from Derby and Sheffield.

2.13 Leeds – Skipton became an important main line with the completion of the Leeds, Settle & Carlisle railway in stages from 1849, which carried Midland Railway trains from London to Scotland. It is now an important freight route, and the section between Skipton and Leeds is a busy commuter line, which was electrified in 1995.

2.14 The Skipton – Leeds / Bradford line is double track and electrified throughout, and the signalling is controlled from York IECC (Integrated Electronic Control Centre). From Skipton North Junction, where the line from Colne once joined, the speed limit is 45mph up until about a mile after Skipton station, as the line curves sharply. On the Down Shipley Fast line from Skipton North Junction to Skipton, currently a freight loop, line speed is currently 25mph. This could potentially be used to provide the line from Colne with a dedicated track to Skipton station.

2.15 South of Skipton line speed is then generally 80-90mph, with a few short restrictions, until Armley Junction, where the line from Harrogate joins, and 50mph until the Leeds City station approaches, where it reduces to 25mph.

2.16 Speed limits are reduced through Keighley station (60mph), around Shipley station (50-70mph), and at Apperley Junction, where the line from Ilkley joins (50mph). Express passenger trains call at Shipley and Keighley, so are not delayed by the restrictions there.

2.17 Between Shipley and Bradford Forster Square, the line speed is 50mph except for a 20mph restriction south of Shipley station. Stations are at Skipton, Cononley, Steeton & Silsden, Keighley, Crossflatts, Bingley, Saltaire, Shipley, Frizinghall, Bradford Forster Square and Leeds.

2.18 The line is classified as RA8, allowing all classes of diesel and electric unit that operate in the area, and all classes of diesel locomotive to operate. On the western side of Shipley station triangle, and between Shipley and Skipton, electric locomotives are subject to restrictions, primarily due to electrical power constraints.

3. POLICY REVIEW AND CONSULTATION

Policy Fit

3.1 The potential future of the Skipton – Colne railway alignment needs to be considered within the established Regional and County Council policy context. In Tables 3.1 and 3.2 below, we set out the transport-related objectives of the regional and county authorities.

TABLE 3.1 FIT WITH REGIONAL OBJECTIVES

Organisation/ Authority	Policy	Relevance of Skipton-Colne
Government Office for the North West Regional Planning Guidance	Achieve greater economic competitiveness and growth, with associated social progress	Low
	Secure an urban renaissance in the cities and towns of the North West	Low
	Ensure the sensitive and integrated development and management of the coastal zone, and secure the revival of the coastal resort towns	None
	Sustain and revive the Region's rural communities and the rural economy	Medium
	Ensure active management of the Region's environmental and cultural assets	Medium
	Secure a better image for the Region and high environmental and design quality	Low
	Create an accessible Region, with an efficient and fully integrated transport system	High
Government Office for Yorkshire & Humberside Regional Planning Guidance	Maintenance of high and stable levels of economic growth and employment: - regeneration of areas damaged by past industrial decline as well as capitalising on economic growth points	Low
	Social progress which recognises the needs of everyone: seeking social equity and inclusion protecting rural communities and recognising their particular needs seeking wider housing opportunity and choice	Medium
	Effective protection of the environment: making full use of urban land and minimising the loss of greenfield land protecting and enhancing natural resources tackling urban traffic congestion and reducing transport related emissions making urban areas attractive, high quality, safe places where people choose to live minimising the loss of the rural landscape, maintaining and where possible enhancing its diverse character	Low
	Prudent use of natural resources: minimising travel needs and maximising use of energy efficient modes limiting pollution to what is compatible with health and biosphere capacity reducing energy consumption and encouraging use of renewable energy sources	Medium

TABLE 3.2 FIT WITH LOCAL AUTHORITY OBJECTIVES

Organisation/ Authority	Policy	Relevance of Skipton-Colne
Lancashire County Council Local Transport Plan	Protect valuable natural and built environments and biodiversity: reduce motor traffic levels in urban areas and restrain growth elsewhere reduce noise and air pollution reduce greenhouse gas emissions	High
	Improve safety for all transport users: reduce the number of transport related accidents reduce crime and increase confidence when travelling	Medium
	Reduce the number and length of journeys and maintain and expand sustainable economic activity: achieve best possible value from the existing transport infrastructure reduce the need to travel support sustainable economic and social activity	Low
	Promote accessibility to everyday facilities, especially for those without a car Realise the potential of public transport Address the transport issues in rural areas improve public and community transport encourage journeys by cycle and on foot improve sustainable transport links into and out of Lancashire	High
	Integrate land use and transportation planning Integrate all forms of transport to give a more efficient transport system Enhance social inclusion through a real choice of transport work in partnership with transport providers and users promote a sustainable pattern of development raise awareness of transport problems	High
North Yorkshire County Council Local Transport Plan	Promote social equality by providing genuine choices of travel mode which meet the travel needs of the socially and physically disadvantaged	Medium
	Limit traffic growth by minimising the need to travel and developing alternative non-car travel modes	High
	Provide a safe, efficient and well maintained highway network as part of an integrated transport strategy	Medium
	Minimise the adverse impact of traffic on the environment, particularly with regard to noise and air pollution	Medium
	Provide a quality public transport system for as many residents as possible which recognises the importance and impact of tourism in the County	High
	Reduce the number and severity of casualties arising from road accidents in the County	Medium
	Facilitate opportunities for economic regeneration, growth and the sustainable movement of goods.	High

Consultation

3.2 There is a considerable amount of interest in the future of the Skipton-Colne railway formation across a wide range of stakeholders. As part of the study, we have sought the views of a number of key stakeholders as to the role of both the rail link and the A56 Villages Bypass proposals within the Skipton to Colne transport corridor.

3.3 A list of organisations, with which contact was deemed to be essential, was agreed with the client steering group. A mixture of face-to-face and telephone discussions was undertaken to garner views under three key headings:

- Problems – what are the problems that affect the consultee's area of interest? The intention is that not only transport problems are explored but other issues that could be related to, for example, economy, safety, accessibility or environment.
- Opportunities – what opportunities exist to improve the situation and to go at least some way to meeting the identified problems? The potential road and rail solutions might only be two of a wider number of solutions.
- Issues – what are the issues that might prevent the opportunities being realised? These might be physical/topographical, institutional, funding and so on.

3.4 Face-to-face interviews were undertaken with:

- Pendle Borough Council;
- SELRAP;
- Countryside Agency.

3.5 Telephone interviews/discussions were undertaken with:

- Yorkshire Dales National Park Authority;
- TARMAC;
- SRA;
- North West Regional Assembly.

3.6 Clarification on specific issues was obtained from the Highways Agency through initial telephone contact followed up by written communication.

3.7 We have not attributed specific comments and views to individual consultees. There are, however, a number of exceptions where the source of the comments was either important to the report's ultimate conclusions (the SRA's comments fall into this category) or was readily identifiable. The SRA response is summarised separately in the conclusions section of this report.

Problems

3.8 A recurring theme throughout the discussions was the poor economic performance of the East Lancashire area. It is seen as vital to support existing industry and encourage new employers into the area but there is a recognition that this needs to be done in as sustainable a way as possible.

3.9 The A56 has large volumes of traffic upon it, which creates localised problems for the villages through which it passes. The road is seen, in parts at least, as being of sub-standard construction for the levels and nature of the traffic that is currently using it. The M65 effectively 'dumps' traffic at Colne, which must then use the A56 to continue across the Pennines.

3.10 Traffic levels on the corridor create congestion at peak seasonal times for access to the Yorkshire Dales National Park, which pulls in a large number of its visitors to the Wharfedale area from the East Lancashire towns.

3.11 The bus services operating in the corridor are generally seen as being of poor quality although it is acknowledged that the frequency levels are reasonably good. The services are operated by old vehicles and fares are expensive. Buses also do not operate very late into the evening.

Opportunities

3.12 The railway is seen as a means of promoting social inclusion (access to jobs, tertiary education in particular), promoting the viability and attractiveness of the local area that would in turn encourage younger people to stay in the area rather than relocate to the larger towns and cities. Rail services are also seen as a means of reducing car dependency.

3.13 There were differing views expressed as to the potential role of the railway, in terms of strategic or local traffic. Some consultees felt that the potential for local traffic outweighed the potential role as a strategic link while others held the opposite view.

3.14 There were also differing views on the potential for freight traffic. In a number of discussions freight was not mentioned with the focus being entirely on passenger services. The principal potential freight generator, TARMAC, saw little benefit to its operations from the rail link. Others, however, emphasised the desire to see greater amounts of freight taken by rail and in particular quarry traffic from the Dales National Park. There was widespread acknowledgement that one of the key issues for railfreight was in developing suitable depot facilities at the delivery end of the flow.

3.15 The reinstatement of the rail link would allow rail services to operate from Lancashire and Greater Manchester to bring in Yorkshire Dales National Park visitors. There are seen to be synergies between this rail scheme and the proposals to reinstate the link to Threshfield (Grassington).

3.16 The Village Bypass scheme is seen as a means of overcoming the local traffic problems along the route from the traffic leaving the M65 in Colne. The potential role of the A56 as part of a strategic alternative to the M62 was also highlighted (as an opportunity rather than an issue). Some felt that the impact of the traffic on the A56 could be mitigated by treating localised pinch points rather than to build almost an entirely new road. Some consultees expressed the view that better transport accessibility was vital to the economic development of East Lancashire and that this could be best achieved by road improvements rather than a new rail link.

Issues

3.17 Rail has an advantage over bus service development since there are no issues of cross border operation that can create difficulties in procuring and finding the necessary funds to support bus services.

3.18 In order for rail service levels to attract high numbers of users, they must operate at attractive frequencies. There was a widely held acceptance that the railway might not be able to be justified at present but that the opportunity to reinstate passenger services at some point in the future should not be compromised. However, in some quarters the view was expressed that promoting a bypass of the A56 was more urgent than future rail reinstatement and that the bypass timescale should not be delayed if for any reason the County Council wished to protect the railway alignment.

3.19 There was a general recognition that the development of services on the Skipton-Colne railway could generate or further exacerbate capacity problems elsewhere on the network. The limited amount of available capacity between Skipton and Leeds and around central Manchester were highlighted as potential 'indirect' issues.

3.20 The role of Skipton station as a potential bus-rail interchange was noted by some consultees. Whilst the development of a bus station facility in Skipton away from the station is likely to go ahead, the success of rail services on the line will be enhanced by the promotion of bus-rail interchange at Skipton.

3.21 Development of either a road or railway needs to be done in a manner that is sensitive to the local area therefore limit the extent of 'upward' construction, minimise light pollution, protect rights of way particularly bridleways for which there should be adequate protection for horses against traffic noise.

3.22 The Yorkshire Dales is increasingly seen as an attractive place to live for people who work in Leeds and Bradford. This puts pressure on house prices within the Park and can make it increasingly difficult for local residents to afford housing. The Yorkshire Dales expressed the concern that opening up the Lancashire side of the Pennines to the Park could encourage people from East Lancashire and even parts of Greater Manchester to live and Dales and commute from there. This would exacerbate the house price problem.

4. ENGINEERING REVIEW

General Route Description

4.1 The Skipton to Colne line is located in the counties of Lancashire and North Yorkshire, and measures some 17.1 km from the buffer stops at Colne to the end of the head shunt in Skipton. Slightly more of the route length falls within Lancashire. The route passes through open countryside except where it runs alongside the settlements of Foulridge and Earby.

4.2 The line is disused and has a double track formation throughout. The route remains largely intact, track and ballast have been removed but most minor structures are in place. Vegetation and small trees have taken over the formation to varying degrees.

4.3 Gradients are shallow and the only horizontal curve of note is a lengthy 875m radius curve between Colne and Foulridge around the land mass of Colne Edge.

Ownership

4.4 Lancashire County Council Property Group has confirmed its ownership of the corridor over a 5.0km length from Lancashire Gill (north of Foulridge, as indicated on drawing 5301/02 in Appendix B) through Earby to the county boundary (as indicated on drawing 5301/03). Notably, the land ownership plans show title over the areas of garden that encroach upon the corridor in Sough and Earby.

4.5 The Strategic Rail Authority retains ownership of the trackbed between Colne station and Lancashire Gill.

4.6 North Yorkshire County Council owns a relatively short section of the trackbed in the vicinity of the former Thornton-in-Craven station site. The extent of this ownership is indicated on drawing (the section from the county boundary to Skipton) although some sections in the vicinity of Thornton and Skipton have been sold to private landowners.

4.7 The remaining section of trackbed not described above is in private ownership. This totals some 7km of the 17km route and runs from Thornton-in-Craven through to Skipton. A short section is owned by the Highways Agency for the Skipton Bypass.

Post Closure Constraints

4.8 Post closure the route has been affected by the following constraints:

- the sale of parts of the rail corridor to private landowners;
- at-grade construction of Vivary Way in Colne across the former trackbed;
- the laying of a medium pressure gas main within the trackbed between Foulridge and Earby;
- the lease of parcels of the track bed to adjacent residential landowners (as garden extensions) in Earby and Sough;
- use of the route as an informal right of way, notably within Earby;
- at-grade construction of the access into the Earby Employment Area;

- the use of the former track bed as part of the forecourt to commercial premises at Elslack;
- the use of the former track bed to access Low Ground Farm (in the vicinity of Thornton) and adjacent buildings that have been converted to residential use;
- the complete or partial removal of bridge structures, notably the multispan structures across the Leeds – Liverpool Canal in Foulridge and the River Aire crossing near Skipton;
- the construction of the A629 Skipton Bypass on embankment across the line;
- the closure and deterioration of the former platform 5 in Skipton Station;
- the general deterioration of drainage systems, structures and earthworks due to cessation of maintenance activities;
- the designation of the corridor as a Biological Heritage Site.

Route and Re-instatement Description

Gannow Junction to Colne

4.9 The existing Colne branch line leaves the main Halifax – Blackburn main line at Gannow Junction as a single-track crossover and then runs the 10.3km to Colne as a single track within a double track formation.

4.10 Maximum line speed is 50mph with a route availability of RA8 (all locomotives, coaching stock). The line works as one-train staffless operation, there being a manned barrier at Brierfield level crossing and a train crew operated barrier at Chaffers level crossing near Nelson.

4.11 There are 5 stations on the branch, details of which are given in Table 4.1.

TABLE 4.1 COLNE BRANCH STATIONS

Station	Platform Provision
Burnley Barracks	Single side platform, former double track northbound platform remains, but disused and sub-standard.
Burnley Central	Single side platform, former double track northbound platform removed. Development encroachment.
Brierfield	Single side platform, former double track northbound platform remains but disused and sub-standard.
Nelson	Former island platform, one side disused.
Colne	Single side platform, former northbound double track platform removed

4.12 Of note to this Study is that the single track utilises the 'southbound' half of the formation with the exception of a section between Burnley Central and Brierfield where the alignment switches to the 'northbound' half. Additionally, the Brierfield level crossing retains sufficient width for double track whilst the Chaffers level crossing is single track only. It has not been possible to ascertain whether the remaining single track has been slewed to optimise the alignment around curves etc. Some bridge decks have been 'singled'.

Colne towards Foulridge –(Appendix B Drawing no. 5301/01)

4.13 Beyond Colne Station the former rail corridor is obstructed by an all weather outdoor football facility and the construction of the A6068 Vivary Way, an urban dual carriageway linking the end of the M65 motorway with Colne and ultimately the A56 into North Yorkshire. No alternative rail alignment appears practicable to avoid the pitches and therefore they would need re-locating if there is to be a rail reinstatement. Vivary Way is discussed in more detail later in this section. There may be significant opposition to the loss of the sports facility if no suitable alternative premises can be found.

4.14 The rail corridor then passes beneath Barrowford Road overbridge, a two span structure with side arches that remains the responsibility of the British Rail Property Board. The multiple span has been retained from the historic rail layout that served locomotive sheds and sidings to the north. The bridge is in good condition.

4.15 Continuing northwards, the corridor runs alongside Hiers House Lane in a wide, stonewall retained cutting before entering a shallow cutting to skirt around the high ground of Colne Edge.

4.16 Underbridge 118 still exists as a double track structure with a riveted iron deck and is in good condition.

4.17 Overbridge 117 remains the responsibility of the British Rail Property Board. It carries the Red Lane public highway and again is in good condition.

4.18 An at-grade crossing to Slipper Hill Farm is the next feature of note. It is unclear whether this is a new at-grade crossing as underbridge 116 exists some 55m to the north. Note that this bridge has an unusually low clearance of some 2m. Further investigation will be required to establish whether underbridge 116 offers a realistic alternative to the at-grade crossing, but for the purposes of this study it has been assumed that an automatic half barrier level crossing would be provided upon re-instatement. Bridge 116 is in good condition with a riveted iron deck.

4.19 The ground within the cutting from Vivary Way to the Slipper Hill Farm crossing is poorly drained and it has been assumed that a new positive drainage system would be provided along this length as part of the re-instatement (1700m).

4.20 Another at-grade crossing serves the private road leading to Holly Bush Farm and it has been assumed that this could be operated as a user-worked crossing with either telephone or miniature stop lights.

Foulridge to Kelbrook – (Appendix B Drawing no. 5301/02)

4.21 On the approach to Foulridge the corridor enters a cutting to pass beneath overbridge 114. This bridge carries Whitemoor Road and remains the responsibility of the British Rail Property Board. It is in good condition. Approximately 630m of the cutting bed in this vicinity appear to be very poorly drained and therefore are likely to require a new positive drainage system upon re-instatement.

4.22 A haulage company presently occupies the former station site at Foulridge although use of the site appears limited. Sufficient land is available to accommodate twin 112m platforms and car parking although it should be noted that a dwelling is under construction at the time of writing adjacent to 'Station House' that will be in close proximity to the former rail corridor. The access track to the allotments will be severed by the re-instatement.

4.23 Bridge 113 across the Leeds & Liverpool Canal has been demolished and the abutments removed by cutting back the embankments. Reconstruction as either a single or double track structure would be relatively straightforward with good access at both ends. The canal width at this point is some 12m with a requirement to maintain navigation for 14 ft (4.3m) canal boats during construction.

4.24 North of the canal bridge the route runs on embankment up to the at-grade farm crossing from Cragg Farm. It is anticipated that this would become a user worked crossing.

4.25 Underbridge 112 has had the bridge deck and upper half of the abutments removed but could readily be re-instated.

4.26 It is possible that the at-grade farm crossing located some 55m to the north of bridge 112 could be made redundant by use of the bridge but an user-worked crossing has been assumed for the purposes of costings. A similar approach could be taken with the at-grade crossing associated with Great Hague Farm by re-routeing this to use underbridge 111. Underbridge 111 is in good condition.

4.27 The medium pressure gas main (discussed later in this section) is evident where it rises out of the trackbed to cross Lancashire Gill.

4.28 Between the Great Hague Farm crossing and underbridge 110 there is evidence of private use of the trackbed by vehicles. Underbridge 110 is generally in poor condition with cracked stonework and missing stone parapets.

4.29 The route remains on a lengthy embankment some 6m in height through this section before entering a cutting to pass beneath Barnoldswick Road. Underbridge 109 is in good condition. The Barnoldswick Road overbridge is in good condition and of relatively modern construction.

Earby to Thornton in Craven – (Appendix B Drawing no. 5301/03)

4.30 On the approach to Earby the route runs alongside the small settlement of Sough. Again, the medium pressure gas main is evident as it emerges from the formation to cross the New Cut stream, to the south of the housing area.

4.31 Approximately half of the 37 dwellings that back onto the rail corridor have extended their rear gardens to encroach upon the former railway land. It is noticeable that this encroachment consistently follows the centreline of the former trackbed and that the land boundaries are defined by 'permanent' fences and planting. Further garden encroachment of a similar nature has taken place in Earby from four properties adjacent to Salterforth Road.

4.32 The rail alignment passes through Earby along the western side of the settlement, with at-grade crossings of both Salterforth Road and the A56. The Salterforth Road crossing is in close proximity to a priority controlled 'T' junction whilst the A56 crosses the corridor at a skew angle of 45 degrees. A further at-grade crossing serves the Earby industrial/commercial development (including Wardle Storey) to the north of the settlement. A distance of 750m separates the Salterforth Road crossing from the A56, which in turn is 250m from the industrial estate crossing. The rail corridor between the crossings and beyond up to the county boundary appears to be extensively used as an informal right of way.

4.33 The former Earby station and sidings site is now occupied by a variety of trading business units including a haulage company.

4.34 On leaving Earby the rail corridor forms the western boundary of an industrial/business estate before entering a cutting leading through to the Lancashire / North Yorkshire county boundary. The at-grade crossing of Booth Bridge Lane marks the point of the former station site that served Thornton in Craven. The redundant platforms are still largely intact. An automatic half barrier level crossing has been assumed to cater for the crossing of Booth Bridge Lane, but there is the possibility of diverting the road to the Brown House Farm access underbridge.

4.35 To the north of Thornton Station the Brown House Farm underbridge has had the deck removed and the upper part of the stone abutments taken down. The adjacent Brown House Beck underbridge is in good condition.

Elslack – (Appendix B Drawing no. 5301/04)

4.36 On the approach to Elslack, the footpath overbridge is currently closed pending repair works by North Yorkshire County Council. In Elslack itself the former track bed has been altered to permit vehicular access from Elslack Lane to the Burwen Castle Roman Fort site. Underbridge 99 is in good condition. Underbridge 98 has had the deck and upper half of the stone abutments removed.

4.37 Adjacent to the northern abutment of bridge 98 the former trackbed has been incorporated into commercial / industrial premises. However, the track corridor is free from buildings and it appears that the premises are now disused. Physically reinstating the railway should be readily achievable.

4.38 Overbridge 97 carries Church Lane and is still the responsibility of the British Rail Property Board. The bridge is in good condition although the trackbed shows signs of poor drainage in this vicinity.

4.39 Between bridge 97 and Low Ground Farm the trackbed is now used for access to the farm and a newly converted dwelling (on the opposite side of the corridor from the farm). Some 400m (of 600m in total) single-track road has been surfaced with a 100mm concrete slab. It is thought that the rail corridor access has been chosen as a superior alternative to the original farm access along Eller Gill Lane. It should be possible to reinstate the old access were the railway to be re-opened but a user worked crossing would be required to the new dwelling house.

4.40 Adjacent to Broughton Hall the private footpath overbridge has been demolished. The cutting in the vicinity of Railway Plantation is poorly drained and there is some evidence of side slope instability. Parts of the cutting slope have been altered by mechanical means, possibly as part of drainage works associated with the plantation.

Skipton – (Appendix B Drawing no. 5301/05)

4.41 Emerging from the Railway Plantation cutting the trackbed runs onto another lengthy embankment as it leads up to the River Aire bridge. The underbridge adjacent to Banner Hill is in good condition but has had the stone parapets removed. Some signs of recent excavation are evident at the location of the Busky Beck culvert, probably to facilitate repairs. Again, underbridge 94 is in good condition but has had the stone parapets removed.

4.42 The multi-span bridge River Aire bridge (number 93) has been demolished and the abutments cut back into the embankments. Some of the original bridge piers remain as cut-off circular steel sections. Reconstruction as either a single or double track structure would be relatively straightforward, with good access at both ends.

4.43 Between the River Aire bridge and the A629 Skipton bypass the trackbed remains on embankment. Underbridge 92 is in good condition. Just to the north of bridge 92, within the former trackbed, there is what appears to be an inspection chamber housing a stop tap. It is unclear what this represents although it was noted that a nine-inch water main was seen distant from this location.

4.44 Before entering Skipton the trackbed is crossed by the A629 trunk road. This area is discussed in more detail later in this report.

4.45 A headshunt for the Grassington branch forms an obvious tie-in point to the existing rail network. This allows running through to platform 4 and the disused platform 5, and in turn access to the Leeds and Grassington lines.

Structures and Earthworks

4.46 There were originally 5 overbridges and 18 underbridges along the route, including the significant structures of the Leeds – Liverpool canal crossing and the River Aire crossing. The condition of the underbridges where they remain appears fair although it should be noted that for re-instatement the condition would need to be excellent. Part of the re-instatement process will be assessment of all structures for condition and strength.

4.47 It is doubtful that existing structures will meet the onerous requirements of full RA10 freight loading without significant strengthening works.

4.48 It has not been possible to ascertain whether any onerous gauge related restrictions would be imposed by the existing structures. However, as the reinstatement of the railway will be regarded as new build then full structure gauge clearances will be required in accordance with Rail Inspectorate requirements. These may be greater than that prevalent when the structures were originally built and therefore re-instatement of a double track railway may require structure widening. This is normally achieved by rebuilding.

4.49 Further modifications to bridges carrying public highways are likely to be required to protect the new railway from errant road vehicles.

4.50 It has also not been possible to ascertain the nature and condition of any underground structures such as culverts or service crossings but it is considered unlikely that any major improvements will be required.

4.51 Earthworks appear to be in good condition with the exception of some possible cutting instability in the vicinity of Broughton Hall. Embankment and cutting slopes were generally observed to be shallow, however, modern analysis of slopes may highlight the need for theoretical strengthening works at some locations. Detailed investigation and inspection will be required as part of the design process.

Reinstatement Options

4.52 For the purposes of this Study two basic scenarios have been considered. The first is a 'low-cost' option of providing a single track between Skipton and Colne with a passing loop. It is envisaged that this level of infrastructure could cater for a limited passenger service.

4.53 The second option is a more comprehensive reinstatement of a double track railway, including double track through to Rose Grove, which could cater for a higher level of passenger service, long distance services and freight.

4.54 In both cases the construction works required for reinstatement are likely to be as follows:

- advance works to divert/alter utility apparatus;
- creation of construction access points;
- measures to protect ecologically significant areas clear of the formation;
- clearance of vegetation and trees on the existing trackbed and where overhanging or liable to instability;
- general clearance of detritus deposited since closure;
- removal of topsoil and soft-spots. (Note that it appears that the original track ballast was recovered as part of the track removal following line closure);
- alterations to earthworks
- repair and alter existing structures and drainage systems;
- construct new structures, drainage systems, stations and level crossings;
- grade and trim formation surface;
- deposit new ballast layers on geotextile or drainage layers as appropriate;
- install track panels with further ballasting;
- carry out rail welding and stressing;
- install lineside troughing, cabling and equipment;
- erect lineside fencing;
- complete rail line and level;
- construct tie-ins to existing rail network;
- commissioning and approvals.

Single Track Option Reinstatement

4.55 This 'low cost' option would see the existing single track at Colne extended to Skipton with an 800m passing loop somewhere between Colne and Skipton[1]. Target linespeed would be 75mph but with headways limited by the loop and signalling arrangement to 1-2 trains per hour in each direction. Upgrading for freight loading has not been allowed for. Structures and level crossings would be constructed or reinstated to suit a single track only.

4.56 With the exception of signalling which is discussed below, no other infrastructure upgrades between Gannow Junction and Colne have been included in this option.

Double Track Option Reinstatement

4.57 Provision of a double track from Skipton to Colne assumes a higher level of passenger service than the single-track option, plus the possibility of use by freight. Both assumptions sensibly lead to the requirement for additionally providing double track between Gannow Junction and Colne. Significantly higher headways than the 'low cost' option would be possible, depending on the signalling specification. Clearly this has significant cost implications, notably for the four stations on the existing route, the need for double track structures plus the diversion of the medium pressure gas main between Foulridge and Earby away from the railway corridor.

4.58 For the purposes of the cost estimate, it has been assumed that the upgrade of the existing line would be carried out during a total closure of the railway, the service being provided by a bus replacement operation. Again, target linespeed would be 75mph with moderate frequency headways.

4.59 It has also been assumed that the single track cross-over at Gannow Junction would remain, double track being provided beyond the junction, and that the existing track layout at Skipton could cater for the required train movements.

4.60 For the double track option some walkways may be required to bring structures up to modern standards. Also, formation width will need to be increased to meet modern line spacing and cess walkway standards which may entail some widening of the formation by extending or retaining cuttings and embankments.

Signalling

4.61 It has been assumed for the purposes of the cost estimate that a new solid state signalling system would be required for the entire line between Gannow Junction and Skipton, the existing one train working system being considered unsuitable for extension or modification. This applies to both single and double track options.

[1] Subsequent analysis and discussion will show that the ideal place for a loop is at Earby station. Timetable constraints may determine otherwise and necessitate a loop somewhere just north of Elslack though it is preferable to hold passenger trains in a station to await clearance for single line working.

4.62 The numerous at-grade crossings would be integrated with the signalling and telephony system.

4.63 For the double track option, the signalling control centre could either be Preston or York, Preston currently being responsible for south of Colne and York responsible for Skipton. Handover arrangements will be required.

Freight

4.64 Upgrading the double track option for use by freight could have a significant impact on costs from widened structures if enhanced gauge clearance is required, both to the existing and disused sections. In addition, the higher loadings will require a greater degree of strengthening works to underline structures and, notably, probable upgrade of existing structures on the existing Gannow Junction to Colne section.

Gas main

4.65 A medium pressure gas main runs along the former trackbed from Foulridge though to the A56 crossing in Earby, a distance of some 4.7km. It is thought that this has been done through a wayleave agreement with Lancashire County Council. The pipe can be observed in two places where it leaves the trackbed to cross structures and it is evident that different sides of the corridor are used.

4.66 It is likely that the construction of the pipeline was such that contractor's plant worked alongside the pipe trench rather than the pipeline being positioned in the centre of the trackbed. It is therefore possible that reinstatement of a single-track railway corridor could be carried out without the need to relocate the gas pipe as access should still be possible. Transco would need to be further consulted about the detailed feasibility of this assumption for access and maintenance works etc. It has been assumed that the gas pipe remains *in-situ* for the single track option.

4.67 A double track railway reinstatement would require the diversion of the gas pipeline away from the rail corridor, as the track would prevent access for maintenance and emergency work. Given the difficulties of negotiating wayleaves and access through open countryside it is likely that the only realistic diversion route would be along the line of the current A56. Extensive traffic management for one-way working would be required along this strategic and busy traffic route to facilitate construction.

Earthworks

4.68 The width of the former trackbed varies along the length of the route between 8 and 9.5m. A double track railway built to modern standards with ballast shoulders and cess walkways requires some 11m. As the re-instatement will be considered by Network Rail and the Rail Inspectorate as a new build railway, the fact that it follows the line of a former rail corridor is incidental and provision of a cross-section that meets current design criteria should be assumed as mandatory.

4.69 This assumption has two significant effects on the proposed double track re-instatement. Firstly, there will be major cost items associated with providing the required formation width, and secondly much more of the embankment and cutting

slopes will be included within the construction activities. This will have a detrimental effect on the ecologically significant vegetation growing upon them.

4.70 Suggested measures for providing the increased formation width for the double track option are illustrated in Figure 4.1.

Stations

Burnley Barracks

4.71 The redundant northbound platform would be reinstated for the double track option. A fully accessible ramp could be provided from the adjacent road overbridge thus avoiding the need for a costly footbridge.

Burnley Central

4.72 New development on railway land since closure has compromised the option of simply reinstating the northbound platform. An initial assessment indicates that the track alignment would need modification and therefore for the purposes of costing it has been assumed that a complete re-build of the station platforms will be required.

Brierfield

4.73 The redundant northbound platform would be reinstated for the double track option. Access would be provided from the adjacent level crossing, thus avoiding the need for a costly footbridge.

Nelson

4.74 The island platform could be readily refurbished to facilitate double track operation. It has been assumed that these limited works would not trigger the need to comply with full accessibility requirements, which is likely to entail the reconstruction of the passenger subway.

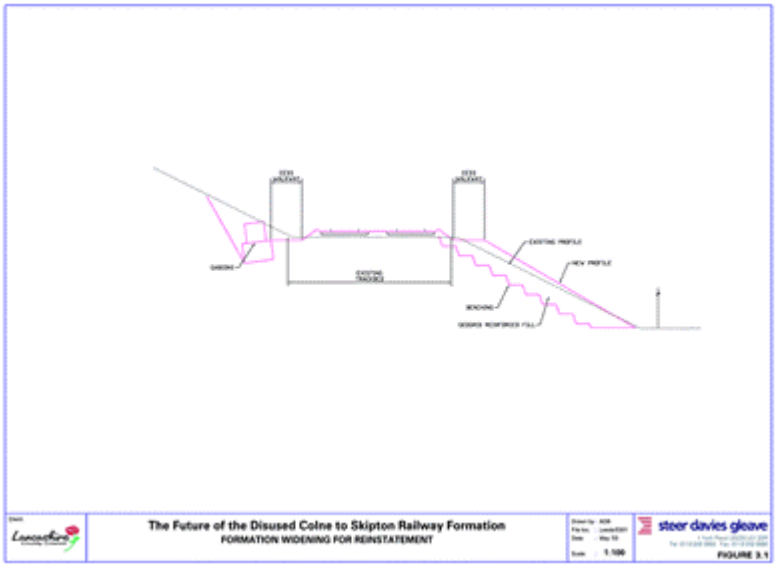
Colne

4.75 A new northbound platform could readily be constructed within the land remaining from the former station footprint. A full accessibility footbridge with stairs and ramps is likely to be required.

Foulridge

4.76 The former station site at Foulridge remains as an open site used by a road haulage firm. Access to the site is straightforward and some car parking could be catered for. Reinstatement of double track would necessitate the inclusion of a passenger footbridge fully compliant with Network Rail requirements for ramps and staircases. Note that a new station at Foulridge has not been included in cost estimates.

FIGURE 4.1 FORMATION WIDENING FOR RE-INSTATEMENT



Earby

4.77 The former station and sidings site at Earby is occupied by a number of business units all of which appear to be enjoying good trading conditions and providing employment for the local community.

4.78 A site for the station has been identified adjacent to the Salterforth Road level crossing. For a single-track reinstatement a platform could be located on the western 'field side' of the corridor together with a potentially sizeable car park to cater for park & ride demand from Barnoldswick. Note that such a car park would encroach upon open countryside.

4.79 A double track platform can potentially by accommodated without the acquisition of the salvage yard business adjacent to Colne Road. More detailed investigation is required, however, to conform this assumption. A cross-track footbridge would not be required by virtue of the adjacent level crossing. The proximity of the level crossing and major road junction mean that access to the salvage yard site for parking would be difficult, thus making the 'field' car park a likely requirement for both single and double track options

Skipton

4.80 Although the track layout at Skipton will readily allow access to the existing platform 4, for the purposes of this Study it has been assumed that the capacity requirement of any new passenger service from Colne is likely to require the reinstatement of the disused platform 5. This would involve alterations to the subway and a comprehensive upgrade.

Level Crossings

General

4.81 A significant risk to the re-instatement of the Skipton to Colne railway will be the number and frequency of level crossings. Assuming the grade-separation of Vivary Way there would be 13 vehicular at-grade crossings remaining. With further investigation and negotiation it may be possible to rationalise a number of the farm crossings such that adjacent bridges are used but the following key crossings would remain:

- Slipper Hill Farm;
- Holly Bush Farm;
- Salterforth Road, Earby;
- A56 Skipton Road, Earby;
- Earby Industrial Estate;
- Low Ground Farm – new dwelling house.

4.82 Proposals to re-instate level crossings will undoubtedly meet with resistance from the Rail Inspectorate and Network Rail on grounds of both safety and maintenance.

4.83 For the purposes of this Study it has been assumed that private crossings would be upgraded to telephone controlled user worked gates whilst minor roads would have automatic half barriers. Footpath crossings, where diversion is impractical, could be controlled by miniature stop lights.

4.84 All of the assumptions about level crossings represent significant cost and viability risk to the project as the alternative measures (where possible) entail costly bridging solutions.

Earby

4.85 Earby warrants particular attention, as there would be three major level crossings within close proximity and in a built up area. This raises important safety issues of driver/pedestrian frustration coupled with 'familiarity abuse' by local residents. It has therefore been assumed that, were crossings acceptable, full barrier gates and CCTV monitoring will be required at all three locations.

4.86 It is our opinion that both the Rail Inspectorate and Network Rail would nevertheless strongly resist this arrangement. Other options could include re-routing the railway, rationalising the road crossings by re-routeing roads or new bridges, but these have not been pursued in detail at this stage.

4.87 The issue of level crossings in Earby represent s a key project viability risk.

Vivary Way

4.88 The A6068 Vivary Way is an urban dual carriageway with an annual average daily traffic flow in excess of 25,000 vehicles. It crosses at-grade the route of the former rail line some 170m to the north of Colne Station.

4.89 Again, it is our opinion that both the Rail Inspectorate and Network Rail would strongly oppose any level crossing solution at this location and, in any event, the level of disruption to road traffic is likely to prove unacceptable to the highway authority.

4.90 The feasibility of grade separation therefore needs to be established. A solution that takes the road over the railway has been examined and this is presented in Figure 4.2.

4.91 For the geometrical design of the vertical road alignment over the bridge the critical design parameter is curvature, as defined by the K factor. Values for K are defined for specific design speeds to ensure adequate forward visibility to obstructions. Forward visibility is particularly relevant in this situation for eastbound traffic due to the proximity of the signal-controlled junction and the resulting standing traffic that this will produce.

4.92 The speed limit for Vivary Way, between the M65 roundabout to a point approximately 100m west of the Crown Way junction, is 50mph, commensurate with the characteristics of the road. Beyond this point the road enters the urban fabric of Colne and is subject to a 30mph limit.

4.93 The choice of Design Speed for Vivary Way is a matter of judgement and cannot be definitively decided in this report. The starting point would be 100kph, but gradient, junction proximity and road character could all be mitigating factors in favour of a lower speed. A preliminary vertical alignment based upon curvature that produces sensible lengths of approach ramps and realistic tie-ins to the existing road network has been drawn up.

4.94 As can be seen, the resulting vertical profile entails:

- A Design Speed of 70 kph (commensurate with a 40mph speed limit) derived from sag curve K values of 20 and crest curve K values of 17;
- the resultant need for measures to ensure the a 40mph speed limit is observed, such as warning signs or traffic calming;
- lowering of the finished rail level 0.5m below existing ground level;
- an undesirable downhill gradient on the approach to the Crown Way signals.

4.95 Further lowering the rail corridor could be considered but is likely to require structural works to the Barrowford Road bridge and the complete rebuild of Colne Station to suit the resulting longitudinal profile.

4.96 In summary, an overbridge to carry Vivary Way over a re-instated rail line is technically feasible, however, the design would be considered below the desirable standard. A detailed design and discussion with the local highway authority would be required fully to establish the acceptability of the proposals.

A629 Skipton Bypass

4.97 A major obstacle to the re-instatement is the construction of the A629 trunk road across the route. The road crosses the corridor as a single carriageway on an embankment approximately 6m high. The road also crosses the existing Skipton – Hellifield railway some 50m to the north on a concrete bridge structure consisting of in-situ concrete abutments spanned by pre-cast concrete beams.

4.98 From visual observation it appears that the A629 is on a slight falling gradient from the existing rail bridge to the proposed crossing point, whilst the rail corridors are broadly at the same level by virtue of the tie-in at the nearby railway junction. This would give an estimated clearance of 1m between the soffit of the new rail structure and the road carriageway surface.

4.99 The A629 forms part of the strategic road network carrying long distance traffic from the West Yorkshire area to the M6 as well as acting as a bypass for Skipton town centre. The current traffic flow is in excess of 10,000 vehicles per day, with a significant number of heavy goods vehicles at 9%. The highway authority for the A629 is currently the Highway Agency but this is scheduled to pass to North Yorkshire County Council in the near future through the de-trunking process.

4.100 Given the nature of the road and the fact that the only realistic traffic diversion route would be through Skipton town centre, it would be sensible to assume that long term road closures or one-way traffic working would be unacceptable.

4.101 Three potential solutions for bridging have been examined:

Cut and Cover

4.102 A 'conventional' cut and cover technique would involve constructing the bridge in two halves whilst maintaining the traffic flow on the side opposite construction. The existing A629 carriageway is some 10m in width and so some form of temporary works will be required to widen the carriageway for two-way working, such as extension of the embankments or a temporary off-line bridge.

4.103 This widening proposal is restricted by the constraint of the existing railway bridge and therefore the required road diversion is likely to be restrictive and slow speed. Traffic management would be in place throughout the duration of the works.

Sheet Piled Abutments

4.104 This proposal is a variation of the above and involves driving sheet piles through half of the carriageway whilst marinating traffic flow on the remaining half. The carriageway is then removed and the deck constructed using pre-cast beams. The carriageway is then reinstated and the process repeated for the remaining half. Once the deck is in place, the embankment below the deck is removed.

4.105 This option is likely to be of shorter duration than cut and cover but could be considered higher risk and more expensive.

Jacked Box

4.106 This technique involves jacking an entire pre-cast concrete box section underneath the road as recently carried out under the M1 motorway, junction 15A. This would be the most expensive option (of the order of £5m) but traffic flows could be maintained throughout without the need for traffic management.

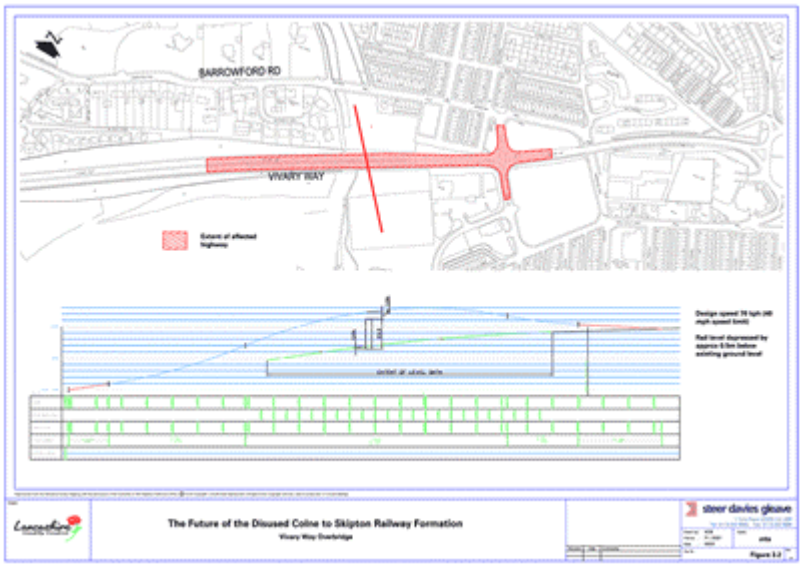
4.107 Box jacking requires a clearance of some 1.5m between the structure and the carriageway, which is greater than that thought to be available. In this case the longitudinal profile of the railway would need to be lowered and this difference recovered before tying back in to the existing trackwork on the approach to Skipton Station.

Views of the Highway Authority

4.108 The Highways Agency, in its capacity as the current highway authority for the A629, has been consulted on the alternatives set out above. They have acknowledged the broad technical feasibility of the proposals but are of the opinion that insufficient headroom exists for the jacked box technique.

4.109 The Highways Agency also stressed the importance of ensuring minimal disruption to road users.

FIGURE 4.2 VIVARY WAY OVERBRIDGE



An Alternative Alignment

4.110 An alternative to the approach described above would be an 'off-line' alignment that avoids the need to cross the A629. A suggested centreline for such an alignment is indicated on drawing 5301/05 in Appendix B. The line would swing to the north on embankment away from the existing route to cross the River Aire where it runs alongside Heslaker Lane. A similar crossing structure to that required for the 'original' route would be provided. The line would then traverse, on embankment, the agricultural land of the River Aire flood plain to form a junction with the existing Hellifield – Skipton line to the west of the A629.

4.111 Consultation with the Environment Agency will be required to fully understand the characteristics of the River Aire floodplain and the effect the new route may have upon it, but it is our view that the proposal is a practicable solution at this stage. Issues of agricultural severance and the relative ecological impacts of both the 'old' and 'new' routes will need to be further investigated and may result in landowner compensation payments, an accommodation works underpass and retention of the redundant embankment as a site of ecological interest.

4.112 The new rail junction would be made at a point where the existing Hellifield line is on a curve of approximately 550m radius, the curve being away from the incoming Colne line. In this case the existing curve cant would need to be reduced for compatibility with the new switch and crossing works, thus lowering the line speed from the current 45mph. It is our view that the reduction in linespeed would not have an onerous effect on the freight traffic and limited passenger services utilising the line to the west of Skipton Station.

4.113 The alternative alignment would involve some 1400m of new embankment and additional possession based working to form the new junction with the Skipton – Hellifield line. The off-line option is likely to cost marginally less than the least expensive A629 bridge option.

Integration with the A56 Village Bypasses Scheme

Scheme Description

4.114 The A56 Village Bypasses scheme consists of a single carriageway (7.3m plus 1m hardstrips) road starting at Vivary Way in Colne and following the Colne - Skipton railway trackbed to Kelbrook. The proposed route then sweeps around Earby to the west of the Northholme Estate before rejoining the trackbed on the north side of Earby and running back into the existing A56 to the north of Thornton in Craven. Included in scheme are proposals for a footpath, cycleway and bridleway alongside the road, apart from the Kelbrook to Earby section where the remaining unaffected trackbed would be used. North of Thornton-in-Craven the redundant rail corridor is unaffected by the road proposals.

4.115 The design philosophy for the road proposals is for limited access with a design speed of 100kph (60 mph speed limit). The vertical design follows the ground level of the redundant trackbed where the routes coincide to take advantage of the fact that the rail corridor has shallow gradients. This reduces the volume of earthworks associated with cuttings/embankments and uses established crossing points to minimise severance.

4.116 The proposed cross-section and precise horizontal alignment of the road are not wholly compatible, the disused trackbed being some 8 to 9m wide whilst the proposed carriageway/footway/verge is up to 19m wide. Additionally, the horizontal alignment does not precisely follow the rail corridor in that it rationalises the small changes in curvature that occur 'on the ground'.

4.117 The basic design components of the A56 scheme are illustrated on drawings 5301/A56/01 to 03 at Appendix C.

Integration of Road and Rail Proposals

4.118 The road proposals and a potential re-instatement of the railway make use of a common section of land and are therefore incompatible at present. The possibility of integrating the two proposals has been examined and the starting point for this has been the dual use of the redundant rail corridor by running the road alongside the railway.

4.119 It has been assumed that any road scheme would precede a railway and therefore the approach taken is to consider widening the road formation to cater for the future re-instatement of the railway. Between the two corridors crash barrier protection and some form of visual barrier (such as 'paddles') will be required to avoid dazzling problems. A suggested cross-section is given in Figure 4.3. The cross-section highlights the requirement for a much wider swathe of land than is currently associated with the redundant trackbed.

4.120 Pedestrian crossing points will be required for the footpaths that traverse the route unless suitable diversions can be found.

4.121 The widened corridor will require the following changes to the road design:

- Longer spans for bridges over the corridor;
- Wider decks for bridges carrying the corridor;
- Additional structures required to cross the railway where the road relies on at-grade minor junctions to cater for the crossing need;
- Additional costs for crash barrier and anti-dazzle screening;
- Additional earthworks (or retaining structures) costs from larger cuttings and embankments;
- Increased drainage costs - to sensibly provide future provision for the railway at the time of road building and to drain the increased areas of cutting bed etc;
- Additional land costs from the widened corridor;
- Additional design costs to ensure that the proposals are compatible.

Combined Road and Rail Scheme Description

4.122 A single-track railway re-instatement has been considered as the starting point for this assessment.

Vivary Way

4.123 It is our opinion that the currently proposed A56 roundabout junction with Vivary Way is incompatible with the railway re-instatement. An alternative option is suggested which is shown in drawing 5301/A56/01 at Appendix C. This would re-route the line of the road proposal to connect with the M65 motorway roundabout. This has the obvious disbenefit of substantial property demolition, further encroachment into open countryside and the additional costs of diverting Vivary Way and acquiring additional land. The previously discussed Vivary Way overbridge will still be a requirement.

4.124 The proposal could be considered as 'contrived' and makes little sense without the physical presence of the railway. A possible way forward would be to construct the Vivary Way roundabout as currently proposed and consider this as abortive works were the railway to go ahead.

Vivary Way to Foulridge

4.125 Taking the assumption that the M65 roundabout option for Vivary Way is a realistic proposal the railway would occupy the eastern side of the transport corridor.

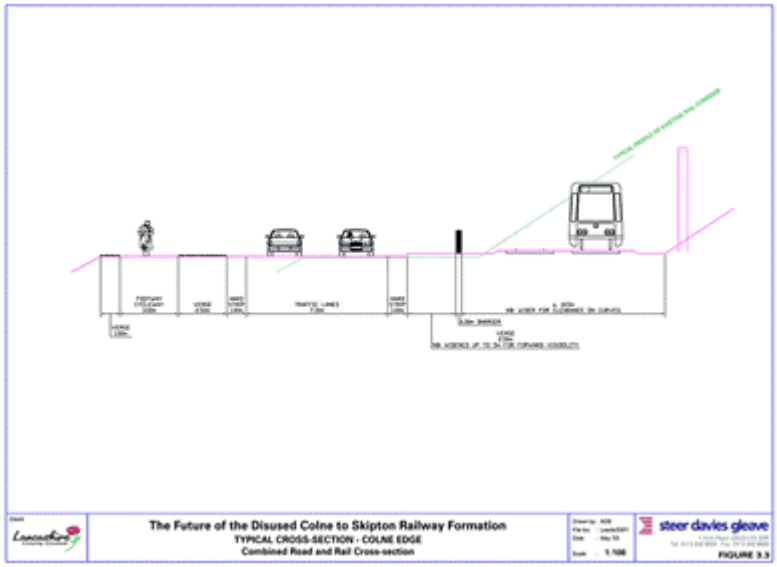
4.126 Immediately north of Vivary Way the existing retained cutting is likely to need widening to cater for the combined proposal, although it should be noted that the current 'road only' proposal requires this to a lesser extent. Land is available for this widening.

4.127 Continuing around the high ground of Colne Edge the combined proposals would require more extensive earthworks than for the road alone throughout this entire stretch of some 1400m. The current road design cuts into the hillside and this could either be extended or the road re-aligned to balance the earthworks with land take on the western 'downhill' side. Alternatively, to avoid the extensive cutting slope that would result from 'chasing' the gradient up the hill the corridor could be structurally retained. This requirement would be notably greater for a double track re-instatement and it is our opinion unsustainable.

4.128 The Edge Lane overbridge requires rebuilding for the current road proposals and this could readily be extended to cater for the railway.

4.129 The Slipper Hill Farm access road crossing has been incorporated into the road proposals by inclusion of a minor priority junction and stopping up the track to the east. This proposal caters equally for the combined scheme without change.

FIGURE 4.3 COMBINED ROAD AND RAIL CROSS-SECTION



4.130 Adjacent to the Slipper Hill Farm access the corridor runs directly alongside Wanless Water and is separated from it with a retaining wall. The increased corridor width may require the diversion or culverting of the watercourse. The Holly Bush Farm access track could again be serviced by a minor priority junction from the road, thus avoiding the need for a level crossing on the rail only option.

4.131 The Whitemoor Road overbridge requires rebuilding for the current road proposals and this could readily be extended to cater for the railway.

4.132 The Foulridge Station location is less straightforward. Again, the Foulridge Hall Farm/Allotments access track could be catered for with a minor priority junction from the new road. However, as the corridor is constrained to the south by the properties on Mile End Close the extended combined corridor would take land from the allotments. This would be to such an extent that the allotment site would become unviable and therefore a retained cutting should be considered or an alternative allotment site provided.

4.133 For a double track option considerable earthworks and land take would be associated with providing 2 x 3m wide platforms at this location to such an extent that a station is considered impractical.

4.134 The bridge required over the Leeds & Liverpool Canal could be readily modified to cater for the wider alignment but the resulting structure would have a greater detrimental visual effect on the canal basin and tunnel entrance areas.

Foulridge to Kelbrook

4.135 Between Foulridge and Kelbrook the combined road and rail proposal would be straightforward, the redundant corridor traversing the open valley floor on embankment. Several agricultural access underbridges would need to be extended but these would in any event be new build structures as part of the road scheme.

4.136 Barnoldswick Road poses a greater problem for the combined scheme. Having left Colne with the railway to the east of the new A56 the road would have to cross the railway in the vicinity of Kelbrook to form the proposed junction with Barnoldswick Road. As the corridor is already elevated on embankment this would require substantial approach and bridge structures to cross the railway, combined with an acute skewed crossing.

4.137 An obvious solution would be to form the junction with Barnoldswick Road to the west of the rail corridor, but it is noted that this possibility has already been considered and discounted for the A56 scheme on the grounds of poor alignment. It is beyond the scope of this study to comment on these alignments difficulties but it is considered that a sub-optimal solution could exist and that this would be the only realistic way forward for the combined scheme. With a revised junction location there would be no need for the bridleway underpass adjacent to the former Barnoldswick branch junction.

Earby to Thornton in Craven

4.138 Between Earby and Thornton in Craven the combined road and rail proposal would be straightforward. The one exception is the Booth Bridge Lane crossing which provides access from Thornton village to the village cricket ground and Booth Bridge Farm. The need for this crossing could be met by either providing a new structure over the corridor or diverting the lane along the line of the railway to use the Brown House Bridge farm access. This access already has provision for passing beneath both the road and railway.

A56 Cost Estimate

4.139 Lancashire County Council has provided estimated costs for the road proposals totalling £37m (2002, quarter 4). £33.5m of this is allocated to the physical construction works and £3.5m to land purchase and compensation. The estimate reflects the preliminary nature of the proposals and no breakdown is available beyond the standard cost centres of earthworks, drainage etc.

4.140 The road scheme estimate does not include for the diversion of the Foulridge to Earby gas main and therefore it has been assumed that this remains *in situ.*

Risks

4.141 Proceeding with road proposals that include land acquisition for a future railway will complicate the design and procurement process. A clear risk will be the Public Inquiry into the scheme that may dwell on issues associated with the railway rather than concentrating on the road proposals as a stand-alone entity. This will be particularly relevant to objections to compulsory land purchase over and above that required for the road scheme alone.

4.142 Another risk will be proceeding with a modified road proposal in advance of carrying out detailed design work for the railway. Whilst this Study can highlight potential areas of difficulty it may transpire that detailed design uncovers further more onerous requirements that will be impossible to overcome with the new A56 in such close proximity to the rail corridor. Carrying out an 'advance' detailed design exercise could entail expenditure of the order of £100,000.

A56 Scheme Alternative Alignment

4.143 An alternative alignment for the A56 proposal that avoided the redundant rail corridor altogether would have some obvious merit in the context of the issues being considered in this report. It would not compromise a future re-instatement and would avoid damaging the ecologically significant habitats along the rail corridor. Additionally the rail corridor could be an attractive 'off-line' substitution for the bridleway/footway/cycleway currently proposed alongside the A56. This would not significantly compromise a single-track re-instatement.

4.144 A preliminary inspection of the wider corridor indicates that such an alignment is readily achievable to the north of Foulridge but less so to the south. The road alignment would sensibly need to cross the Leeds & Liverpool canal at a similar point to the railway, as this is the only obvious point on the valley floor unaffected by settlement. Further more significant difficulties arise in accommodating the railway, road and canal at the south end of Foulridge tunnel where a highly skewed crossing of the canal is likely. Direct connection to the M65 motorway would be worth considering.

4.145 A detailed route options study is beyond the scope of this report and could be expected to form a reasonably sized design commission in its own right.

Costs

4.146 The costs associated with the various re-instatement options are summarised in Table 4.2. Costs are based upon Steer Davies Gleave and the Holmes Davies Partnership databases of rail costs built up from experience on other railway projects. Breakdowns of the cost estimates are included at Appendix A.

4.147 The costs represent Steer Davies Gleave's best estimate based upon the information available from this preliminary study. They represent, in our view, a reasonable expectation for the future, based on the most credible information available as of the date of this report. However, the estimates contained within this document rely on numerous assumptions and judgements and are influenced by external circumstances that can change quickly. Certainly the costs of rail projects are spiralling upwards rapidly and have been doing so for a number of years.

TABLE 4.2 OPTION COST ESTIMATES

Option	Cost	Comment
Single track railway	£33m	Skipton bypass bridge option
Double track Railway	£62m	Includes Rose Grove - Colne
A56 Village Bypasses	£37m	Lancashire CC estimate
Additional costs to A56 Village Bypasses scheme by provision for a single track railway	£4.3m	No alteration to Vivary Way proposal
Diversion of A56 to the motorway roundabout to accommodate railway.	c. £6m	M65 roundabout. Includes acquisition of 5 substantial dwellings. Abortive cost of Vivary Way roundabout **not** included.

Environmental Constraints

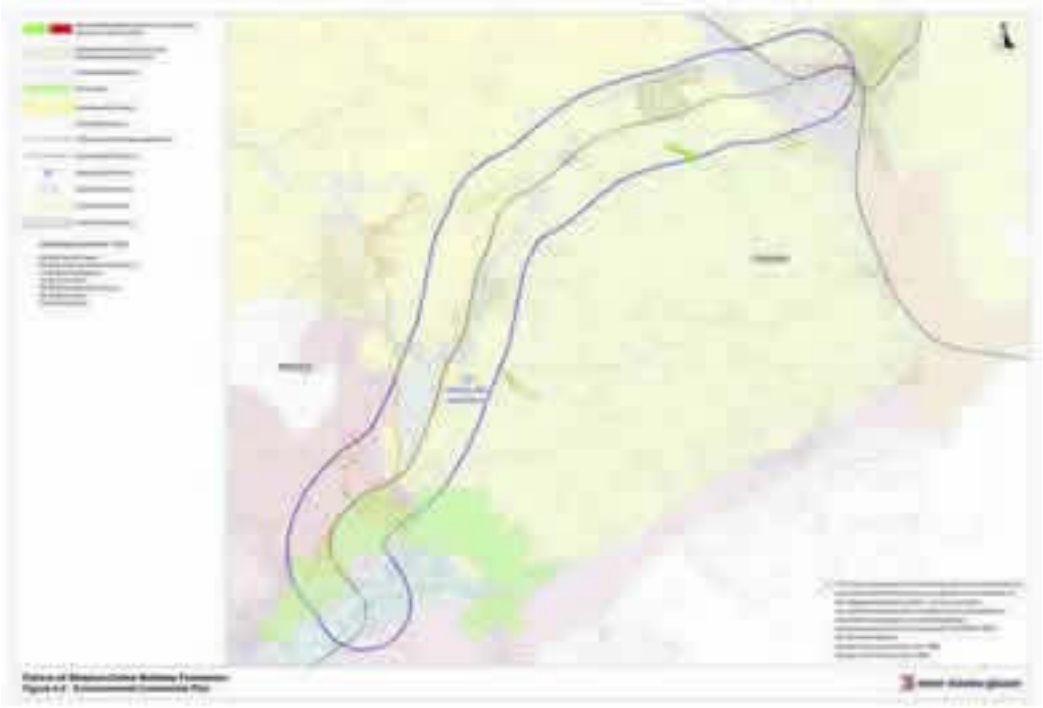
4.148 There are a number of environmental and ecological considerations that are of relevance to both the road scheme and a potential rail reinstatement.

Figure 4.4 presents mapped constraints sourced from both county councils (Lancashire and North Yorkshire) and both district/borough councils (Pendle and Craven).

4.149 The railway formation is designated a Biological Heritage Site (BHS) and contains a diverse range of wildlife habitats. The Leeds-Liverpool canal corridor is also a BHS for its entire length through the corridor. Near Foulridge, the Whitemoor and Foulridge Lower reservoirs are designated BHSs.

4.150 There is a large swathe of designated Green Belt around Foulridge and the north and west of Colne. To the south of the railway formation the landscape is predominantly of the character of Rolling Upland Farmland. To the north it is mainly Drumlin Field leading into Moorland Fringe.

FIGURE 4.4 ENVIRONMENTAL CONSTRAINTS MAP



5. FREIGHT OPERATIONS REVIEW

Analysis of Existing Freight Services

5.1 The network of freight movements is complex, with a wide variety of individual commodities carried, such as coal, steel, and containers. Many freight trains run to regular timetables (typically subject to an eight week cycle). Other services are more irregular with coal trains, in particular, runs to differing weekly programmes. Some freight trains run only on a more ad-hoc basis.

5.2 Details of main freight flows were obtained from the annual "Freightmaster" publication, which covers the National Rail network. The publication details the more regular types of flow including services that run to a regular timetable. Other traffic exists to and from places not covered in the publication, usually running on an infrequent basis and to a variety of different destinations.

5.3 For many origin-destination freight movements there is only one possible routing. Where there is some ambiguity, routings have been in-filled from other sources and in some cases based on our own internal sources. More detailed information on some routings and commodities carried has been obtained from Railway Freight Operations and from the Network Rail Periodical Operating Notices or Weekly Operating Notices. These change on a bi-monthly or weekly basis.

5.4 In summary, unlike the passenger timetable, it is difficult to establish a definitive statement of freight traffic. We are confident, however, that the analysis describes the majority of regular freight traffic on the lines of interest, and can be considered typical of the pattern of movement.

Leeds, Settle & Carlisle (via Skipton)

5.5 The route via Skipton is part of the Leeds, Settle & Carlisle Railway, which, south of Skipton is known as the Airedale Line. The Airedale Line is a local commuter railway with four stopping trains an hour south of Skipton (in addition to expresses from Carlisle and Morecambe). North of Skipton, the railway is a major freight artery towards Carlisle.

5.6 Four main freight flows are carried on the line through Skipton:

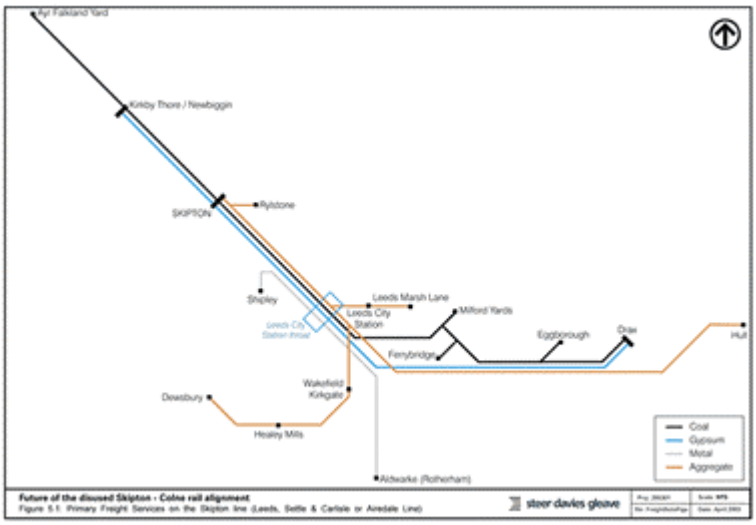
- **Coal** Hunterston – Ayr Falkland Yard – Milford Yards – Ferrybridge / Eggborough / Drax Power Stations (6+ paths per day)
- **Coal** to Clitheroe (source varies on week to week basis)
- **Gypsum** Drax Power Station – Kirkby Thore (1-2 per day)
- **Aggregate** Rylstone – Leeds Marsh Lane / Dewsbury / Hull (1-2 per day)
- **Scrap metal** Shipley – Aldwarke (Rotherham) (1 per week)

5.7

5.8 Figure 5.1 shows the primary freight services on the Skipton line. Because of the network topography, all of these freight movements cross the six-track station throat

west of Leeds City Station. These crossing movements cause a major constraint for passenger service timetabling and capacity.

FIGURE 5.1 PRIMARY FREIGHT SERVICES ON THE SKIPTON LINE



Burnley – Blackburn

5.9 Freight services on the line between Burnley and Blackburn run on the cross Pennine Copy Pit route. Between Burnley and Blackburn, there is an hourly local passenger service from Colne to Blackpool South and an hourly express service from York to Blackpool North.

5.10 Freight services running over this route are as follows:

- **Steel** Blackburn – Lackenby (Teesside) (1 per day)
- **Wagonload Trunk Service** Seaforth – Teesside (1 per week)

5.11 Little other freight runs along this route, although there is a cement terminal at Clitheroe, which receives coal trains, although the source varies on a week-to-week basis.

Northern Transpennine routes

5.12 Various freight services operate over the northern trans-Pennine routes, both via Rochdale and Hebden Bridge (the Calder Valley route), and via Stalybridge, Diggle and Huddersfield (Transpennine North).

5.13 Services operating over the Calder Valley (Rochdale – Hebden Bridge) route are:

- **Chemicals** Stanlow Refinery – Humber Refinery (3 per week)
- **Chemicals** Ashton under Lyne – Lindsey Refinery (2 per week)

5.14 Services operating over the Transpennine North (Stalybridge – Huddersfield) route are:

- **Chemicals** Mostyn – Hull Saltend (2 per week)
- **Lime** Tunstead – Drax Power Station (5 per week)
- **Refuse** Dean Lane / Northenden / Bredbury – Roxby Landfill (2 per day)
- **Wagonload Trunk Service** Warrington Yard – Doncaster (1 per day)
-

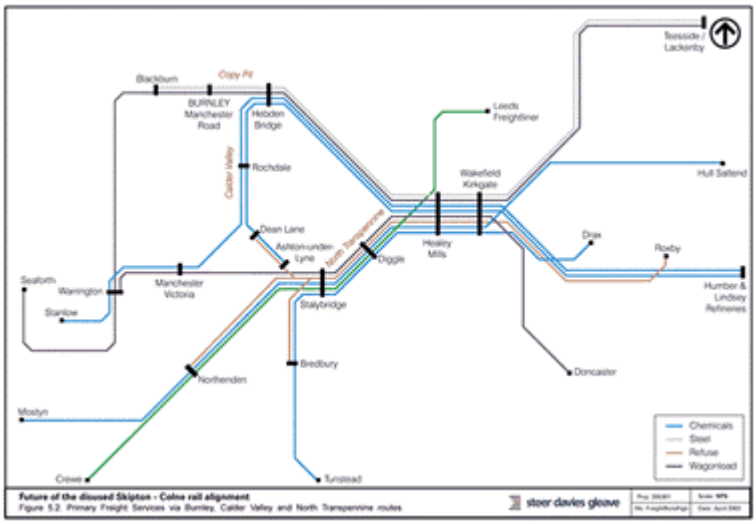
5.15 Figure 5.2 shows the primary freight services through Burnley as well as over the Transpennine North and Calder Valley routes.

Capacity Limitations

5.16 Before we look at the potential benefits afforded by the reopening of Skipton-Colne we consider the extent of the problems for existing freight operations and the limitations for operating additional freight services across the Pennines. This sub-section considers:

- What pressures existing freight services place on network capacity;
- What the current options are to re-route freight services to make more effective use of capacity.

FIGURE 5.2 PRIMARY FREIGHT SERVICES VIA BURNLEY, CALDER VALLEY AND TRANSPENNINE NORTH



Airedale Line

5.17 This route carries 4 trains per hour in each direction from Skipton towards Leeds (2) and Bradford (2). Additionally there are 1-2 trains per hour to/from Carlisle and Morecambe/Lancaster. To the east of Apperley Junction there are 6 local trains per hour per direction as well as the longer distance services. Capacity is already a concern and West Yorkshire PTE has commissioned a study to assess the scope to provide additional stations on the route. If one or two of its station proposals are implemented this will ensure that capacity utilisation levels remain high.

Leeds Station Throat

5.18 Freight trains that currently use the Aire Valley line all have to negotiate the six-tracks to the west Leeds station. Whilst Leeds West End was recently been upgraded by Railtrack, providing a significant increase in operating capacity, the large number of passenger train movements continues to create some pathing constraints to longer distance services and local services. West Yorkshire PTE has aspirations for developing local services and it is possible that other train operating companies such as GNER, Midland Mainline and Central Trains will wish to run additional services into Leeds in the future. Leeds West End should therefore be seen as a medium term constraint and one that would be exacerbated by routing additional freight trains through it.

Transpennine North

5.19 The entire route across the Pennines via Stalybridge and Huddersfield is at very high levels of capacity usage and has been identified as such in the SRA Strategic Plan. The gradients on the route tend to slow freight trains down which impacts on available capacity. Furthermore, the operation of express inter-regional passenger train services exacerbates the conflicts between passenger and freight services.

5.20 At Thornhill LNW Junction and Heaton Lodge Junction to the east of Huddersfield, the Transpennine North route is crossed by the Calder Valley route from Hebden Bridge to Wakefield. Whilst this junction is grade separated, not all of the movement conflicts are eliminated.

Calder Valley Route

5.21 The route via Hebden Bridge has fewer passenger services than the Transpennine North route but its capacity is constrained by older signalling technology.

Manchester Area

5.22 The Manchester ‘hub’, covering Piccadilly, Victoria, Oxford Road, Deansgate and Salford is recognised as one of the rail network’s principal constraints. The southern approaches to Piccadilly and the Oxford Road chord both carry container traffic to/from Trafford Park. The line through Victoria also a mix of carries passenger and freight trains. The ‘hub’ as a whole is currently very highly utilised in capacity terms.

5.23 Table 5.1 shows the number of passenger paths, fast and slow, per hour on each route, which provides a guide as to the level of conflict freight services would have with passenger trains. Note that the table shows available paths rather than services in operation.

TABLE 5.1 PASSENGER PATHS ON CROSS PENNINE ROUTES

Route	Fast tph	Slow tph
Airedale (Skipton – Leeds)	1-2	6
Copy Pit/Calder Valley (Burnley / Rochdale – Hebden Bridge – Brighouse)	1	3
Transpennine North (Stalybridge – Huddersfield – Deighton)	4	4

Existing Opportunities for Re-routing

5.24 Opportunities exist for rerouting the coal flow from Ayr and the gypsum flow to Kirkby Thore away from the Leeds City Station throat by using the existing Clitheroe line and running through Manchester Victoria. **BUT: the Victoria area is itself intensively utilised by passenger and freight trains with potential conflicts at Salford Crescent as well as both approaches to Victoria station itself.**

5.25 Diversion of the coal and gypsum trains from the Leeds, Settle & Carlisle line via Burnley/Calder Valley would take some pressure off the Airedale line and Leeds station throat. The operation would however be somewhat lengthy. **There is no east-facing curve at Burnley to provide access onto the Copy Pit route (and no realistic option for providing one) and therefore trains must either run through to Bolton and Manchester Victoria, then take the Calder Valley line, or reverse at Blackburn.** Whilst the latter is not impossible (it may be possible to use the freight yard at Blackburn to run round) such reversals are generally considered undesirable. **There are other potential limiting factors on freight use of the Blackburn route, such as signalling, and the 1 in 65 gradient between the Copy Pit summit and Todmorden.**

5.26 **If some freight movements are shifted from Airedale to Calder Valley the pinch point is shifted to Thornhill LNW Junction and Heaton Lodge Junction east of Huddersfield.** A scheme could be developed, however, to eliminate this conflict through better use of the grade separation at Heaton Lodge Junction. This would then provide a better path for freight than crossing over the six-track Leeds City station throat, which carries up to 30 trains per hour per direction at low speeds. Furthermore, Transpennine North and Calder Valley freight services almost exclusively run via Healey Mills, a route with only one passenger train per hour, and through Wakefield Kirkgate, which has the capacity for handling freight that is lacking in the Leeds City station area.

5.27 Capacity through the Calder Valley itself would also need to be enhanced to accommodate extra freight (whether it is rerouted from Airedale or Transpennine North) through signalling enhancements.

Opportunities

5.28 A reopened Skipton – Colne line would allow freight trains on the Calder Valley to be rerouted onto the Airedale line thereby avoiding the pinch point at Thornhill LNW Junction/Heaton Lodge Junction. However, this is at the expense not only of longer journey times in having to make a long northern detour, but also of having to cross the six track throat of Leeds City station.

5.29 Much depends on the origin of the freight flows in the Greater Manchester/North west area and therefore the routing they would have to take to get them onto the Bolton-Blackburn route. At present negotiating the Manchester hub to get freight trains onto the Rochdale line from south Manchester is relatively straightforward. To get them onto the Bolton-Blackburn route would require a more difficult passage through the Manchester hub.

5.30 There are severe gradients of up to 1 in 65 approaching the Copy Pit summit. The route through Copy Pit is the only cross Pennine route without a significant tunnel beneath the Pennines, instead rising to a height of around 225 metres.

5.31 The orientation of the Skipton – Colne line's connections at Gannow Junction (facing west) appears to only allow trains to move from Blackburn to the Airedale Line and vice versa. There appears never to have been a connection in the other direction at either end and such a curve would not only be extremely tight, but a roundabout on the A56 main road now occupies the space between the two lines. At Skipton, the junction faces eastwards allowing access to Skipton station, Leeds and Bradford Forster Square without reversing.

5.32 The largely parallel Clitheroe line faces the Blackburn – Preston line westwards at Daisyfield Junction in Blackburn, and the Skipton line westwards at Hellifield, which would allow trains on the Leeds, Settle & Carlisle line from the north to access the route to Blackburn, Preston and Manchester (and vice versa).

Constraints

5.33 The entire Colne branch is currently single track. It has no passing loops and at present can only accommodate one train on the branch. The current hourly train service occupies the branch for 59 minutes of each hour (with a 22 minute turnaround at Colne). It is therefore impossible with the current infrastructure and timetable to introduce any other services onto the line. It may be possible to reduce this turnaround time, at the Blackpool South end it is usually 5 minutes. Freight trains could then be "flighted" ahead of the passenger trains in each direction. Any significant freight flows may require either the introduction of passing loops or the reinstatement of double track over parts of the route.

5.34 Further analysis of the operational feasibility of the Skipton–Colne line itself with respect to passenger and freight services, will be contained in the "Rail Operations – Timetabling" working note.

Alternatives

- The Blackburn – Clitheroe – Hellifield line is around 7km west of the Skipton – Colne alignment, and as shown in

5.35 Figure 5.3, has its southern connection to the Blackburn – Preston line facing the same way as the Colne branch (towards Preston), but at its northern end, faces in the opposite direction, towards Hellifield rather than Skipton.

5.36 If there is a requirement for freight from Rylstone Quarry or Shipley to cross the Pennines, this can be done at present with the existing infrastructure, subject to train length restrictions at the Hellifield goods loops, where locomotives will have to run round (the connections exist to allow this to happen).

5.37 There is therefore an existing and suitable alternative route for any freight requiring to cross the Pennines from the Blackburn area to the Skipton area, although this incurs a time penalty by running round at Hellifield.

5.38 The SRA suggests in its Strategic Plan that two or three new large freight interchanges are required in the North West region, and depending on their locations, the Blackburn – Burnley line could potentially gain additional significance leading to a shortage of paths via the Calder Valley into Yorkshire. The issue remains one of avoiding Leeds which rerouting freight via the Aire Valley route fails to do.

Conclusions

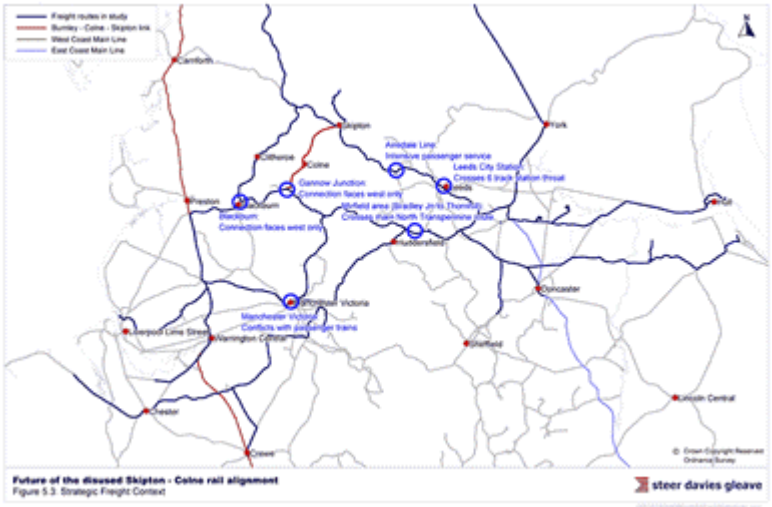
Trans-Pennine freight

- There is a strong demand for cross Pennine railfreight movements
- The main existing routes are congested
- Trans-Pennine freight has potential significant conflicts with passenger services at key locations such as Manchester Victoria and Leeds City stations depending on which trans-Pennine route is used.

Freight on the Skipton – Colne line

- The line would bring trans-Pennine movements onto a busy commuter railway into Leeds and Bradford;
- Services would avoid conflicts with passenger trains in the Mirfield area, only to have to cross the six track Leeds City Station throat;
- Strategically, the better route to take freight across the Pennines is via Calder Valley or Standedge Tunnel as the trains can then avoid Leeds by routeing via Wakefield;
- The Clitheroe line is largely parallel and offers the opportunity for freight traffic between the Leeds, Settle & Carlisle line and the Preston – Blackburn line (albeit with a new curve or a reversal at Blackburn).

FIGURE 5.3 STRATEGIC FREIGHT CONTEXT



6. PASSENGER OPERATIONS REVIEW

Existing Passenger Services

Blackburn – Burnley – Colne

6.1 The route from Blackburn to Burnley has a daytime service of two trains per hour in each direction:

- A Monday-Saturday hourly local service from Blackpool South to Colne, operated by First North Western. On Sundays an hourly service operates alternating between Blackpool South and Manchester Victoria. These are the only rail services running on the Colne branch.
- An hourly express from Blackpool North to York operated by Arriva Trains Northern (although it may pass to the proposed Northern Trains franchise).

6.2 From Blackburn, there is also an hourly train from Manchester Victoria to Clitheroe, which is the main connection for passengers travelling from Burnley and Colne to Manchester.

Skipton – Shipley – Leeds / Bradford

6.3 A number of services operate over this route, known as the Airedale Line:

- An broadly hourly service from Leeds to Carlisle;
- An irregular (4 per day) service from Leeds to Morecambe;
- A half hourly local service from Leeds to Skipton;
- A half hourly local service from Bradford Forster Square to Skipton;

All the above are operated by Arriva Trains Northern.

6.4 A half hourly local service also runs from Bradford Forster Square to Leeds, operated by Arriva Trains Northern. All local services on the Airedale Line are specified by Metro, the West Yorkshire Passenger Transport Executive.

6.5 In addition, Great North Eastern Railway (GNER) operates a daily return journey from Skipton, and 2-3 daily trains from Bradford Forster Square to London Kings Cross.

6.6 Special services often operate over the scenic line to Carlisle for tourist traffic, although these are not part of the National Rail passenger network.

Other services

6.7 The Clitheroe line has a summer Sunday only service from Blackpool North to Carlisle, the Dalesrail. This is operated by First North Western and provides two return services every Sunday during the Summer timetable but other adhoc services.

Market Profile

6.8 The following figure shows the size and make up of the immediate station catchments for trans-Pennine stations. The size of the pies on the map shows the absolute size of the catchment population. The colours are associated with a particular market segment with a certain propensity to use rail. Of the six segments, it is the yellow (financially constrained), red (young and active) and green (mature professionals) that have the highest propensity to use rail. A strong rail market will have a large catchment population with a high proportion of these segments.

6.9 The Aire Valley towns (Shipley, Bingley, Keighley and Skipton) have a larger immediate rail catchment than Calder Valley. Shipley and Keighley in particular stand out as places that have a high proportion of the three segments described above. One of the potential trade offs that Skipton-Colne provides is to link West Yorkshire and East/North Lancashire via Skipton as opposed to Halifax/Calder Valley. The market profiling suggests that the Aire Valley/Skipton route has a stronger rail market than Calder Valley.

6.10 To the west of the Pennines, Colne has a larger catchment than Skipton and is slightly smaller than Keighley. Accrington is very similar to Halifax and Burnley is similar in size to Shipley. Blackburn has a particularly strong rail catchment both in size and make up.

Local Passenger Service Options

6.11 In the following paragraphs we consider a number of services that could be provided to operate across the route from a highly practical perspective. We have considered in some detail the pathing considerations that the introduction of each of these services would require. In general, they are designed to provide a 'local service' function. They either extend existing operations or provide new services broadly within the region. Later in this section we consider more strategic services operating across longer distances and between regions. The complexities involved in pathing these services necessitate a more pragmatic assessment of their feasibility rather than a practical assessment of whether they can physically be incorporated into the timetable.

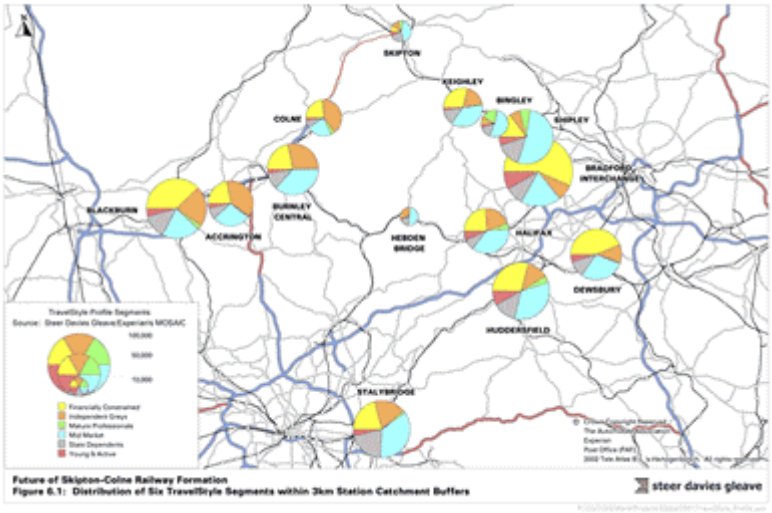
Colne – Skipton Shuttle

6.12 A shuttle service between Colne and Skipton, calling at Foulridge and Earby, offers the advantage of being independent of other rail operations, but will require all passengers travelling beyond Colne or Skipton to change trains. As such, it is primarily of local value as a connection between Colne and Skipton.

6.13 The additional line between Skipton station and Skipton North Junction provides a dedicated alignment, so services terminating at Skipton need not interact with the main line.

6.14 An hourly service can be operated with a single unit, taking 14 minutes for the journey, and laying over at each end for 16 minutes.

FIGURE 6.1 DISTRIBUTION OF SIX TRAVELSTYLE SEGMENTS WITHIN 3KM STATION CATCHMENT BUFFERS



6.15 As the infrastructure used by this service is self contained, trains can be timetabled to run at the best times for connections to Burnley at the Colne end, and a Leeds or Bradford stopping train at the other.

6.16 Advantages of the Colne – Skipton shuttle are:

- No interactions with other rail services, meaning fewer constraints on reliability;
- Operated with a single unit, requiring no passing loops.

6.17 Disadvantages of the Colne – Skipton shuttle are:

- No through running at either end, requiring through passengers to change at Skipton and Colne;
- Provides no additional benefits to the Colne branch line;
- End to end journey time of 14 minutes means 32 minutes of layover time per hour, and no possibility of operating half hourly with one unit. It is therefore comparatively inefficient use of a single unit.

Blackpool South – Blackburn – Colne – Skipton

6.18 This option is based on extending the existing Blackpool South – Colne train to Skipton. It has the advantage of using an existing path into Colne, causing no interactions outside the branch line.

6.19 This service is not additional, and because it uses an existing path south of Colne, causes no additional pathing problems outside the branch line.

6.20 However, in most hours, the train from Blackpool lays over at Colne for 21 minutes before leaving. Extending the train to Skipton on these timings would require an extra unit to be provided to maintain the hourly service.

6.21 Upon reaching Skipton, the train will require to lay-over for 53 minutes in order to regain its path at Colne. Although this is an excessively long layover, it would allow extension of this service to Grassington without requiring a further unit.

6.22 In this pathing scenario, trains will pass on the line half way between Skipton and Earby, requiring a passing loop to be provided just north of Elslack. In order to allow for trains to pass without stopping even when one is running late, a longer length of double track is recommended. It is advantageous to hold passenger trains in a station to await clearance for a stretch of single track. Ideally if the timetable could be flexed sufficiently we would recommend that the passing loop be at Earby station.

6.23 Advantages of the Blackpool South – Skipton service are:

- Extends an existing service;
- Provides through journey opportunities from Blackpool and Preston to Skipton;
- Requires no additional track capacity south of Colne;
- Requires no additional infrastructure beyond the new line.

6.24 Disadvantages of the Blackpool South – Skipton service are:

- Provides no additional services on the Colne branch;
- Without timetable changes elsewhere, unit lays over for 53 minutes at Skipton in order to regain path back to Blackpool at Colne.

Manchester Victoria – Bolton – Blackburn – Colne – Skipton

6.25 This option is based on extending the hourly Manchester Victoria – Bolton train up to Blackburn, Colne and Skipton. In the peaks, this train is already extended to Blackburn.

6.26 This is a significant extension, from the current 10¾ mile journey to 53 miles, over lines with a variety of different characteristics.

6.27 Blackburn has an hourly service to Manchester Victoria, with some additional peak trains, but stations east of Blackburn, serving Oswaldtwistle, Accrington, Burnley, Nelson and Colne, have no direct service to Manchester, except on Sundays, when the Colne service originates at Manchester Victoria and Blackpool South in alternate hours.

6.28 This option would therefore provide a large part of East Lancashire with an hourly direct train service from Manchester, and double the service between Blackburn and Manchester.

6.29 The option also provides an additional hourly service between Blackburn and Colne, as well as the local rail service over the Colne – Skipton section.

6.30 The service begins at Manchester Victoria, using an existing path out of the station towards Bolton. The train stops only at Salford Central and Salford Crescent (with frequent connections to Manchester Piccadilly). The path of this existing service will be preserved, and forms the basis of the extension to Skipton.

6.31 The existing Bolton train (leaving at 29 minutes past the hour) is separated by half an hour from the Manchester Victoria - Clitheroe train (leaving on the hour). The train service between Manchester Victoria and Blackburn is therefore half hourly under this option.

6.32 However, the route between Bolton and Blackburn is predominantly single track, with a double track section between Hall I' Th' Wood and Bromley Cross, and a passing loop at Darwen. This causes a significant problem in pathing the train well before it reaches Burnley. However, it is still possible to provide an approximately half hourly service south of Blackburn.

6.33 The existing Clitheroe service does not run at precisely the same minutes past each hour, and would need to be regularised in order for this timetable to work.

6.34 At Blackburn, the train would arrive 12 minutes after the existing Colne service, and will wait an additional 7 minutes at the station in order to provide a more usable interval towards Colne, of approximately 20/40 minutes.

6.35 The new train would not be able run half hourly with the existing service, as this would conflict with the Transpennine Express service to York, and require a longer wait at Blackburn.

6.36 Trains will pass between Nelson and Brierfield, requiring at the very least a passing loop to be provided. This would be within the 1¼ miles between the two stations, and it may be possible instead to double track the whole length of this section.

6.37 At Colne, there will be a crossing movement in each direction with the existing Blackpool train, which lays over in the station for 21 minutes. This would require some kind of facility to be installed at Colne station, such as two tracks and two platforms.

6.38 The train can then continue towards Skipton on a single-track line, provided no other services operate. At Skipton, the train lays over for 16 minutes before going back to Manchester.

6.39 If other services are required to run between Burnley and Skipton, further passing loops and/or double track sections will be required.

6.40 In common with the other options, this assumes no change in any of the other service timetables, although in reality, it may be possible to make some adjustments in order to create more even intervals between trains.

6.41 Advantages of a Manchester Victoria – Skipton service are:

- Provides a regular direct service from towns such as Accrington, Oswaldtwistle, Burnley, Nelson and Colne to Manchester;
- Reduces the public transport isolation of the East Lancashire towns from the job and leisure opportunities available in Manchester;
- Provides improved rail services between Blackburn and Colne;
- Provides an enhanced rail service over a wide area, from Bolton to Skipton, with an additional hourly train from Blackburn to Manchester;
- Uses an existing path south of Bolton, requiring no additional paths into Victoria.

6.42 Disadvantages of the Manchester Victoria – Skipton service are:

- High operating cost;
- Intensive utilisation of single track sections south of Blackburn;
- Produces uneven service intervals (approximately 20/40 minutes) between Blackburn and Colne, in order to use the path from Bolton which is half hourly with the Manchester – Clitheroe train;
- Slow journey times due to single track sections and waits at passing loops.

Blackburn – Colne – Skipton

6.43 This option envisages a new service from Blackburn to Skipton. This enables the local rail service in this part of East Lancashire to be markedly increased whilst avoiding additional interactions with other rail services towards Manchester.

6.44 The service runs at a half hourly interval to the existing Blackpool – Colne train, although this is not possible towards Colne, because the Transpennine Express service to York runs at this time.

6.45 The Blackburn – Skipton service would therefore run at a 25/35-minute interval from Blackburn to Colne, and a 30/30 minute interval in the other direction.

6.46 The new service would require passing facilities at Nelson station together with a section of double track railway towards Colne. The different interval in each direction means that the two passing movements per hour will take place at slightly different locations, one at Nelson station itself, and the other to the north, although it may be possible to further adjust the timing of the existing Blackpool – Colne train so that it would wait at Nelson for 5 minutes, although this increases the journey time to Colne.

6.47 The train would have a 48 minute layover at Skipton before making its journey back to Blackburn, in this "dead" time, it may be possible to extend the service onto the Grassington branch and back.

6.48 There is a 20-minute layover at Blackburn, which will be on one of the through platforms. It may be possible to run an hourly Blackburn – Manchester Victoria train (similar to option 2), with the unit arrived from Skipton forming the Manchester train and vice versa, which could save on turnaround times for both.

6.49 The Blackburn – Skipton service has the following advantages:

- The service from Blackburn to Skipton will provide a near half hourly interval to the East Lancashire towns both north and west of Burnley;
- The new service will avoid interactions on single track and congested sections outside the Colne branch line;
- A timetable can be devised requiring only a single passing facility at Nelson station.Disadvantages of a Blackburn – Skipton service are:

- Relatively isolated to the rail network – does not provide additional direct journey opportunities from the area except to/from Skipton;
- Requires passing facilities to be installed at Nelson;
- Long (48 minute) layover at Skipton.

Extensions beyond Skipton

Grassington

6.51 The potential exists to extend services on the Colne – Skipton line to Grassington along the current freight only branch.

6.52 There is a proposal to open the branch to occasional tourist traffic into the Yorkshire Dales, although Grassington and Rylstone could also benefit from being connected into the West Yorkshire commuter network.

6.53 Running through onto Grassington branch will require no reversal at Skipton, and the branch has dedicated infrastructure including a flyover across the main Leeds, Settle & Carlisle line, including a dedicated (though disused) platform at Skipton station itself. There will therefore be no additional interactions with other rail services (aside from freight trains serving the Rylstone quarries) relative to terminating at Skipton.

6.54 Two of the local service options have significant layover times at Skipton, which could be used to run through to Grassington without requiring an additional unit.

6.55 Use of the Grassington branch will require a line upgrade to increase speeds over the current 15mph. The track does not extend fully into Threshfield and therefore the use of the Grassington line is also dependent on the reinstatement of a section of track and the provision of station facilities at Threshfield. An alternative, though less attractive from a passenger perspective, would be to provide a station at the quarry (the current end of the line) and a shuttle bus service into Threshfield/Grassington.

Leeds and Bradford Forster Square

6.56 Extending the local services beyond Skipton to Leeds or Bradford Forster Square would improve the connectivity of the Burnley – Colne area and Earby to West Yorkshire, connecting it into the Leeds based commuter network, and improving the range of destinations available directly from Bradford, which for a major city has a relatively isolated position on the National Rail network.

6.57 Running services from Colne through to Leeds or Bradford would require flat crossing movements south of Skipton station, interacting with the existing four stopping trains per hour, and the Leeds to Carlisle and Morecambe trains, as well as the often intensive service of coal trains towards the large West Yorkshire power stations.

6.58 South of Skipton, the existing heavily used mixed traffic railway can run very close to capacity when there is a high demand for coal over the route.

6.59 The flat junctions and three way movements at Shipley are a major constraint upon running additional trains on the line, with trains often having to wait for paths in the station.

6.60 Running trains from Colne to Leeds or Bradford as all stations stopping services will impose an additional constraint – the line is electrified and services are operated by modern units with high acceleration, making it difficult for a diesel unit to keep up with comparable timings.

6.61 The existing daytime service of four trains per hour between Skipton and Shipley, four trains per hour between Shipley and Leeds, and six trains per hour between Shipley and Bradford Forster Square, plus infrequent express services from Leeds to Carlisle, Morecambe and Bradford, means there is little spare capacity in some hours, and little potential to offer a “clean” (fast and non stop) hourly path to either Leeds or Bradford.

6.62 It would therefore be challenging to run trains through from Skipton towards Leeds or Bradford.

Possible Inter-Regional Services

6.63 The Skipton – Colne – Burnley line once carried express long distance services, but in the current inter urban express network, services generally slot into a regular hourly pattern to a few destinations rather than the irregular and infrequent services which operated in the past to a wider variety of direct destinations. This approach to service provision, which concentrates on relatively high frequency services on a fixed route pattern, is likely to remain into the future. Such a model of service provision has the benefits of being more easily understood by passengers. Operationally the model is driven by a desire to reduce conflicts between services by reducing the number of services that are 'threaded' across the network and are often subject to unacceptable levels of delay because of the conflicts they experience en route.

6.64 This philosophy is an important one as it undermines much of the ambition that pro-rail organisations tend to have for linking pairs of origins and destinations directly that do not currently have a direct service. In the context of trans-Pennine services it mitigates against a network philosophy that envisages a large number of criss-crossing services that seeks to provide as many direct journey opportunities as possible between O-D pairs albeit at a lower frequency. We are much more likely to see the trunk sections of the trans-Pennine corridors becoming the high frequency links with stations like Leeds, Sheffield, Manchester and to a lesser extent places like Doncaster and Preston being used as hubs to feed people into a high frequency regular service across the Pennines.

6.65 In the context of Skipton-Colne, its use as a strategic link is most likely to be to carry services that operate on at least a 2 hourly (120 minute) interval, and preferably hourly. An hourly service would be required in order to be attractive in an area with quite closely spaced urban centres and comparatively short inter city journeys such as Bradford – Manchester.

6.66 Within this philosophy the following service options also fit with the aspirations of the local authorities:

- **Bradford Forster Square (or Leeds) – Manchester Airport** via Skipton, Colne, Blackburn and Manchester Piccadilly, connecting Bradford, the Aire Valley and East Lancashire directly to Manchester Piccadilly and Manchester Airport.
- **Bradford Forster Square (or Leeds)– Manchester Victoria** via Skipton, Colne and Blackburn, providing a fast, direct connection from East Lancashire to Manchester, and an alternative route from Bradford to Manchester.
- **West Yorkshire – Lancashire/Cumbria** assumes the Roses Link is enhanced by providing an additional hourly service from Leeds to potentially either Blackpool or Windermere (as has been mooted in the recent past).

6.67 The first of these services would provide Bradford and the Aire Valley towns with a direct link to Manchester Airport. It would also provide East Lancashire towns with a direct service to the Airport that is currently lacking. This service could be operated

from Leeds, which would provide significant time saving benefits for places on the Colne branch for travel to Leeds. There are 6 trains per hour between Bradford Forster Square and Shipley to provide the interchange opportunity with the service if it were to operate from Leeds instead of Bradford.

6.68 The second service would chiefly benefit the Aire Valley and East Lancashire towns by providing a direct link with Manchester. Bradford already has 2 tph to Manchester Victoria and the route via Skipton would be slower than the Calder Valley route so there would be little perceived gain by passengers.

6.69 The third service would improve links between West Yorkshire and North and East Lancashire. The current hourly 'Roses' service between York/Scarborough and Blackpool would effectively be doubled with a new hourly service via Skipton. A link from West Yorkshire to the Lake District would potentially relieve the A65.

6.70 The following three figures show the impact of express services on journey time accessibility to three key destinations: Leeds, Manchester Airport and Preston. In Figure 6.2 (Access to Leeds) East Lancashire towns gain in the order of 15-20 minutes with Colne in particular benefiting considerably through not having to travel via Burnley.

6.71 Figure 6.3 (Access to Manchester Airport) shows the benefits limited the catchments of the larger stations that would potentially be served by an express service (Colne, Burnley, Accrington and Blackburn).

6.72 Access to Preston (Figure 6.4) is improved dramatically for Aire Valley towns such as Bingley and Keighley. Shipley also benefits but for places on the Wharfe Valley line (to Ilkley) it remains quicker to go via Leeds and interchange.

FIGURE 6.2 CHANGE IN JOURNEY TIME ACCESSIBILITY TO LEEDS

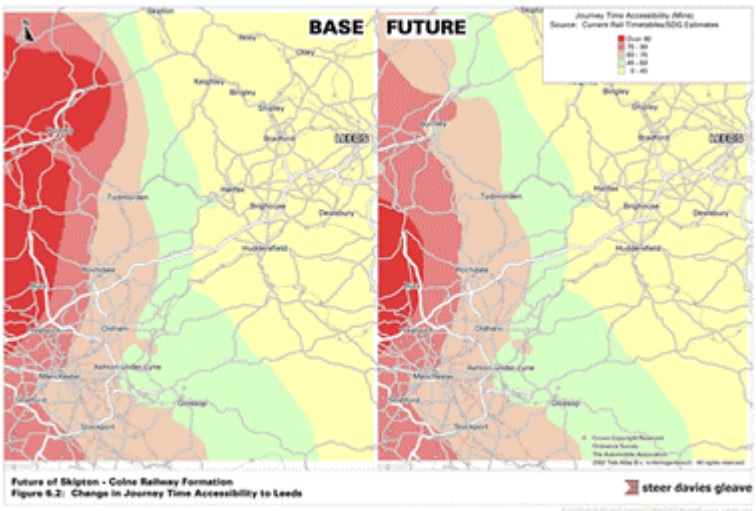


FIGURE 6.3 CHANGE IN JOURNEY TIME ACCESSIBILITY TO MANCHESTER AIRPORT

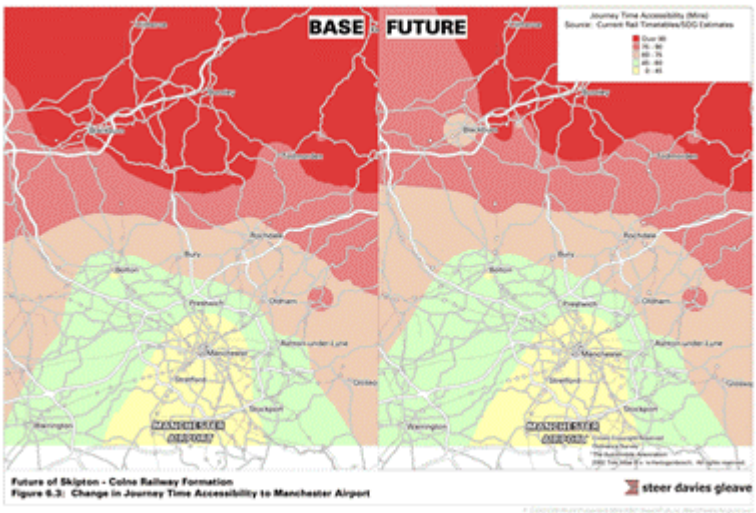
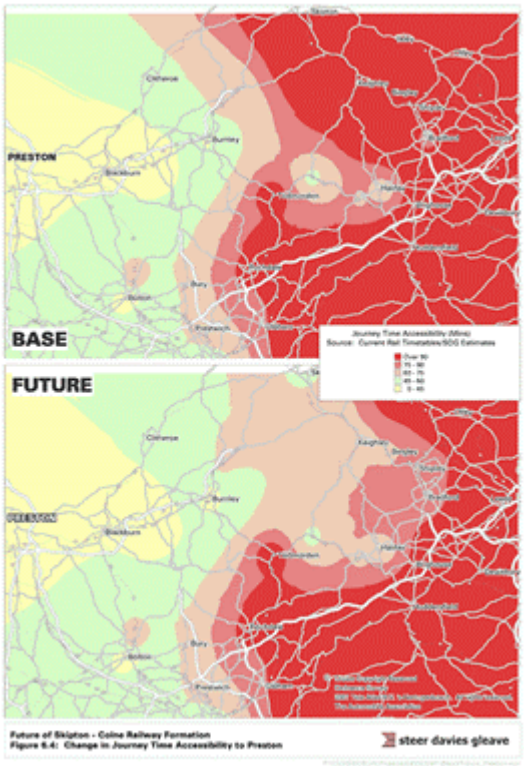


FIGURE 6.4 CHANGE IN JOURNEY TIME ACCESSIBILITY TO PRESTON



7. APPRAISAL

Overview

7.1 In this section we present the outputs of the appraisal process using the results of the local service modelling exercise. The nature of the modelling process and the structure of the model allows us to estimate the benefits of the local service with a reasonable degree of certainty. After describing the scale of the benefits of the local service we discuss the extent to which the strategic passenger role is central to the case.

7.2 We have considered four local service options that from an operational perspective can readily be slotted into existing rail operations. These services are:

- Skipton – Colne shuttle;
- Extending Blackpool South – Colne service to Skipton;
- Creating a new Manchester Victoria – Skipton service via Colne; and
- Creating a new Blackburn – Skipton service via Colne.

Benefits of the Local Service

7.3 The shuttle service (Option 0) and the extension of the Blackpool South-Colne service have similar marginal operating costs, since both require the use of an additional train unit to operate the service. Since Option 1 creates more direct journey opportunities and costs no more to run it makes sense to appraise Option 1 rather than Option 0 as the main case.

7.4 The other two options (services from Skipton to Manchester Victoria and from Skipton to Blackburn) each require an overlaid service, which will generate frequency improvements between pairs of stations on the existing network (e.g. Blackburn to Bolton). The demand and revenue from these frequency enhancements is not directly attributable to the Skipton-Colne reopening.

7.5 Therefore the option that is most sensible to take forward for appraisal is the extension of the existing Blackpool South-Colne service, Option 1.

Operating Costs

7.6 Operating cost estimates are derived from our own database of rail operating costs and are based upon the most up-to-date information available to us from within the rail industry. As we stated above, Option 1 requires one additional train unit to operate the service through to Skipton on an hourly basis. The total cost of this additional unit is estimated at just under £800,000 per annum and comprises:

- Trains run 7 days a week, with a half service (every 2 hours) on Sundays;
- The two coach trains have annual leasing costs of £110,000, fuel costs of 30p per mile, and maintenance costs of 45p per mile, all per vehicle;
- Track Access is charged at 7p per mile, and each station call costs £2.25;
- Staff costs are a driver at £36,000 gross and a conductor at £30,000 gross per annum (including employment costs), over 7.5 hour shifts.

Demand and Revenue Assessment

7.7 The demand and revenue assessment of the local service was done through the use of a logit based mode choice model. Car trip movements were extracted from a TRIPS highway model of the Colne/Burnley area. The trip matrix underpinning the TRIPS model was derived from roadside interview surveys undertaken for Lancashire County Council in 1999.

7.8 The model predicts that of around 15,000 in-scope journeys across a 12-hour day, the local rail service captures around 300 (or 2%). When annualised, this gives around £200,000 revenue per year. With a scheme of this nature where there is an established bus alternative to rail, we would expect a significant amount of the overall rail revenue to come from passengers transferring from bus. We have assumed that the source of the overall rail demand will be 30% ex-car, 50% ex-bus with the remaining 20% newly generated trips. Dividing the ex-car revenue by 0.3 gives total annual revenue, at 1999 levels, of £620,000.

Summary of Appraisal Inputs

7.9 The key assumptions underpinning the appraisal of Option 1 are as follows:

- Capital cost of reinstating the line (single-track option)- £33m
- Incremental operating cost - £790,000 per annum;
- Revenue from fares (1999 levels) - £620,000 per annum;
- Proportion of new rail users who are ex-car: ex-bus: new trips = 30:50:20
- Ratio of fare revenue to economic benefits (user and non-user benefits) = 1:2

7.10 Other assumptions:

- Revenue growth 2% per annum;
- Operating cost growth 1% per annum;
- Discount rate 3.5%;
- Opening year 2007[2] (construction phased over 2 previous years).

7.11 The outputs from the economic appraisal are as follows:

- PV of costs = £80.6m
- PV of revenue = £16.2m
- PV of economic benefits = £41.0m
- Benefit-cost ratio = 0.7

7.12 In order to generate a BCR in excess of 1.0 the revenue generated by the proposals needs to be at least £875,000 per annum. To generate a BCR of 1.5 the revenue must be in excess of £1.25m (approximately double the level estimated by the modelling).

[2] For the purposes of the appraisal we have assumed an early opening year. Whilst it is true that by delaying the opening year revenue might be higher, it is also true that the costs could also increase over present day levels.

7.13 It should be noted that these figures presume a high abstraction of passengers from what is currently commercial bus services along the corridor. Post railway reopening maintenance of a level of bus service will be important and this may result in additional call on Lancashire and Yorkshire County Councils' supported services budget.

7.14 On this basis, a local service alone is unlikely to be regarded as providing sufficient value for money to be attractive for Government-sourced funding.

The Role of Strategic Services

7.15 On the basis of this analysis it is apparent that the local service does not in itself make a case for the reinstatement of the line. The potential value of the route in terms of strategic passenger options is therefore important.

7.16 The most likely options for strategic passenger services are, as we outlined in the previous section, a new service linking Leeds and Preston via Skipton or a new service linking Leeds with Manchester Airport (or maybe Bradford Forster Square since Bradford does not have a direct service). The journey time benefits would be as summarised in the following table.

TABLE 7.1 BENEFITS OF STRATEGIC SERVICE OPTIONS

	Current Best Rail Journey Time (mins)	Indicative New Rail Journey Time (mins)	Journey Time Improvement
Skipton-Preston	140	53	87
Shipley-Preston	115	72	43
Leeds-Preston	95	89	6
Skipton-Manchester Airport	140	100	40
Shipley-Manchester Airport	115	120	-

7.17 As the comparative journey times indicate, there are significant potential time savings for travel between the Aire Valley towns and Preston. Even from Leeds to Preston the journey time is marginally quicker than the Calder Valley route used at present. For travel to Manchester Airport the benefits have less of a geographical coverage. Certainly Skipton to the Airport journey times are reduced significantly but the benefits erode quickly as one gets closer to Leeds such that around Keighley/Bingley there is little benefit in journey time. The route option via Leeds also has the benefit of 2 journey opportunities each hour rather than the potential for maybe one via Colne. However, while longer in travel time avoiding interchange for passengers bound for Manchester Airport may prove attractive.

7.18 In terms of accommodating these services, one of the most significant issues is how many additional express services each hour can be accommodated on the reopened route without having to double the track. The single-track option we have costed allows for a passing loop at Earby, which may be sufficient to allow an additional express service to fit with the local service. There are certainly problems with the Colne-Burnley stretch, which would need to have some form of passing facility installed at extra cost. The cost of the loop on the Burnley-Colne stretch need not be attributable to the Skipton-Colne scheme as it has already been identified as part of the East Lancashire Partnership's proposals for development of rail services in this area.

7.19 The recent Posford Haskoning report for the East Lancashire Partnership indicates that a slow and semi-fast service can be accommodated on the Colne branch by

- doubling the half mile of track from Colne viaduct into the station and providing dual platforms at Colne at a cost of around £4m; and
- doubling from Gannow Junction to a point between Burnley Barracks and Burnley Central at a cost of just over £4m.

7.20 To provide a service in excess of these levels would require the doubling of the entire route from Skipton to Gannow Junction at an incremental cost over the single-track Skipton-Colne option of around £30m. This would require a step change in benefits to make a case for the doubling option, which we believe, would be difficult to justify. There are also doubts from an environmental perspective over the attractiveness of providing a transport formation that accommodates both a double-track railway and a single-carriageway road.

7.21 The total capital expenditure for the double track option that could accommodate at least 3tph in each direction would be just over £60m. This is close to double the cost of reinstating the Skipton-Colne railway as a predominantly single-track scheme.

7.22 We believe it will be a significant task to generate additional benefits over and above services that could be provided using the single-track option to support this extra capital expenditure.

7.23 The responsibility for procuring such long-distance passenger services ultimately resides with the SRA. The SRA's role has changed in recent years to one of service specifier. The current round of franchise replacement will see potential franchisees bidding for a level of service specified by the SRA. The SRA will not specify any services that could use Skipton-Colne as part of a core proposition for the Northern Rail Franchise. It is possible, although extremely unlikely, that a bidder could propose to pay for the reinstatement and take a commercial view that services would be profitable. Given that the majority of routes in the Northern Franchise area require significant revenue support the likelihood of a bidder seeing a commercial opportunity in Skipton-Colne is slim.

Synergy With Grassington Branch Proposals

7.24 The Arup report into the potential for reinstating passenger services on the branch to Grassington tested a number of service frequency options based around a service operating between Skipton and Grassington. Options that are deemed to require an additional train unit to operate the service return a cost-benefit ratio of around 0.75. The option that fits best with Option 1 of the Skipton-Colne proposals is Arup's Option 6, which involves a 7-day service with 10 trains per day (tpd) in the high tourist season and 5 tpd for the rest of the year.

7.25 The operating costs of Arup's Option 6 are estimated at around £300,000 and revenue generated around £110,000. The Skipton-Colne Option 1 (extension of Blackpool South service as far as Skipton) requires that the additional train unit wait at Skipton for 53 minutes before it can regain its path back towards Blackpool South. This gives sufficient time to run to Grassington (Arup estimated return run time of about 40 minutes which leaves up to 13 minutes for layover at Grassington).

7.26 By sharing the lease costs of the unit and the train crew costs with the Skipton-Colne proposals, the operating costs of the Grassington service are purely track access charges, fuel and maintenance associated with the additional mileage. Incremental operating costs would then be around £100,000 – approximately the same as the revenue generated.

7.27 Sharing operating resources with the Skipton-Colne scheme helps the Grassington branch proposals approximately to cover its operating costs (assuming that the track access charges are do not include a capital element, only maintenance). The combined scheme makes little or no financial contribution to capital cost although the wider economic benefits make a contribution to the overall case. The full economic cost-benefit ratio for the combined scheme is around 0.6-0.7, still some way short of being an attractive funding proposition.

East Lancashire Rapid Transit Proposals

7.28 Posford Haskoning determined the infrastructure upgrades necessary to accommodate 2, 3 and 4 trains per hour services on the East Lancashire rail network. The key factor impacting on Skipton-Colne is the need to partially double Burnley-Colne for 2tph and full doubling of Burnley-Colne for 3tph or more.

7.29 If the ELRT proposals are developed, then there would seem to be a range of likely scenarios for Skipton-Colne depending on the level of frequency that is considered to be the most desirable. A predominantly single-track Colne-Skipton could support up to 2tph. Therefore if, say, 2 tph were adopted for ELRT as a service standard there could be consistency with extending the service standards up to Skipton. It 4tph were the adopted standard then the option would still exist to extend alternate trains to Skipton without the need fully to double Colne-Skipton. If, for consistency, it was felt desirable to run 4tph through to Skipton this would require full doubling of Colne-Skipton.

8. CONCLUSIONS

Engineering

8.1 The re-instatement of the 17km of route between Colne and Skipton as a single track railway is technically feasible although subject to several major project risks:

- the acceptability to the highway authority of a bridge under Vivary Way;
- the acceptability of the number and frequency of level crossings;
- the acceptability of damaging the ecologically important habitats to be found along the route.

8.2 The re-instatement of a double track railway imposes significantly more onerous requirements, such as widening the existing formation, and carries the risk of requiring reconstruction of all the line structures to enable the passage of freight traffic. In addition doubling the existing Rose Grove to Colne line is likely to prove necessary.

8.3 An integrated scheme, whereby the A56 Village Bypasses proposals include provision for a single-track railway re-instatement, is considered technically feasible but remains subject to the risks set out in §8.1. No wholly satisfactory solution has been established for both the road and railway to co-exist at Vivary Way in Colne.

8.4 Taking forward a combined scheme imposes additional risks over and above those associated with each individual scheme. The additional requirements for double track plus A56 make viability doubtful at best.

8.5 An alternative alignment for the A56 scheme that avoids the railway corridor has obvious merit but the opportunities for finding a suitable sustainable route are very limited.

Freight

8.6 The Skipton-Colne railway offers little benefit to freight operations either from a locally generated market or as a strategic routing option. The following reasons for the lack of strategic benefits are:

- For east-west trans-Pennine strategic movements the line feeds traffic into Leeds area which is congested now and for the foreseeable future and so is not likely to be practicable;
- For north-south strategic movements the line would offer a means of avoiding Leeds but there is no east facing junction at Burnley onto the Copy Pit route nor any easy way of providing one;

8.7 TARMAC has indicated that there is little or no benefit to either its extraction strategy (vis-á-vis the balance of extraction between Dales, High Peak and around Lancashire) or its logistics operation in terms of the balance between road and rail movements.

Passenger

8.8 Forecast local passenger flows are not sufficient to make a case for the railway in their own right. The benefit-cost ratio of extending the existing Blackpool-Colne service as far as Skipton is at best around 0.7 (i.e. costs exceed benefits).

8.9 The case for the line appears therefore to hinge on its strategic value as a passenger route. Here there are opportunities to develop trans-Pennine services by, perhaps, creating a new Leeds-Skipton-Preston-Windermere service. Problems of accommodating the service on the already congested Skipton to Leeds line would have to be overcome although this could be assisted with the trade-off of terminating the Lancaster-Leeds trains at Skipton. Such solutions, however, may require further capital expenditure.

8.10 The route would offer significant time savings between the Aire Valley towns and Preston as well as some journey time savings between Skipton/Keighley and Manchester Airport if such services were to be provided. The viability of the link rests on the financial and wider social and economic benefits of improving these links. It is unlikely that the passenger numbers involved in these movements and the benefits they would enjoy will be sufficient to justify £30m of investment (or £60m if full length track doubling required) either now or in the short to medium term future (i.e. in the period covered by the Government's Ten Year Plan or the SRA's Strategic Plan). It is possible, however, that in the longer term and in a climate more conducive to rail investment than that at present a case could be made.

8.11 We acknowledge the desire and interest from local authorities and pro-rail agencies and action groups to see new services linking pairs of origins and destinations that are not currently directly linked. However, a fine line exists between being pragmatic/realistic/visionary with respect to potential future use of the line without straying into the realms of fantasy. In the current climate there is little appetite and is unlikely to be for some time for line re-openings, complex service additions or recasting. Threading relatively complex services across the Pennines is not going to be the model for service delivery for many years to come. The move if anything is towards simplifying services. In the case of trans-Pennine it is likely that the model will more likely be for reliable, frequent services along the core trunk routes (Leeds-Manchester and Sheffield-Manchester). We have identified that the most sensible use of Skipton-Colne that can be considered at present will be for a regional service that operates on a broadly hourly basis and under this scenario the sorts of options that emerge are those that we have described in Section Six of this report. Until issues of capacity at major hubs are addressed and the whole issue of the model for service delivery emerges from the SRA, we see little value in considering major recasts of trans-Pennine inter-regional services.

The Way Forward

8.12 If the Villages Bypass is to go ahead on its preferred alignment then we suggest that for environmental reasons it would be undesirable to create a transport formation that accommodates a double-track railway and a single-carriageway road. The cross-section of such a combined rail and road corridor would require significant disruption to embankments and cuttings with subsequent major impact on the natural environment. Therefore we contend that pursuance of the Villages Bypasses scheme in its current form could only realistically allow protecting the rail formation for a single-track reinstatement.

8.13 This would limit the extent to which the link could accommodate passenger services. A single-track rail link with appropriate passing loops could support up to two trains per hour in each direction. This could prove to be sufficient even in the very long term where there might be an hourly train Leeds-Preston and an hourly Leeds-Manchester Airport.

8.14 As it is the SRA that would determine whether there is a strategic value for maintaining the route, the decision on the strategic value of the route for passenger services ultimately rests with the SRA. The additional costs of protecting the Skipton-Colne rail alignment for single-track reinstatement whilst constructing the Villages Bypass scheme are estimated at around £8-9 million. This cost allows for works required to accommodate both modes in the corridor to the north of Colne and allows for the cost of rerouting the Villages Bypass in Colne itself to the M65 roundabout (thereby avoiding Vivary Way).

8.15 In the context of the cost of the Villages Bypass scheme (£37m), the extra cost of the mitigating measures (£8-9m) is significant (between 20% and 25% extra). If the rail line were reopened benefits would accrue to longer distance strategic passengers as well as the local area, the latter anticipated to be both transport related and benefits to the wider local economy. As benefits would accrue locally and inter-regionally, it would appear sensible that if mitigating measures are required their cost be shared between local funders (principally the two County Councils on the route) and the strategic funder of the country's railways, i.e. the SRA. The question therefore is whether the SRA is sufficiently sure of the route's potential strategic importance to consider contributing to paying for these accommodating works for a single track reinstatement alongside the Villages Bypass scheme. The county council(s) could nonetheless decide to pay for the mitigating works regardless of the SRA's views.

8.16 In the context of the cost of providing additional capacity on trans-Pennine routes in general the figure is less significant. For example, the cost of reopening one of the disused summit tunnels between Huddersfield and Stalybridge and associated resignalling, plus reducing movement conflicts at Heaton Lodge Junction east of Huddersfield is estimated at around £100m. A more comprehensive treatment of Transpennine North could cost around £200m. Investing a relatively modest sum now to maintain an option of a future reinstatement, which itself could create additional trans-Pennine capacity at a cost lower than alternative options may be attractive. However, it is not just a question of costs as potential benefits also need to be considered. While more detailed analysis would be needed to confirm it, we would suggest that the benefits accruing from upgrading the highly trafficked North Transpennine route are likely to be significantly greater than reinstating Skipton-Colne. So, despite the latter's lower cost, upgrading North Transpennine would be in the SRA's eyes be likely to offer better value for money.

8.17 In its response to this study the SRA reiterates that the scheme is not included in its current Strategic Plan. It acknowledges that the scheme could find a place in future versions of the Plan but that it would be subject to factors such as value-for-money, the merits of the scheme, availability of resources and the merits of the scheme vis a vis other projects. The SRA is about to embark on the production of Regional Planning Assessments that will set out the SRA's vision for long-term development of the passenger and freight network. A full copy of the SRA's response is appended to this report.

8.18 In the light of the SRA's response we would recommend that in the short term Lancashire County Council concentrates its efforts on engaging the SRA to influence its Regional Planning Assessments and seek to co-promote consideration of Skipton-Colne within the wider context of all Trans Pennine options.

8.19 If a railway alignment is to be protected, the cheapest way of maintaining the option of reinstating Skipton-Colne would be to realign the bypass proposal so that the track bed is maintained. Moreover, this offers the opportunity for twin track reinstatement, which in turn would maximise the potential benefits that may accrue. In such circumstances, as long as a realigned bypass is environmentally acceptable and has similar costs, the impact on the case for the bypass is likely to be minimal and the option to reinstate the railway, at a time when the economic and financial circumstances are more conducive, remains.

Summary

8.20 In summary, we conclude:

i. Reinstatement of the Skipton-Colne line offers little strategic benefit for freight movement and on this basis an argument can not be made for the safeguarding of the alignment;

ii. It is unlikely that a financial and economic case could be made for the reinstatement of the line for local rail services alone and similarly on this basis alone an argument cannot be made for route safeguarding;

iii. In the short to medium term it appears difficult to make a case for route reinstatement to serve longer distance strategic passenger movements. However, in the longer term there may be potential, particularly if the funding environment returns to one more conducive to investment in rail capital projects. If the route were reinstated to serve longer distance movements it would offer an opportunity to serve areas within the corridor both by stopping express services and local services;

iv. A double-track reinstatement would provide the greatest amount of operational flexibility which is potentially important for longer-distance passenger services that might have to be pathed through constrained areas elsewhere. The Villages Bypass scheme as proposed would effectively restrict the railway to a single-track reopening on the current alignment which might compromise the benefits to strategic passenger services;

v. On this basis and if Lancashire County Council and North Yorkshire County Council wish to adopt a precautionary principle to maintain the option value offered by the rail alignment, it should be protected from development that would compromise its cost effective reinstatement.

vi. The most cost effective way of maintaining the rail alignment is for the Villages Bypass to adopt an alternative route from that proposed at present;

APPENDIX A

Cost Estimates

COLNE TO SKIPTON RAILWAY

COST ESTIMATE - LOW-COST SINGLE TRACK WITH PASSING LOOP

Item	Quantitiy	Unit	Rate	Total	Comment
Track bed					
Clearance - general	168650	m2	£ 1.00	£ 168,650	
Fencing, gates etc	1	sum	£ 50,000	£ 50,000	
Repairs to stone walls	1	sum	£ 50,000	£ 50,000	
Excavate 150mm	8348	m3	£ 3	£ 20,870	
Dispose 150mm	8348	m3	£ 11	£ 91,830	Assumes uncontaminated
Prepare formation	55655	m2	£ 0.60	£ 33,393	
Earthworks	1	sum	£ 250,000	£ 250,000	Allowance for repairs
Permanent Way					
Single CWR track	17100	m	£ 300	£ 5,130,000	All in rate
Passing loop	800	m	£ 300	£ 240,000	All in rate
Medium speed turnout and trap points	4	no	£ 220,000	£ 880,000	
Drainage					
Cutting Drainage	4155	rt m	£ 80	£ 332,400	Positive drainage both sides
Signalling					
Bidirectional single, solid state interlocking	1	sum	£ 3,500,000	£ 3,500,000	Loop and xings signalled
Level Crossings					
Slipper Hill Farm	1	sum	£ 200,000	£ 200,000	Auto half barrier
Holly Bush Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Cragg Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Accornlee Hall Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Great Hague Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Salterforth Road	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Skipton Road	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Earby Industrial Estate	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Booth Bridge Lane	1	sum	£ 200,000	£ 200,000	Auto half barrier
Low Ground Farm (1)	1	sum	£ 50,000	£ 50,000	User worked gates
Low Ground Farm (2)	1	sum	£ 50,000	£ 50,000	User worked gates
Low Ground Farm (3)	1	sum	£ 50,000	£ 50,000	User worked gates
Banner Hill Laithe	1	sum	£ 50,000	£ 50,000	User worked gates
Footpath MSL	5	sum	£ 30,000	£ 150,000	
Cabling	17	km	£ 10,000	£ 170,000	
Cable trough	17	km	£ 20,000	£ 340,000	
Structures					
Errant vehicle protection	5	no	£ 50,000	£ 250,000	
Underbridge 118	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 116	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 113 - Canal	1	sum	£ 400,000	£ 400,000	Single track
Underbridge 112	1	sum	£ 50,000	£ 50,000	Reinstate deck - single
Underbridge 111	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 110	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 109	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - New Cut	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - White House	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - Hill Top Lane	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - Brown House Farm	1	sum	£ 50,000	£ 50,000	Reinstate deck -single
Underbridge - Brown House Beck	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 99	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 98	1	sum	£ 50,000	£ 50,000	Reinstate deck - single
Underbridge - Banner Hill	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 94	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 93 - River Aire	1	sum	£ 800,000	£ 800,000	Single track
Underbridge 92	1	sum	£ 25,000	£ 25,000	Minor works
Culverts	1	sum	£ 150,000	£ 150,000	Allowance for repairs
Stations					
Earby	1	no.	£ 1,000,000	£ 1,000,000	2 x 112m platforms, car park, bus interchange
Skipton	1	sum	£ 300,000	£ 300,000	ARUP Grassington study - Plat 5
Vivary Way Overbridge and highway works	1	sum	£ 2,500,000	£ 2,500,000	
Skipton Bypass overbridge	1	sum	£ 3,000,000	£ 3,000,000	Cut and cover
Accom. Works					
Access to Low Ground Farm	1	sum	£ 50,000	£ 50,000	
Making good gardens	1	sum	£ 50,000	£ 50,000	
Utilities					
Procurement					
Feasibility Study and outline design				£ 100,000	
TWA documents and inquiry				£ 750,000	Inc Environmental studies
Design - civils and p way				£ 150,000	
Design - signalling				£ 100,000	
Railtrack Form A Form B				£ 750,000	
Construction PM, supervision and on-costs				£ 1,500,000	
SUB TOTAL				£ ***25,732,143***	
Contingency @ 20%				£ 5,146,429	
Land CPO, compensation, relocation				£ 2,000,000	
TOTAL				£ 32,880,000	

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22/05/2003
Cost estimate simple single 22 05 2003.xls

COLNE TO SKIPTON RAILWAY

COST ESTIMATE - DOUBLE TRACK, GANNOW JUNCTION TO SKIPTON

Item	Quantitiy	Unit	Rate	Total	Comment
Track bed					
Clearance - general	339650	m2	£ 1.00	£ 339,650	
Fencing, gates etc	1	sum	£ 50,000	£ 50,000	
Repairs to stone walls	1	sum	£ 50,000	£ 50,000	
Excavate 150mm	40758	m3	£ 2.50	£ 101,895	
Dispose 150mm	40758	m3	£ 11.00	£ 448,338	Assumes uncontaminated
Prepare formation	271720	m2	£ 0.60	£ 163,032	
Earthworks	1	sum	£ 250,000	£ 250,000	Allowance for repairs
Permanent Way - Skipton to Colne					
CWR on new ballast	34200	m	£ 300	£ 10,260,000	All in rate
Low speed turnout and trap points	4	no	£ 100,000	£ 400,000	Allows for mid-route cross-over
Permanent Way - Gannow Junction to Colne					
Removal of old track	10300	m	£ 6.50	£ 66,950	Line closed for construction
CWR on new ballast	10300	m	£ 300	£ 3,090,000	
CWR track on existing ballast	10300	m	£ 250	£ 2,575,000	
Medium speed turnout and trap points	2	no	£ 220,000	£ 440,000	Gannow junction remains single
Drainage					
Cutting Drainage	4155	rt m	£ 80	£ 332,400	Positive drainage both sides
Earthworks					
Embankment widening	15000	m	£ 300	£ 4,500,000	
Cutting widening	10000	m	£ 100	£ 1,000,000	
Signalling					
Unidirectional double, solid state interlocking	1	sum	£ 4,000,000	£ 4,000,000	Loop and xings signalled
Level Crossings					
Brierfield	1	sum	£ 400,000	£ 400,000	Upgrade to full barrier with CCTV
Chaffers (Nelson)	1	sum	£ 400,000	£ 400,000	Upgrade to full barrier with CCTV
Slipper Hill Farm	1	sum	£ 200,000	£ 200,000	Auto half barrier
Holly Bush Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Cragg Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Accornlee Hall Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Great Hague Farm	1	sum	£ 50,000	£ 50,000	User worked gates
Salterforth Road	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Skipton Road	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Earby Industrial Estate	1	sum	£ 400,000	£ 400,000	Full barrier crossing with CCTV
Booth Bridge Lane	1	sum	£ 200,000	£ 200,000	Auto half barrier
Low Ground Farm (1)	1	sum	£ 50,000	£ 50,000	User worked gates
Low Ground Farm (2)	1	sum	£ 50,000	£ 50,000	User worked gates
Low Ground Farm (3)	1	sum	£ 50,000	£ 50,000	User worked gates
Banner Hill Laithe	1	sum	£ 50,000	£ 50,000	User worked gates
Footpath MSL	5	sum	£ 30,000	£ 150,000	
Cabling	17	km	£ 10,000	£ 170,000	
Cable trough	17	km	£ 20,000	£ 340,000	
Structures					
Gannow Junction - Colne	1	sum	£ 100,000	£ 100,000	Allowance for double tracking
Errant vehicle protection	5	no.	£ 50,000	£ 250,000	
Underbridge 118	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 116	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 113 - Canal	1	sum	£ 640,000	£ 640,000	
Underbridge 112	1	sum	£ 60,000	£ 60,000	Reinstate deck
Underbridge 111	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 110	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 109	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - New Cut	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - White House	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - Hill Top Lane	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge - Brown House Farm	1	sum	£ 60,000	£ 30,000	Reinstate deck
Underbridge - Brown House Beck	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 99	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 98	1	sum	£ 60,000	£ 30,000	Reinstate deck
Underbridge - Banner Hill	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 94	1	sum	£ 25,000	£ 25,000	Minor works
Underbridge 93 - River Aire	1	sum	£ 1,280,000	£ 1,280,000	
Underbridge 92	1	sum	£ 25,000	£ 25,000	Minor works
Culverts	1	sum	£ 150,000	£ 150,000	Allowance for repairs
Stations					
Burnley Barracks	1	sum	£ 300,000	£ 200,000	Reinstate redundant platform
Burnley Central	1	sum	£ 300,000	£ 800,000	Rebuild required
Brierfield	1	sum	£ 300,000	£ 200,000	Reinstate redundant platform
Nelson	1	sum	£ 300,000	£ 100,000	Upgrade subway for DDA
Colne	1	sum	£ 500,000	£ 500,000	Additional platform and footbridge
Earby	1	no.	£ 1,000,000	£ 1,000,000	2 x 112m platforms, car park, bus interchange
Skipton	1	sum	£ 300,000	£ 300,000	ARUP Grassington study - Plat 5
Vivary Way Overbridge and highway works	1	sum	£ 2,500,000	£ 2,500,000	
Skipton Bypass overbridge	1	sum	£ 3,000,000	£ 3,000,000	Cut and cover
Accom. Works					
Access to Low Ground Farm	1	sum	£ 50,000	£ 50,000	
Making good gardens	1	sum	£ 50,000	£ 50,000	
Utilities	5000	m	£ 100	£ 500,000	Divert MP gas main along A road
Procurement					
Feasibility Study and outline design		sum		£ 150,000	
TWA documents and inquiry		sum		£ 1,000,000	Inc Environmental studies
Design - civils and p way		sum		£ 200,000	
Design - signalling		sum		£ 100,000	
Railtrack Form Form B		sum		£ 750,000	
Construction PM, supervision and on-costs		sum		£ 2,500,000	
TOC disruption and compensation during construction		sum		£ 500,000	
SUB TOTAL				***£ 48,792,265***	
Contingency @ 20%				£ 9,758,453	
Land CPO, compensation, relocation				£ 2,500,000	
TOTAL				**£ 61,050,000**	

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Cost estimate double 22 05 2003.xls

COLNE TO SKIPTON RAILWAY — COST ESTIMATE - ADDITIONAL COST TO A56 SCHEME TO ALLOW FOR RAIL REINSTATEMENT

	Item	Quantitiy	Unit	Rate	Total	Comment
Earthworks						
	Colne Edge					
	Extra cut	12750	m3	£ 2.50	£ 31,875	Assumes no rock
	Extra fill	12750	m3	£ 2.50	£ 31,875	
	Whitemoor Road Cutting					
	Extra cut	19600	m3	£ 2.50	£ 49,000	
	Foulridge - Kelbrook embankment - extra fill	96000	m3	£ 2.50	£ 240,000	
	Boothbridge farm cutting - extra cut	8400	m3	£ 2.50	£ 21,000	
Fencing						
	Safety Barrier	6250	m	£ 50.00	£ -	£312,500 deferred to rail scheme
Drainage						
	15% uplift to A56 estimate		sum		£ 450,000	
Structures						
	Hiers House Lane retaining wall	1000	m2	£ 250	£ 250,000	
	Colne Edge retaining wall	5950	m2	£ 250	£ 1,487,500	
	Foulridge allotments retaining wall	525	m2	£ 250	£ 131,250	
	Underbridge 118 - extra over	36	m2	£ 1,200	£ 43,200	
	Overbridge 117 Red Lane - extra over	60	m2	£ 1,200	£ 72,000	
	Underbridge 116 - extra over	36	m2	£ 1,200	£ 43,200	
	Overbridge 114 Whitemoor Road - extra over	60	m2	£ 1,200	£ 72,000	
	Underbridge 113 Canal - extra over	240	m2	£ 1,200	£ 288,000	
	Underbridge 112 - extra over	36	m2	£ 1,200	£ 43,200	
	Underbridge 111 - extra over	36	m2	£ 1,200	£ 43,200	
	Underbridge 110 - extra over	36	m2	£ 1,200	£ 43,200	
	Underbridge 109 - extra over	36	m2	£ 1,200	£ 43,200	
	Culverts - extra over	1	sum	£ 100,000	£ 100,000	Allowance for repairs
Misc.						
	Relocation of Barnoldswick Road junction				£ -	Extra offset against bridleway underpass saving
	Booth Bridge Lane				£ -	Defer cost to rail scheme
	SUB TOTAL				***£ 3,483,700***	
	Contingency @ 20%				£ 696,740	
	Additional land				£ 200,000	Low value agricultural
	Rail feasibility study				£ 100,000	
	TOTAL				**£ 4,480,000**	

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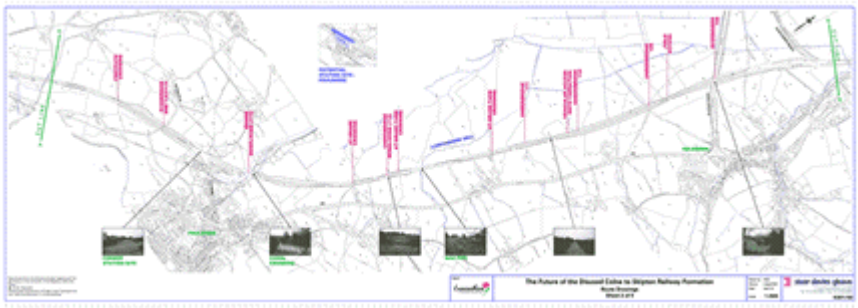
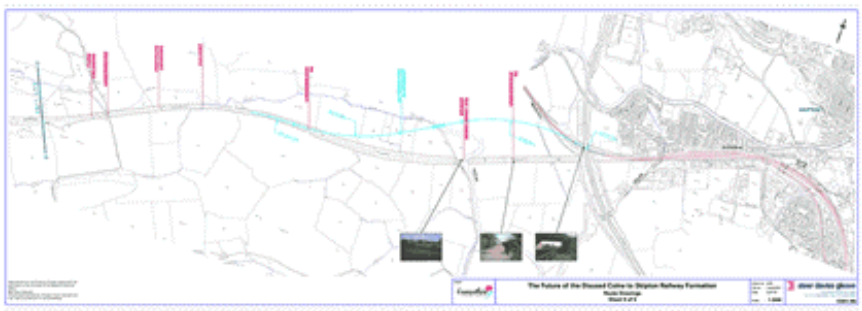
22/05/2003
Cost estimate combined 22 05 2003.xls

APPENDIX B

Route Drawings

B1





APPENDIX C

Route Drawings with A56 Scheme

C1

CONTROL SHEET

Project/Proposal Name:	FUTURE OF THE SKIPTON-COLNE RAILWAY FORMATION
Document Title:	Future of the Skipton-Colne Railway Formation
Client Contract/Project Number:	
SDG Project/Proposal Number:	205301
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Other Contributors:		Anzir Boodoo, Andy Barker, Neil Chadwick
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