



**SKIPTON—EAST LANCASHIRE
RAIL ACTION PARTNERSHIP**
Reconnecting your Region

S E L R A P

Re-opening of the Skipton to Colne Railway

Modules 4, 5 and 6

Wider Economic, Environmental and Social Case



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1 Introduction

Scope of paper

- 1.1 The objective of this paper is to consider the wider case for the railway (that is, above and beyond the factors considered in a conventional benefit – cost analysis as presented in Module 3).
- 1.2 This wider case potentially includes;
- Economic (regeneration and development) benefits;
 - Environmental benefits;
 - Social inclusion benefits
- 1.3 We begin by considering the economic benefits.

2 Wider Economic Benefits

- 2.1 There is a broader argument that can be explored about the relationship between the economic performance of the East Lancashire City Region and the improved accessibility to/from the area that would result from re-opening the line but this is recognised to be extremely difficult to adequately quantify. There are however, some more direct and potentially quantifiable impacts from the investment, firstly additional employment in the region, and secondly additional visitor spend within the local economy.

Employment Benefits

- 2.2 Employment benefits comprise three elements:
- Direct employment arising from railway construction followed by permanent employment during the operational phase.
 - Indirect employment arising from employment created in businesses supplying products, materials and services during the construction and operational phase.
 - Employment gained from businesses relocating to the area as a result of the improved accessibility.
 - Induced employment arising from persons employed directly and indirectly spending part of their income in the local area leading to further local employment.
- 2.3 Direct employment benefits during construction of the railway can be estimated by division of the value for gross output per employee for the construction industry into the overall estimate of construction costs to give the total number of person years of employment. This figure is then adjusted to give the total number of full time equivalent (FTE) jobs, using Treasury conventions for the conversion of temporary to full time jobs.
- 2.4 A gross output per head for the construction industry of £121,500 per head (Annual Business Inquiry, 2005) was assumed, uplifted by 6.4% to represent the increase in GDP to 2007.
- 2.5 A value for Gross Value Added (GVA) per employee for the construction sector in Lancashire was taken from 'Lancashire County Council, Lancashire Profile, Sector Profiles, Construction'. This uses employment data from The Office of National Statistics combined with employment data from the Annual Business Inquiry (ABI, 2004) to derive a value of £39,143 for the construction sector (2007 prices). This was uplifted by 13.0% to represent GDP increases to 2007.
- 2.6 **Table T2.1** shows the direct construction output resulting from the single track option and higher cost double track option. For the single track option, the total number of FTE jobs created during construction is 41 and the resulting increase in GVA totals over £1.8million.

For the double track option the total number of FTEs during construction is 62 and the increase in GVA is £2.7million.

T2.1 Direct Employment Benefits during Construction (£s, 2007 prices)

Construction Costs	Gross output per Employee	Person Years of Employment	Construction Jobs (FTE)	GVA per Employee	Total Direct Output (GVA)
Single track option					
£42,550,000	£129,300	406	41	£44,200	£1,812,200
Double track option					
£80,650,000	£129,300	624	62	£44,200	£2,740,400

2.7 An assessment of the direct employment benefits during operation can be made through application of the value for gross output per employee for the transport sector for each additional full time person employed. A value of £45,405 for the transport sector was assumed (source: Lancashire County Council, Lancashire Profile, Sector Profiles, Transport, Storage and Communication). This figure was uplifted by 13.0% to represent GDP increases to 2007.

2.8 **Table 2.2** presents the operational benefits associated with the Skipton-Colne option (Option 1) and the Skipton-Manchester Victoria option (Option 4). These options illustrate the range between the smallest and largest additional staff requirements and hence demonstrate the range of operational GVA.

2.9 With an assumption that Option 1 requires a further four employees for rolling stock and infrastructure maintenance in addition to 2.9 on-train staff, total direct output benefits are over £350,000 GVA. Option 4 will require 11.6 on-train staff and an additional ten maintenance staff, giving a total direct output benefit of over £1.1million GVA.

T2.2 Annual Direct Employment Benefits during Operation (£s, 2007 prices)

	Number of Employees	GVA per Employee	Total Direct Output (GVA)
Option 1 – Skipton-Colne hourly			
On-train	2.9	£51,300	£148,770
Infrastructure and Rolling Stock Maintenance	4.0	£51,300	£205,200
TOTAL	6.9	-	£353,970
Option 4 – Skipton-Manchester Victoria hourly			
On-train	11.6	£51,300	£595,080
Infrastructure and Rolling Stock Maintenance	10	£51,300	£513,000
TOTAL	21.6	-	£1,108,080

- 2.10 Indirect and induced employment and output benefits during the construction and operational phase can be calculated by application of input-output multipliers to the estimates of direct employment and output changes. Multipliers used were taken from the Scottish Executive input-output tables, (Scottish Executive, 2003)¹ which provide multipliers by industry group. The Railway Transport industry group was selected as the most relevant industry sector during the operational phase.
- 2.11 Employment multipliers for an industry (Type II) give the ratio of direct, indirect and induced employment to the change in direct employment. Output multipliers (Type II) give the ratio of direct, indirect and induced output change to the direct output effects.
- 2.12 Summary results for indirect and induced impacts are shown in **Table T2.3**. Option 1 with the single track railway will deliver the lowest benefits whilst Option 4 with a double track railway will deliver the highest possible benefits of the options considered. Note that these results assume the full employment and output benefits and do not take into consideration any displacement effects.

T2.3 Indirect and Induced Employment and Output Benefits (£s, 2007 prices)

	Number of FTEs	Employment Multiplier	Indirect and Induced Employment (FTEs)	Direct Output	Output Multiplier	Indirect and Induced Output (p.a.)
Single track, Service Option 1, Skipton-Colne						
Construction	41	1.9	37	£1,812,000	1.8	£1,450,000
Operation	7	2.8	12	£354,000	2.0	£354,000
Double track, Service Option 4, Skipton-Manchester Victoria						
Construction	62	1.9	56	£2,740,000	1.8	£2,192,000
Operation	22	2.8	39	£1,108,000	2.0	£1,108,000

- 2.13 **Table T2.4** summarises the direct, indirect and induced impacts. We estimate the total impact of the railway on GVA as between £4 and £7million and the total number of full time equivalent jobs created as between 97 and 179, dependent on the option selected. **Over a 60 year appraisal period, initial construction and ongoing operational economic benefits total between £48million and £138million.**

¹ Scottish Executive values were used since the most recently available UK input-output multipliers are dated 1995 (Office of National Statistics Input-Output - United Kingdom National Accounts). 1995 UK multipliers for Output are: Construction 2.09, Railway Transport 2.23.

T2.4 Total Employment and Output Benefits (£s, 2006 prices)

	Number of FTEs	Output (GVA, £000s)
<i>Direct</i>		
Construction	41 - 62	£1,812 - £2,740
Operation	6.9 - 21.6	£354 - £1,108
<i>Indirect and Induced</i>		
Construction	37 - 56	£1,450 - £2,192
Operation	12 - 39	£354 - £1,108
TOTAL	97 - 179	£3,970 - £7,148
<i>60 years</i>		
TOTAL	-	£48,000-£138,000

Additional Visitor Spend

- 2.14 The railway would open up Skipton and access to the Yorkshire Dales National Park by rail for residents of Pennine Lancashire and across Lancashire whilst also improving access to the West Craven area of Pendle from North and West Yorkshire. It would also improve access to Liverpool and to the Fylde Coast for residents in the Skipton corridor.
- 2.15 The railway could also result in additional tourism spend through direct rail related activities – for example, by building upon the existing Blues Train for the Colne Blues Festival and the Pendle Beer Festival Train or through the development of special excursion trains.
- 2.16 An estimate of the economic impact of the visitor travel can be provided by estimating the impact on the local economy that would arise from spending by additional visitors to the area as a consequence of the new rail service.
- 2.17 The demand forecasting exercise applied a generation factor of between 15% and 30% in order to determine a number of induced trips for leisure purposes. **Table T2.5** summarises these induced trips for the Central demand forecasts and also our higher (Positive policy demand scenario).

T2.5 Induced Demand

	Positive policy demand forecast	Central demand forecast
Leisure newly generated	266	178

- 2.18 Tourism data has been used to determine an average value for additional spend associated with leisure trips. From “Yorkshire Dales & Harrogate, Tourism Action Plan, 2006”, 18.2% of visitors stay overnight with an average spend of £193. The remaining day visitors have an average spend of £27. From the STEAM (Scarborough Tourism Economic Activity Monitor) Model for Lancashire, 2005, 13.8% of visitors make an overnight stay with an average spend of £150. The remaining day visitors have an average spend of £26.
- 2.19 Averages of these tourism data gives a mix of 16% overnight and 84% day visitors with spend rates of £171 and £26.50 respectively. It is further assumed that additional spend is associated with two one-way trips (i.e. each visitor makes a return journey).

2.20 Not all of this would be additional income to the local economy. Some spend may well be displaced expenditure that would have occurred elsewhere in the Central Lancashire and North Yorkshire economies. If we assume that 25% of the spend is displaced expenditure, then the direct impact on the local economy of the *gross* additional visitor expenditure would be in the region of £1.0-£1.54million per year

2.21 An income scalar of 1/3 was then applied to this total. As with the construction spend we would expect a further 'multiplier' effect as other businesses benefit from the additional visitor spend. Applying a relatively conservative multiplier of 1.3 would bring the *net* additional annual spend to somewhere in the region of **£446,000 to £670,000** and additional spend over the 60 year appraisal period to almost **£38-57million**. **Table T2.6** summarises the visitor economic impact.

T2.6 Additional Visitor Spend

	Positive Policy demand forecast	Central demand forecast
Total Spend	£2,053,000	£1,374,000
Displacement	25%	25%
	£1,540,000	£1,031,000
Income Scalar	0.333	0.333
	£513,000	£343,000
Multiplier	1.3	1.3
	£668,000 (per annum)	£446,000 (per annum)
	£57,352,000 (60 years)	£38,379,000 (60 years)

3 Environmental and Safety Impacts

3.1 This section considers reductions in greenhouse gases and accident reductions associated with mode switch from car to rail, based on the passenger demand forecasts reported in Module 3.

Environmental Benefits

3.2 The key element to this argument is that improvements to public transport can have positive impacts on local air quality and climate change, through modal shift from private car and corresponding reduction in pollutants such as CO₂ and particulates. This is illustrated in **Table T3.1** which compares the amount of pollution for each mode.

3.3 Statistics from the Department for Transport (2001) quoted in the National Express Group Corporate Responsibility report² reveal that people with company cars, and free fuel, travel 6,000 miles more a year than private motorists who own their own cars and pay for their fuel.

3.4 Research has shown that taking the equivalent journey by train rather than by car reduces emissions by around a factor of five.

² National Express Group, Corporate Responsibility Report 2002.

T3.1 Mass of pollutants in grammes emitted per passenger mile of travel

Transport Mode		CO ₂	C, Carbon	NO _x	Particulates
Car	Petrol	298	81	0.95	0.10
	Diesel	225	61	2.22	0.30
	Hybrid	200	55	0.3	n/a
Rail		116	32	n/a	n/a
Air		340	93	0.70	n/a

Source: Tyndall Centre for Climate Research

- 3.5 The provision of the Skipton-Colne rail service would reduce the total distance travelled by car and therefore reduce consumption of fossil fuels. **Table T3.2** shows the reduction in carbon emissions for the Positive Policy and Central Scenario demand forecasts. This considers only rail trips resulting from mode switch and, given the relatively poor bus service between Colne and Skipton, assumes that 75% of these trips were previously made by car.
- 3.6 Savings in CO₂ emissions are based on an assumption of 160g of CO₂ emitted by an average car for every kilometre travelled and average car occupancy of 1.6. This reduction is offset to a limited extent by the increase in rail CO₂ emissions due to the additional services.

T3.2 Greenhouse Gas Savings (£, 2002 prices)

	Positive Policy demand forecast	Central demand forecast
Vehicle km saved	4,709,000	3,141,000
Vehicle CO ₂ saved (tonnes) ¹	753	503
Rail km additional	220,000	220,000
Rail CO ₂ additional (tonnes) ²	172	172
CO₂ saved (tonnes)	581	331
C saved (tonnes)	159	90
Value³	£12,300	£7,000
Total Value (to 2066)	£1,623,000	£869,000

¹ Average vehicle CO₂ emission 160g/km

² Class 156 (2 car) CO₂ emission 2234g/km (SRA Rail Emission Model, 2001), increased by 10% to represent additional consumption due to reduced station spacing

³ Social cost per tonne of Carbon £72.45 (2002 price, increased by £1.035 p.a., webtag unit 3.3.5, table 2)

3.7 **Table 3.2** also monetises these carbon savings, both for the opening year and for the full 60-year period to 2066. Unfortunately, the values provided by the government in Webtag are relatively modest such that the valuation of the greenhouse gas savings arising from the railway is small in the context of the economic appraisal. They are, however, only one component of the environmental benefits that rail offer compared with other modes.

3.8 ***In particular the provision of the rail service could be expected to have a key role in limiting future growth of car traffic.***

Accident Benefits

3.9 Improvements to public transport will also have positive effects in reducing congestion (monetised in the cost benefit analysis reported in Module 3) and in reducing accidents (which are not directly incorporated in the cost benefit analysis) through encouraging modal shift away from car usage to safer public transport modes. As shown above, the reinstatement of the railway between Skipton and Colne would reduce the total distance travelled by car by between 3.1 and 4.7million kilometres in the opening year.

3.10 Through use of standard accident rates it is possible to estimate the reduction on the total number of accidents and consequently the number of fatalities, severe injuries and slight injuries avoided. Accident rates per kilometre were derived from Transport Statistics for Great Britain (DfT).

3.11 The total number of casualties prevented is summarised in **Table T3.3**, ranging from 129 in the central forecast to 193 with the positive policy forecast over a 60 year period.

T3.3 Accident Savings (£, 2007 prices)

	Positive Policy demand forecast	Central demand forecast
Vehicle km saved	4,709,000	3,141,000
<i>Fatalities</i>	3	2
<i>Severe</i>	23	15
<i>Slight</i>	167	112
Total casualties	193	129
Total Value (to 2066)	£10,206,000	£6,226,000

3.12 Applying standard DfT valuations for fatalities, severe and slight casualties (Design Manual for Roads and Bridges, Volume 13, Section 1) ***gives total accident savings of between £6.2million and £10.2million over a 60 year period.***

4 Social Inclusion

4.1 Transport issues are often a fundamental, if not causal factor in the exclusion of many disadvantaged groups and communities. The Social Exclusion Unit (SEU) report *Making the Connections*³ outlines the role of transport in social exclusion highlighting three key issues:

- People may not be able to access services **as a result** of social exclusion.
- Problems with transport provision and the location of services can **reinforce** social exclusion.
- The effects of road traffic **disproportionately** impact on socially excluded areas and individuals – in terms of higher accident rates (particularly amongst the young), above

³ Making the Connections: Final Report on Transport and Social Exclusion, Social Exclusion Unit, 2003

average exposure to road traffic emissions and often greater level of community severance.

- 4.2 A lack of transport means that individuals can become cut off from employment and education and training opportunities, perpetuating their low skills base and inability to secure a living wage. People can become housebound, isolated and cut off from friends and family and other social networks. This can “seriously undermine their quality of life and, in extreme circumstances, may lead to social alienation, disengagement and, thus, undermine social cohesion.”⁴

Policy Framework

- 4.3 The draft Regional Economic Strategy⁵ identifies a number of key challenges for the Central Lancashire City Region, including the need to;
- increase economic activity rates;
 - increase basic and higher level skills and qualifications;
 - expand the role of higher education; and
 - improve intra- and inter-city region connectivity.
- 4.4 The Lancashire Economic Strategy⁶ identifies as one of its objectives ‘Employment Generation and Entrepreneurship’ and the requirement to address barriers to work. By 2022, it is estimated that Lancashire will have an inactive working population of 135,000, with implications for the more marginal communities in the area such as those in East Lancashire. Worklessness can affect particular demographic groups such as women and the non-white population.
- 4.5 The Central Lancashire City Region Development Programme⁷ states that “*By 2020 Central Lancashire will be a globally competitive and sustainable City Region distinguished by its quality of life, connectivity, and access to opportunities*”. This vision builds on a number of principles including:
- the need to provide connections that support the greater integration of the City Region and promote sustainable patterns of travel;
 - the need to capitalise upon our existing economic drivers, including knowledge based businesses, quality of life and environmental assets; and
 - the need to ensure that the opportunities created are accessible and lead to enhanced levels of economic participation and inclusion.
- 4.6 Transport and Communications Barriers are identified as a significant challenge – “Key elements of the transport network require investment and improvement if they are to serve the new economic and spatial drivers of Central Lancashire and facilitate a higher level of accessibility to employment opportunities.”

Access to further education

- 4.7 A priority for the North West if it is to develop its knowledge economy, is to tackle the ‘skills gap’, which is reflected in the relatively low levels of educational attainment compared with London and the South East and global competitors.
- 4.8 The availability and cost of transport are important factors in accessing educational opportunities and the high cost and poor availability of public transport can deter people from taking up educational opportunities. This is exacerbated by the amalgamation and relocation of schools and further education colleges to new locations which are difficult to reach by existing public transport networks. Better access to all these opportunities and

⁴ Transport and Social Exclusion – A survey of the group of seven nations, Dr K. Lucas, Transport Studies Group, University of Westminster, FIA Foundation

⁵ Northwest Regional Economic Strategy, NWDA, 2006

⁶ Lancashire Economic Strategy and Subregional Action Plan, Lancashire Economic Partnership, 2006

⁷ Central Lancashire City Region Development Programme, Lancashire Economic Partnership,

facilities is essential if skills are to be improved and social exclusion in the regions is to be reduced. More effective public transport networks have a key role to play in providing that access.

4.9 Research indicates that transport can be a barrier to young people going on into further education. This may be due to the availability or cost of transport. Those participating in post-16 education or training usually do not receive travel discounts and often travel longer distances. This issue is illustrated through the following statistics from the SEU Making the Connections⁸ report:

- More than one in five students has considered dropping out of further education because of financial difficulties.
- Nearly half of 16-18 year old students say they find their transport costs hard to meet.
- 6% of students have missed college at some point in the previous year because they could not afford transport costs.

4.10 Of particular relevance to the Skipton to Colne railway service will be the improvements in accessibility to higher and further education opportunities in Accrington, Nelson, Colne, Burnley, Blackburn, Preston, Skipton, Keighley and Leeds.

Access to healthcare

4.11 According to the Department of Health, 5.2 million hospital outpatient appointments are missed in one year resulting in a cost of £250 million a year⁹. The Social Exclusion Unit states that, over a 12-month period, 1.4 million people miss, turn down or choose not to seek medical help because of transport problems.¹⁰

4.12 Healthcare services continue to go through a process of specialisation and merger, requiring longer and often more difficult journeys, especially for those using public transport. The re-instatement of the railway will improve access to East Lancashire Hospital Trusts' main sites at Blackburn and Burnley, and to the smaller hospital at Nelson. It will also assist in access to Accrington Hospital and to Skipton, Airedale, Bradford, Leeds and Manchester Hospitals all of which are widely used by people in West Craven. These accessibility benefits apply equally to staff as well as to patients.

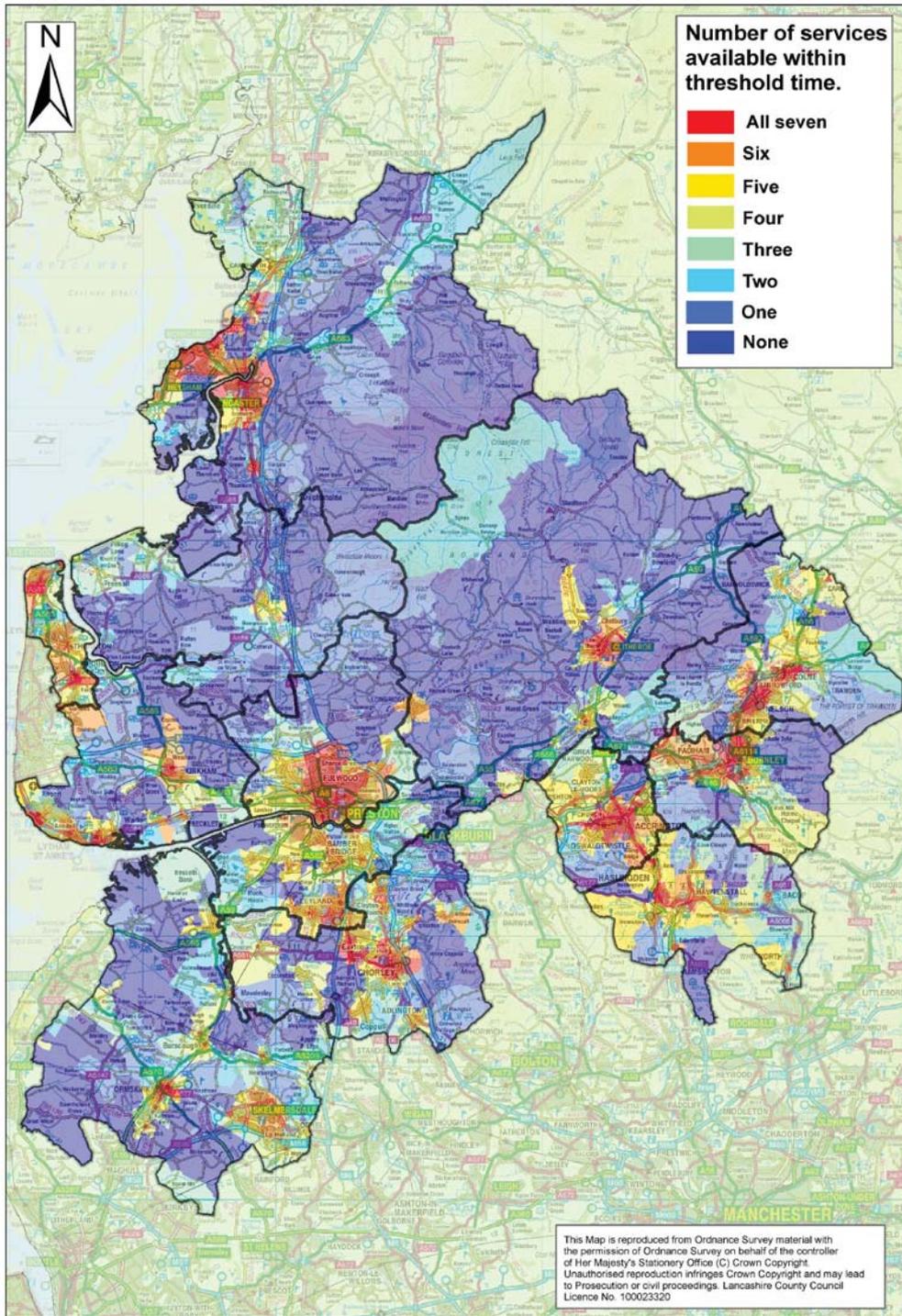
Overall Access to Services within Lancashire

4.13 Analysis by Lancashire County Council illustrated in **Figure F4.1** shows that it is not just access to education and health but actually to a range of services that is particularly poor in the most rural areas of the county. In some areas only one in seven services is accessible within the specified travel time thresholds developed by Lancashire County Council.

⁸ SEU, op cit

⁹ MORI 2002

¹⁰ Transport and access to health care: The potential of new information technology. F. Rajé, C. Brand and J. Preston, University of Oxford and M. Grieco, Napier University, 2003



(Source: Lancashire County Council LTP 2006/7-2010/11)

Figure F4.1 Services Available Within Threshold Times

Indices of Multiple Deprivation

- 4.14 Another way of looking at the issue of social exclusion is to look at the Indices of Multiple Deprivation (IMD). IMDs give an indication of the levels of deprivation experienced in each ward. The wards are given a score for deprivation, and then ranked depending on that score. The higher the score, the more deprived.
- 4.15 Wards within one kilometre of the route were selected. The IMD data for these wards was uploaded and maps were produced showing this information. They are shown in **Figure F4.2**.
- 4.16 Of the 279 wards along the line of the railway between Shipley, Skipton and Blackburn, **148 are in the most deprived quartile at the national level.**
- 4.17 Some of these wards rank very highly in terms of deprivation – **18 are in the top 2.5% nationally, of which six are in the top 1.25% (i.e. the top 500) meaning that they are amongst the most deprived wards in Britain.**
- 4.18 Many of these wards have a high proportion of people from the minority ethnic groups residing within them and they are understood to have strong connections with minority ethnic groups in West Yorkshire. These wards also have lower than average level of car ownership compared to national levels. The reopened railway would therefore provide an important means of access for these communities.

Car ownership

- 4.19 The SEU¹¹ describes the dramatic increase in car dependency over the last 50 years. Whilst the majority of people have been able to benefit from the opportunities obtainable from car ownership, many, including young people, elderly people and those from minority ethnic groups either do not own or do not have access to a car. Low car ownership drastically reduces accessibility, especially in rural areas where provision of other transport modes has become increasingly inadequate.
- 4.20 **Table T4.1** shows that car ownership is very low in some parts of Lancashire that would benefit from re-opening of the Skipton to Colne railway. Indeed, 30% of households in the district of Pendle do not own a car¹², which is likely to restrict access to jobs and services in the region and have acute implications for social inclusion. It is evident that low car ownership tends to be highest in more deprived urban areas.

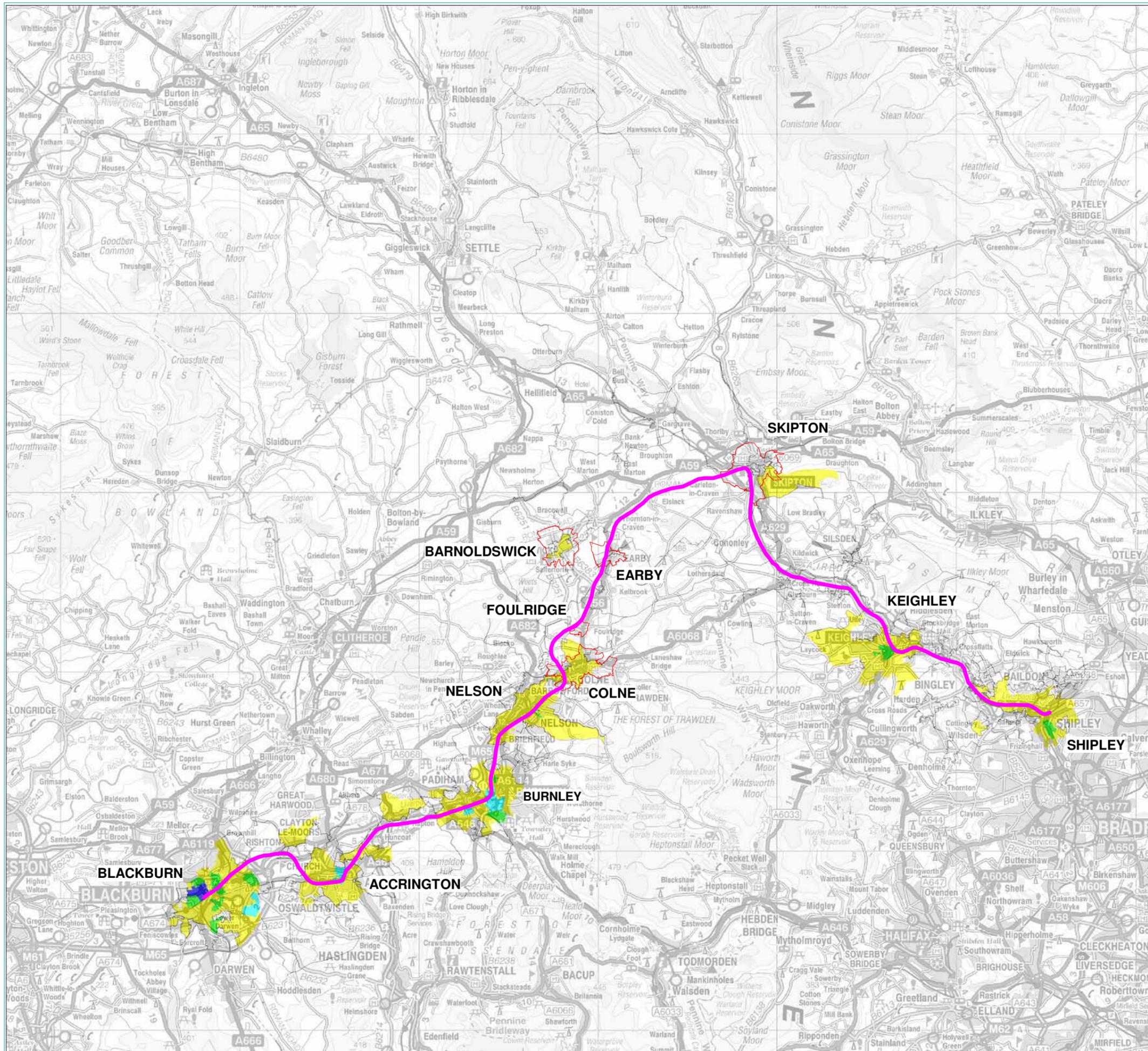
T4.1 Non car owning households

Area	Percentage of households not owning a car or van
Lancashire	25
Pendle	30
Brierfield Ward	35
Bradley Ward	48
Southfield Ward	41
Vivary Bridge Ward	35
Waterside Ward	38
Whitefield Ward	45

Source: Census 2001

¹¹ Making the Connections: Final Report on Transport and Social Exclusion, Social Exclusion Unit, 2003

¹² Local Transport Plan for Lancashire 2006/7-2010/11



KEY:

- Origin town boundaries
- Train lines

IMD rank
(where 1 is most deprived)

	0 to 200 (1)
	200 to 500 (5)
	500 to 1,000 (12)
	1,000 to 10,000 (130)
	10,000 to 40,000 (131)

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Figure 4.2

Indices of Multiple Deprivation

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4.21 Accessibility is also be limited for those living in a car owning household if the vehicle has restricted availability to all family members. Therefore, some members of a household may be unable to travel when they need to. Adequate public transport provision is therefore essential, even in areas with slightly higher car ownership levels. Only 46% of households in the Pendle district own one car and only 20% of households own two cars¹³.

Summary of Social Inclusion Benefits

4.22 The potential social inclusion benefits for re-opening the railway are wide ranging. The area around the railway includes some of the most socially excluded communities in the country as witnessed by the Indices of Multiple Deprivation which measure all the facets of inclusion including access to employment, access to education and training opportunities and access to healthcare. On all these measures the area is highly deprived.

4.23 When coupled with below-average car ownership levels and/or access to a car then improvements to public transport such as the re-opening of the railway could make significant improvements to the quality of life for the residents of Pennine Lancashire.

5 Overall Conclusions

5.1 It is considered that the reopening of the Colne to Skipton railway could generate worthwhile economic and environmental benefits whilst increasing the level of access and the number of social and economic opportunities for people in Lancashire. The rail link will provide a connection not only to Skipton, but to the wider Yorkshire region including the Leeds City Region. If coupled with other initiatives such as the Todmorden Curve re-opening, it could also result in significant improvements in access to the Manchester City Region and Manchester Airport for people living in Pennine Lancashire and large areas of North and West Yorkshire.

5.2 In particular the railway could generate over the 60 year appraisal period somewhere between;

- £48-£138m of employment benefits;
- £38-£57m of tourism expenditure;
- £7-£12m of environmental and safety benefits.

¹³ Local Transport Plan for Lancashire 2006/7-2010/11

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