

Lancashire County Council

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Final Report



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1.1 Background and Study Requirements

Lancashire County Council has commissioned Jacobs to undertake an assessment of the benefits and case for the provision of a rail connection and new station in Skelmersdale.

The aims of the scheme are to provide improved access to jobs, revitalise the regeneration and social outlook of the town, and support growth of the town with 2,000 houses proposed in the West Lancashire Masterplan.

Skelmersdale is a New Town which developed since the 1960's to the northeast of Liverpool. It is situated within the M6 corridor where there has been considerable growth in recent decades. The town is located north of the M58 which connects the M6 at Wigan with North Liverpool. Via the M58, M6 and M62 the town also has good access to Manchester and to a variety of other towns in the M6 corridor such as Warrington and Chorley. There are two M58 junctions serving the town and, typical of most new towns, Skelmersdale has good internal highway access.

Network Rail has completed a GRIP1 study to determine the feasibility and cost of providing rail access to the town. This study was required to examine whether a financial and value for money case exists for the scheme, along with the valuation of the likely wider economic benefits associated with the scheme. Understanding both of these is important prior to the progression of a potential full business case for the scheme, given the associated costs of doing so.



The scheme is shown in Figure 1-A. It involves connections to the railway line between Liverpool and Wigan, running to the south of the town, and a station in the town centre.

Figure 1-A Indicative Alignment of Rail Connection to Skelmersdale (Source: NR GRIP 1 Study)

Currently there is an hourly service between Kirkby and Manchester Victoria via Rainford and Upholland on the line to the south of Skelmersdale, feeding into four trains per hour on the electric Merseyrail services between Kirkby and Liverpool. The scheme involves extending two trains per hour on the electric service to Skelmersdale via Rainford and diverting the hourly Manchester service to Skelmersdale. In addition, the study is required to assess the alternative of providing two trains per hour to Manchester – a Rail North aspiration.

The nearest rail station to Skelmersdale is UpHolland, south of the M58 to the southeast of the town, on the line between Liverpool and Wigan.

The study was required to investigate the transport economic case and the wider economic case including investigation of the potential for improved access to jobs in Liverpool and / or Manchester (via Wigan), along with the potential GVA benefits, local living standards, regeneration opportunities and Local Plan sites that can be unlocked by the station proposals.

In line with the early stages of major transport schemes the study was required to undertake a high level business case review, using available data to minimise timescales and costs.

1.2 Report Structure

Following this introduction, Section 2 presents the assumptions and key issues including the operating assumptions and options.

Section 3 presents the demand and revenue forecasts, including socio-economic analysis and selection of shadow stations for trip rate modelling.

Section 4 presents the Economic Appraisal of the scheme options including traditional transport cost benefit analysis to determine value for money.

Section 5 presents the assessment of the wider economic benefits of the scheme.

Section 6 presents an assessment of risks within the demand forecasts that need to be noted in any future strategy development and business case progression for the scheme.

The conclusions and recommendations are presented in Section 7.

2.1 Policy Context

2.1.1 Lancashire Strategic Economic Plan.

The Lancashire Strategic Economic Plan¹ was published in March 2014 by the Lancashire Economic Partnership and sets out the growth ambitions for the next 10 years for the whole of Lancashire, associates infrastructure priorities and funding including the European Structural Investment Fund (ESIF). Relevant elements of the plan include “strengthening cross-boundary connectivity with neighbouring city regions...” with a **Strategic Transport Programme** seeking £195.7m in competitive Growth Deal Funding to release the economic and housing growth potential of Skelmersdale and other urban areas.

The SEP identifies that decades of under investment – especially in local transport infrastructure – has failed to support sustained business success, contributing to one quarter of the Lancashire’s performance gap with the rest of the UK.

Investment programmes are ensuring that key locations fulfil their potential as growth corridors and development hubs. “The SEP recognises that places such as Skelmersdale, in West Lancashire ... are equally capable of taking advantage of their adjacency to growth opportunities in neighbouring city-regions, especially in Liverpool and Manchester. The Growth Deal positions the connectivity solutions necessary to maximise these key cross-boundary opportunities.”

There are 6 key priorities in the growth deal;

- **Sector Development and Growth;** - building on existing high value manufacturing in the Aerospace and automotive sectors, energy and nuclear;
- **Innovation Excellence;** - business focussed activities and centres;
- **Skills for Growth;** - investing in associated higher and further education skills training;
- **Business Growth and Enterprise;** - providing access to resources, funding, marketing, etc;
- **Releasing Local Growth Potential;** - extension of the growing places revolving fund to enable business investment plus aligned infrastructure investment focused on Lancaster, Preston, East Lancashire and **Skelmersdale;** and,
- **The Renewal of Blackpool;** - addressing the decline in the visitor economy, diversifying the economy, improving the quality of housing and addressing benefit dependency.

The SEP identifies that Skelmersdale’s new town development failed to reach the planned capacity of 80,000 houses and the new town legacy of the layout, form and functioning all contribute to the significant socio-economic problems, with over half of residents living in areas that are amongst the 20% most deprived in the country.

¹ Lancashire Strategic Economic Plan – A Growth Deal for the Arc of Prosperity, March 2014.

Deprivation is the result of a combination of factors including low income levels, unemployment, low education levels, poor housing, lack of community cohesion and high crime levels. The town has over 80 underpasses which have become undesirable places associated with anti-social behaviour.

The town's excellent highway access has resulted in it being home to a number of logistics and distribution companies including ASDA and Walkers Snack Foods and being of the shortlist for one of the largest five logistics enquiries in the North West. The town's geographical position means that it is capable of supporting economic growth on three LEP areas, with potential to become a key service centre within the 'Atlantic Gateway Corridor'.

The town could benefit from the Peel Ports investment in the Liverpool Superport new deepwater container terminal known as Liverpool2 due to open in 2015. Activities are being aligned to maximise the potential spin-off investment in the town.

The SEP identifies that, for a population with low car ownership, the public transport network and services are poor. There is a need for an overhaul of the transport network to meet the needs of the town in the 21st century. Skelmersdale is the second largest town in the North West without a rail station.

The investment plan is aimed at unlocking 2,000 new homes and 52ha of employment land and includes a rail link and station, public realm improvements and movement strategy.

Transport for Lancashire (TfL) is a fully functioning and dedicated committee of the LEP... providing "the opportunity to align strategic transport investments with agreed economic and housing growth priorities. TfL is working with key partners to guide a £313m total transport investment programme across Lancashire". To take this initiative forward a series of Highways and Transport Masterplans are being developed to cover the whole of Lancashire.

2.1.2 West Lancashire Highways and Transport Masterplan

The West Lancashire Highways and Transport Masterplan was published in October 2014 and covers Skelmersdale and surrounding areas. The masterplan highlights both the importance of Skelmersdale and the stark differences between the economy of Skelmersdale and the rest of the borough. In particular, Skelmersdale is the largest town in the plan area and differs in terms of earnings and affluence, deprivation and resultant less outward travel.

Car ownership levels are low in Skelmersdale and the plan identifies a key concern... "Where car ownership is low and public transport is limited, commuting opportunities are limited, which can lead to a circle of decline where lack of travel opportunity results in unemployment and lower inward investment, which reduces employment opportunity further and so on". The rail scheme is a key part of the strategy to encourage widening of job search areas to overcome this issue.

A key theme throughout the Masterplan is rural isolation and the need to improve the quality of rail transport – the existing rail lines have low frequencies, poor quality rolling stock and poor reliability. Interchange is required to get to Liverpool via the electrified Merseyrail network and the higher levels of service encourages rail-heading from the borough which results in parking problems and impacts on communities around the more attractive stations.

The plan identifies the need to provide for 4,860 new dwellings in the Borough between 2012 and 2027, of which Skelmersdale with Upholland is expected to accommodate the bulk of the growth - 2,100 dwellings. "... location within the triangle of Manchester, Liverpool and Preston, the three most significant regional economic centres, coupled with effective road and public transport links with these centres, makes this future housing growth an attractive and likely proposition."

The vision for Skelmersdale is that it "becomes a town fit for the 21st century, with jobs, facilities and transport connections that can support good living standards across the town that everyone shares in." The masterplan contains three transport strands to support the wider economic and social objectives;

- *A new Skelmersdale town centre rail station*
- *Reshaping Skelmersdale's public realm*
- *Reconfiguring Skelmersdale's public transport*

The rail station is integral to the other two strands as they would be focused on the development of facilities around the station including a new bus interchange, parking, town centre expansion and walk and cycle improvements. Together the investments could change perceptions of Skelmersdale as a place to visit as well as a place to live and could make Skelmersdale the transport hub for the district.

2.1.3 3rd Local Transport Plan for Merseyside

Section 4.55 of the 3rd Local Transport Plan for Merseyside refers to the West Lancashire Core Strategy and identified that "Skelmersdale remains the focus for development and economic regeneration ... improving connectivity to the Liverpool City Region (LCR) has been identified as a way of improving the desirability of Skelmersdale as a housing and employment location of choice, especially the need for improved rail connectivity to Liverpool. Extending the Merseyrail system along the current diesel Kirkby to Wigan line as well as introducing a new rail station within Skelmersdale would provide a catalyst for regeneration."

Goal Five of the plan relates to proposals to extend the coverage of passenger rail services in the Liverpool journey to work area, including, "Kirkby to Headbolt Lane (and potentially Skelmersdale)."

2.1.4 Liverpool City Region Long Term Rail Strategy

The LCR long term rail strategy "Converting Strength to Lasting Long Term Economic Growth" was published in Summer 2014 and identified the need to invest in the rail network to build on recent successful economic growth and increased passenger volumes. The strategy was developed through a process of demand forecasting and stakeholder consultation, appraisal and sifting of a long list to a short list of measures to address capacity constraints, connectivity constraints (including serving latent demand) and system constraints such as rolling stock.

The plan identifies south Wigan and Skelmersdale are ... "good candidates for future rail growth", but identifies key constraints as the single-end terminus at Kirkby which create long turnaround times and conflicts between inbound and outbound services on single track section. Also, Wigan to Kirkby has sections of single track constraining running times and the number of services that can run on the route. Package 9 of the strategy is "**Kirkby – Wigan Line Improvements – Connecting to**

Skelmersdale, and new developments in Wigan.” Investment is programmed for Network Rail’s Control Period 6 (CP6), between 2019 and 2014. The Merseytravel committee report presented on 4th September 2014 summarised the strategy and for the Kirkby – Wigan Line, stating that;

“Skelmersdale has strong cultural links with the LCR due to widespread population migration to the town from Central Liverpool in the 1960s and 1970s. A direct electric link, forming an extension of the existing Kirkby Merseyrail line, would allow the rail network to mirror this connection for the first time and provide strong journey opportunities. The link to Skelmersdale should be considered as the first phase of a wider electrification of the entire Kirkby/Wigan line (and potentially onwards towards Manchester), given the large scale of proposed development to the south west of Wigan town centre, and the recently boosted service levels between Wigan and Scotland.”

“This package aims to:

- (a) Provide direct rail connectivity between Skelmersdale and the LCR;
- (b) Enhance service levels and quality between Kirkby and Wigan / Manchester with potential through-services to Liverpool;
- (c) Improve accessibility to Wigan for connections to Scotland; and
- (d) Support aspirations to increase rail freight handling at Knowsley Industrial Park (Potter Rail Freight Terminal) by upgrading the Wigan – Kirkby line.”

The components of the scheme are stated as;

- *Electrification of the line between Kirkby and Wigan Wallgate including new electric spurs between Rainford and Skelmersdale, and between Upholland and Skelmersdale;*
- *New stations at Headbolt Lane (Kirkby) and Skelmersdale; and*
- *Increased service frequencies between Kirkby and Manchester Victoria / Rochdale line with potential through-services to Liverpool.*

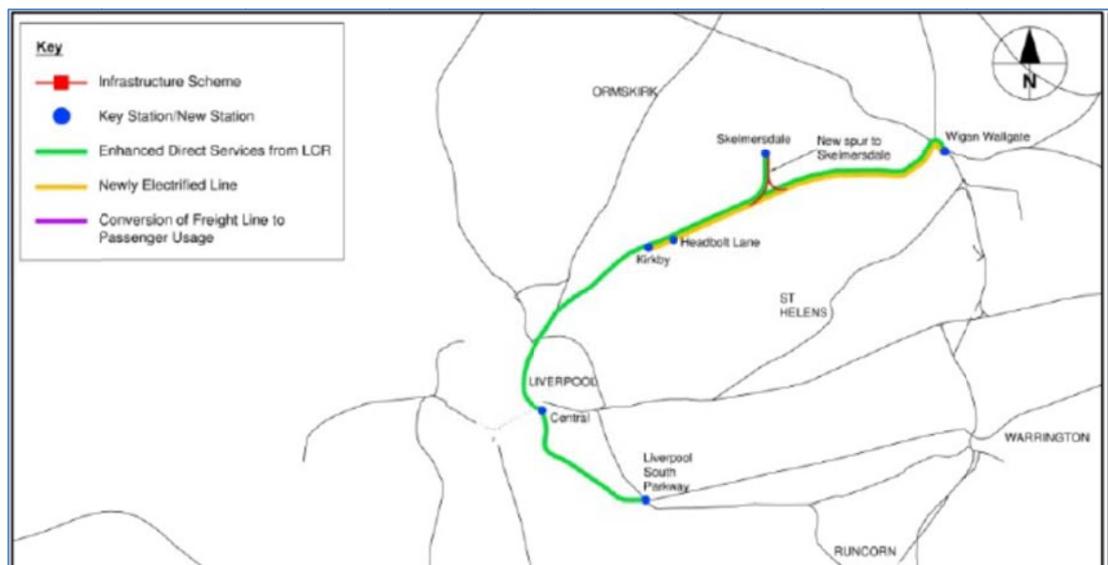


Figure 2-A Kirkby to Wigan Line Scheme, Source: LCR Long Term Rail Strategy, 2014

The Action Plan states that “To progress this package, Merseytravel plans to:

- *Commence GRIP process for design and construction of new spur and electrification between Kirkby and Skelmersdale, including construction of new stations at Headbolt Lane and Skelmersdale;*
- *Investigate the potential long term savings and benefits that could be made by electrifying both this route and the remaining line between Wigan and Rainford concurrently, with an electric spur between Upholland and Skelmersdale;*
- *Review Rolling Stock Replacement options to safeguard future ability to procure dual-voltage trains.”*

2.2 Journey to Work Analysis

To further assess the current isolation of Skelmersdale and potential for change through provision of improved rail connectivity, 2011 census journey to work data was analysed. Figure 2-B shows the distribution of work journeys (2011 Census) for Skelmersdale residents with a combined zone for the middle-layer super output areas (MSOAs) for Skelmersdale. This shows that relatively few people work outside the immediate area including in Wigan and Liverpool.

Analysis of the journey to work trips in bands of 5km, 10km and 25km is shown in Table 2-A and reveals that 58% of Skelmersdale residents journeys to work are within 5km of the town centre and around a quarter are to the zone between 10km and 25km, which includes Liverpool. However, as would be expected, the proportion of people travelling to work by train increases with increasing distance from around 0.5% below 10km to 3.3% in the 10km to 25km zone, shown in Figure 2-C.

By comparison Ormskirk, which has a direct rail connection to Liverpool, has a higher proportion of residents travelling further to work (54% travel between 10 km and 25km) and a higher proportion of those longer journeys were made by train (14.5%). This suggests that improved rail access may increase job search areas and encourage Skelmersdale residents to search for employments opportunities in Liverpool this is a key aspect of the case for the scheme.

The data for St Helens shows that, whilst there are similar proportions of people working further afield as for Skelmersdale, the direct rail access results in a higher proportion of the residents making the longer journeys by train (5.4%).

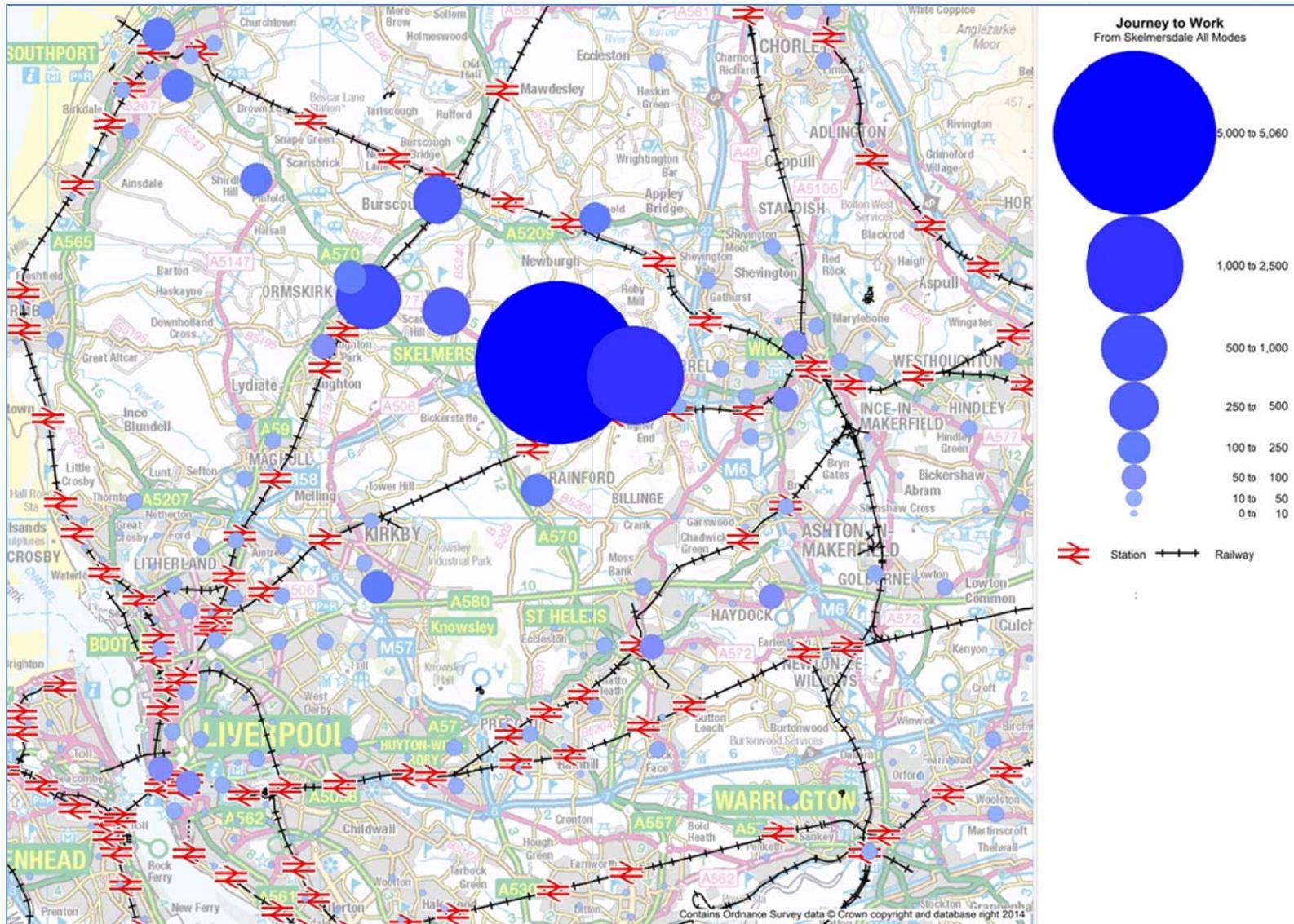


Figure 2-B Skelmersdale Journey to Work (Source: 2011 Census)

| | Area | 5km | 10km | 25km | Total |
|-----------------|--------------|-------|------|------|-------|
| Number of Trips | Skelmersdale | 6963 | 2186 | 2938 | 12087 |
| | Ormskirk | 2265 | 811 | 2477 | 5553 |
| | St Helens | 12699 | 5911 | 5698 | 24308 |
| | Average | 7309 | 2969 | 3704 | 13983 |
| % of Trips | Skelmersdale | 58% | 18% | 24% | 100% |
| | Ormskirk | 41% | 15% | 45% | 100% |
| | St Helens | 52% | 24% | 23% | 100% |
| | Average | 52% | 21% | 26% | 100% |

Table 2-A Distance travelled to work by Area (MSOA) (Source: 2011 Census)

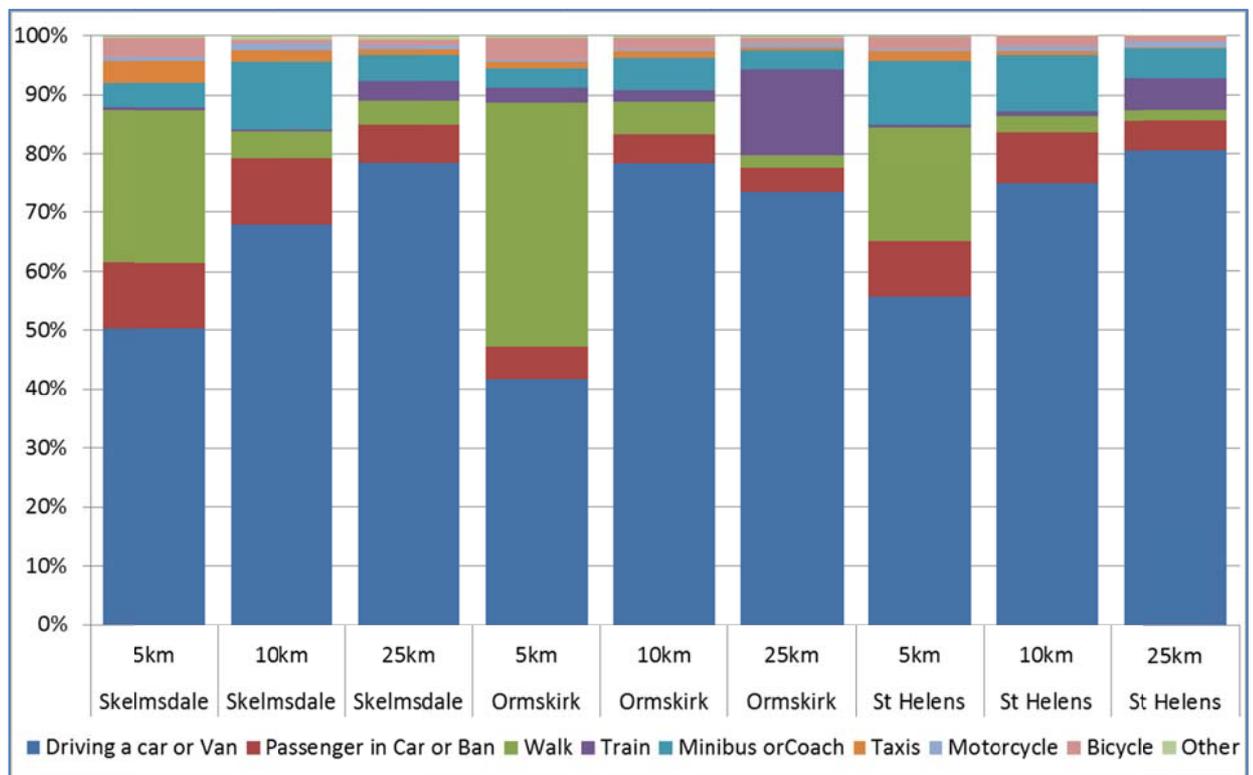


Figure 2-C 5km, 10km and 25km Method of Travel by Station (Source: 2011 Census)

2.3 Scheme Assumptions

Information regarding the scheme has been sourced from the Network Rail Grip 1-2 report. At present Kirkby Station has 1 train per hour to Manchester via Wigan and four trains per hour to Liverpool Central as shown in Figure 2-D. The service patterns with the proposed schemes are shown in Figure 2-E. To extend the Merseyrail electric services beyond the current single line terminus at Kirkby requires a new turnback which is proposed to be built at Kirkby Headbolt Lane to the north of the current station. The new station will improve accessibility in the Kirkby area and enable two trains an hour to proceed north to Skelmersdale via Rainford.

It was agreed with the stakeholder group at the inception meeting that the future core operating assumption is that the current hourly Manchester Victoria – Wigan – Kirkby service will be cut back and turned around at the new Skelmersdale station.

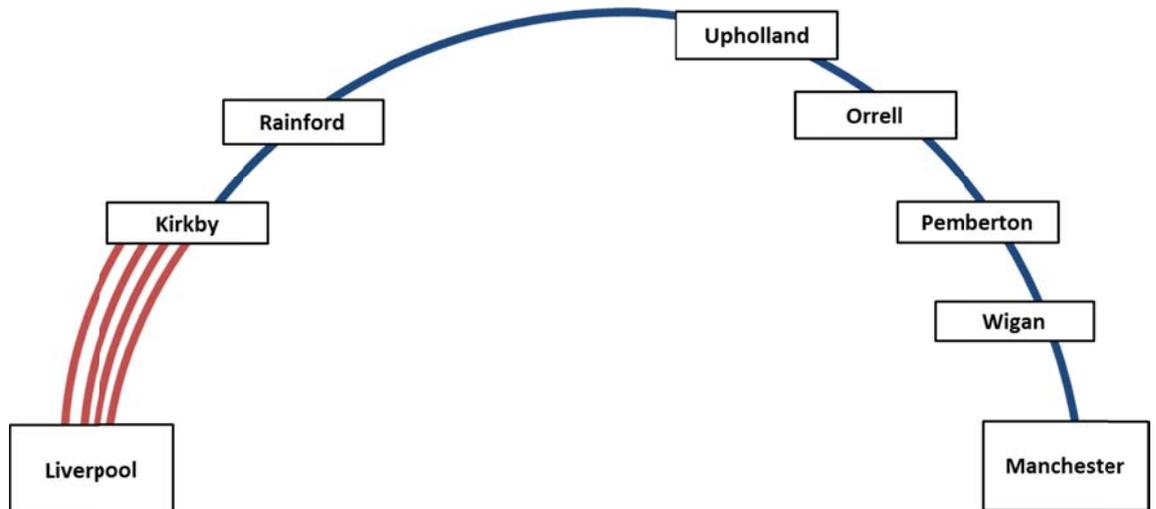


Figure 2-D Current Level of Service

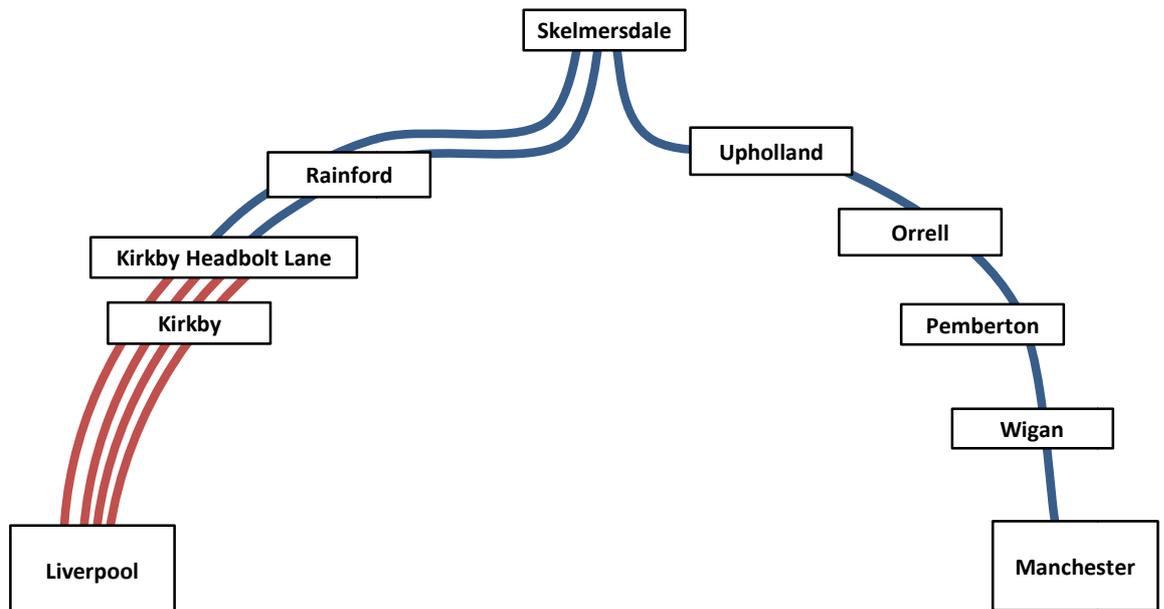


Figure 2-E Proposed Level of Service

The service changes mean that Kirkby and Rainford station will no longer have direct services to Wigan and Manchester and will have to interchange at Skelmersdale. Likewise, passengers from Upholland, Orrel, and Pemberton stations currently have to interchange at Kirkby to reach Liverpool but had a direct connection to Kirkby. In future they will have to interchange at Skelmersdale for both Liverpool and Kirkby. Skelmersdale will have a new service of two trains per hour to Liverpool and one train per hour to Wigan and Manchester and Rainford passengers

receive a better service to Liverpool (direct 2tph) but will have to interchange at Skelmersdale for Wigan and Manchester.

The client group has an aspiration for increasing the Manchester service to half-hourly which will partly offset the negative impacts. The study was required to assess that alternative

2.4 Scheme Impacts

Table 2-B presents generalised journey times changes between the existing and initial option. Generalised journey times (GJT) include the in-vehicle travel time plus waiting time, interchange time and interchange penalty – with ‘out of vehicle’ times weighted to represent passenger perceptions². The journey times and interchange times were based on the indicative hour timetables in the GRIP 1-2 report. The rows of the table are coloured green for positive changes and red for negative changes. These changes drive the demand and revenue forecasts for the scheme and also the assessment of wider economic impacts so it is important to analyse and understand the impacts in each scenario. The elasticity factor is the change applied to existing demand to reflect the changes.

The biggest change for existing flows is the journey time reduction between Rainford and Liverpool of over 1 hour, more than half the current GJT. The largest negative impacts for Kirkby and Rainford to Manchester Victoria are a 45% increase in GJT largely as a result of the imposed interchange at Skelmersdale and waiting time impact plus interchange penalty. The other significant negative impacts are around 20 minute increased GJT between Upholland / Orrell and Pemberton to Liverpool Central around 15% more.

| Origin | Destination | Existing Generalised Journey Time | Future Generalised Journey Time | Change in Generalised Journey Time | % change | Elasticity Factor |
|----------------------|-----------------------|-----------------------------------|---------------------------------|------------------------------------|----------|-------------------|
| Kirkby Headbolt Lane | Manchester Victoria | | 03:03 | | | |
| Skelmesdale | Manchester Victoria | | 01:33 | | | |
| Kirkby | Manchester Victoria | 01:43 | 03:08 | + 01:25 | -45% | 0.58 |
| Rainford | Manchester Victoria | 01:35 | 03:01 | + 01:26 | -48% | 0.56 |
| Upholland | Manchester Victoria | 01:31 | 01:27 | - 00:04 | 5% | 1.04 |
| Orrell | Manchester Victoria | 01:28 | 01:23 | - 00:05 | 6% | 1.05 |
| Wigan Wall Gate | Manchester Picadilly | 00:59 | 00:59 | + 00:00 | 0% | 1.00 |
| Kirkby Headbolt Lane | Liverpool Central | | 00:34 | | | |
| Skelmesdale | Liverpool Central | | 00:54 | | | |
| Kirkby | Liverpool Central | 00:32 | 00:32 | + 00:00 | 0% | 1.00 |
| Rainford | Liverpool Central | 01:53 | 00:50 | - 01:03 | 126% | 2.08 |
| upholland | Liverpool Central | 01:56 | 02:17 | + 00:21 | -15% | 0.86 |
| Orrell | Liverpool Central | 02:05 | 02:26 | + 00:21 | -14% | 0.87 |
| Wigan North Western | Liverpool Lime Street | 01:11 | 01:11 | + 00:00 | 0% | 1.00 |
| Wigan | Manchester Victoria | 01:04 | 01:04 | + 00:00 | 0% | 1.00 |
| Pemberton | Manchester Victoria | 01:23 | 01:22 | - 00:01 | 1% | 1.01 |
| Pemberton | Liverpool Central | 02:10 | 02:27 | + 00:17 | -12% | 0.90 |

² In accordance with the Rail Industry Rail Passenger Demand Forecasting Handbook (PDFH) version 5.1, April 2013

Table 2-B Generalised Journey Time Hourly Services Skelmersdale to Manchester

Table 2-C contains the revised generalised journey times based on a half hourly service between Skelmersdale and Manchester. Compared with Table 2-B there are less negative changes as the higher frequency compensates for the changes in interchange involved in the scheme. There are, however, still negative generalised journey time changes between Kirkby and Manchester Victoria and between Rainford and Manchester Victoria.

The impact of both the improved accessibility brought through the provision of the new stations and the impact on existing station to station flows are taken into account in the demand forecasts and business case.

The relative importance of the negative impacts is examined in Appendix B.

| Origin | Destination | Existing Generalised Journey Time | Future Generalised Journey Time | Change in Generalised Journey Time | | % change | Elasticity Factor |
|----------------------|-----------------------|-----------------------------------|---------------------------------|------------------------------------|-------|----------|-------------------|
| | | | | | | | |
| Kirkby Headbolt Lane | Manchester Victoria | | 02:44 | | | | |
| Skelmesdale | Manchester Victoria | | 01:30 | | | | |
| Kirkby | Manchester Victoria | 01:43 | 02:49 | + | 01:06 | -39% | 0.64 |
| Rainford | Manchester Victoria | 01:35 | 02:42 | + | 01:07 | -41% | 0.62 |
| Upholland | Manchester Victoria | 01:31 | 01:24 | - | 00:07 | 8% | 1.07 |
| Orrell | Manchester Victoria | 01:28 | 01:20 | - | 00:08 | 10% | 1.09 |
| Wigan Wall Gate | Manchester Piccadilly | 00:59 | 00:59 | + | 00:00 | 0% | 1.00 |
| Kirkby Headbolt Lane | Liverpool Central | | 00:34 | | | | |
| Skelmesdale | Liverpool Central | | 00:54 | | | | |
| Kirkby | Liverpool Central | 00:32 | 00:32 | + | 00:00 | 0% | 1.00 |
| Rainford | Liverpool Central | 01:53 | 00:50 | - | 01:03 | 126% | 2.08 |
| upholland | Liverpool Central | 01:56 | 01:53 | - | 00:03 | 3% | 1.02 |
| Orrell | Liverpool Central | 02:05 | 02:02 | - | 00:03 | 2% | 1.02 |
| Wigan North Western | Liverpool Lime Street | 01:11 | 01:11 | + | 00:00 | 0% | 1.00 |
| Wigan | Manchester Victoria | 01:04 | 01:04 | + | 00:00 | 0% | 1.00 |
| Pemberton | Manchester Victoria | 01:23 | 01:19 | - | 00:04 | 5% | 1.05 |
| Pemberton | Liverpool Central | 02:10 | 02:03 | - | 00:07 | 6% | 1.05 |

Table 2-C Generalised Journey Times – Half hourly Manchester Service from Skelmersdale

3.1 Introduction

The approach to forecasting the demand and revenue the scheme follows the rail industry guidance (Passenger Demand Forecasting Handbook (PDFH v5.1)) with appropriate methodologies employed for impact on existing passengers and stations and for the new stations. Specifically, the Northern Rail MOIRA model was used for existing stations and passengers and a trip rate approach based on 'shadow' stations was employed for new stations, where MOIRA cannot be used.

3.2 Approach and Methodology

The MOIRA model applies elasticity to the changes in generalised travel times to forecast incremental change for the users of existing stations. It was applied for both the changes in the Merseyrail and Northern Rail services for both the 1 tph and 2 tph Manchester service scenarios.

The trip rate model approach assesses the existing rail trip rate for existing 'shadow' stations and applies that rate to the catchment population of the new station. As the new stations would have different journey opportunities account was taken of key rail markets (e.g. Liverpool and Manchester) and the difference between each station location. Possible 'Shadow' stations were identified for each new station based on distance from the key demand generators of Liverpool and Manchester.

PDFH recommends taking account of the difference in catchment area characteristics of the existing and new stations, as well as the level of rail service proposed. It was not practical to calibrate an area wide trip rate model at this stage, due to the cost and timescale implications. As a result an analysis of the socio-economic data for a number of existing stations and the proposed station sites was examined to inform the choice of trip rates.

3.3 Socio-Economic Characteristics

For the purpose of this assessment a series of possible shadow stations were used to assess which existing stations have similar socio-economic characteristics as the proposed station sites. Locations were chosen to compare with Skelmersdale and with Kirkby Headbolt Lane, as shown in Table 3-A, based on their distance from the major traffic generators of Liverpool and Manchester.

The social economic analysis is based on 2011 Census Data at Census Output Area Level, which is the smallest geographical area available. Catchments of 2km are generally used to represent the majority of demand for a suburban station based advice from PDFH, however, it is also known that a significant proportion of demand comes from within walk / cycle distance from the station – around 800m. The assessment is based on the Census Output Areas (COAs) that are within 800m or 2km of the station. The analysis also takes into account overlapping catchments of the stations, with the data assigned to the nearest station. Figure 3-A shows the station catchments for 800m and 2km.

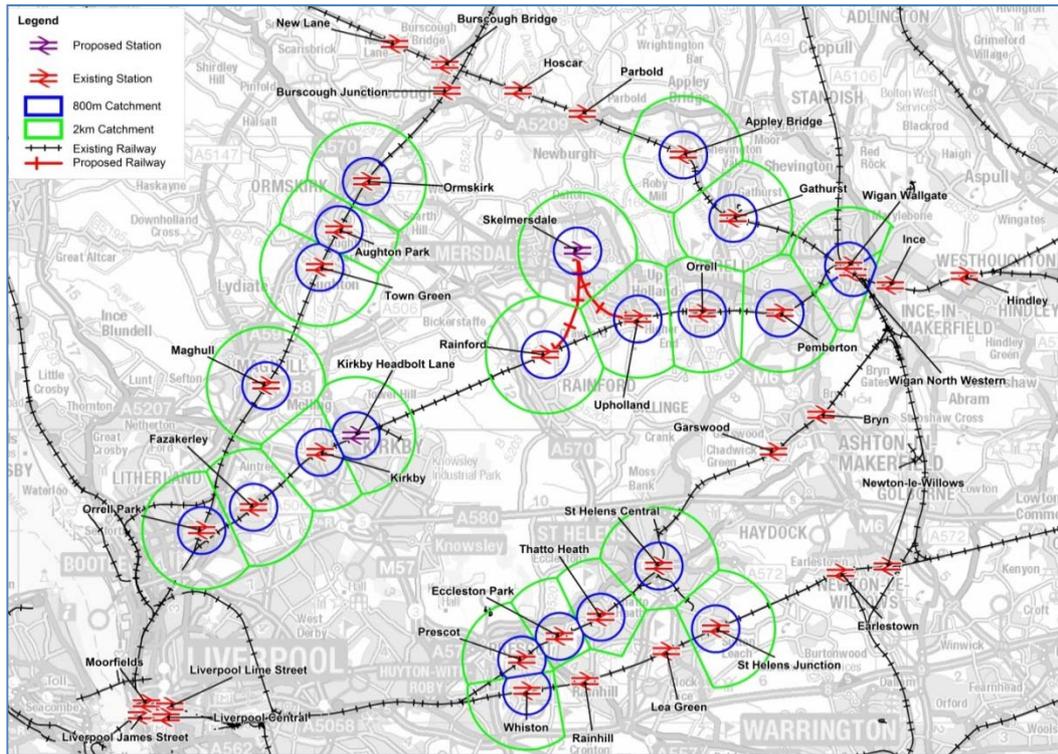


Figure 3-A Station Catchments; with proposed station.

| Name | Status |
|---|-------------------------------------|
| Kirkby Headbolt Lane | Proposed New Station |
| Skelmersdale | Proposed New Station |
| St Helens Central | Skelmersdale |
| Ormskirk | Skelmersdale |
| Gathurst | Skelmersdale |
| Appley Bridge | Skelmersdale |
| Rainford | Skelmersdale |
| Pemberton | Skelmersdale |
| Upholland | Skelmersdale |
| Wigan (Combined Wigan North Western and Wigan Wallgate) | Skelmersdale |
| Town Green | Skelmersdale |
| Aughton Park | Skelmersdale |
| St Helens Junction | Skelmersdale |
| Orrell | Skelmersdale |
| Kirkby | Skelmersdale & Kirkby Headbolt Lane |
| Fazakerley | Kirkby Headbolt Lane |
| Maghull | Kirkby Headbolt Lane |
| Thatto Heath | Kirkby Headbolt Lane |
| Whiston | Kirkby Headbolt Lane |
| Prescot | Kirkby Headbolt Lane |
| Eccleston Park | Kirkby Headbolt Lane |

Table 3-A Possible Shadow Stations

3.3.1 Population (2011 Census)

Table 3-B shows the populations within 800m and 2km with and without the proposed stations. The only station catchment within 800m which is impacted by the proposed stations is Kirkby. Kirkby Headbolt Lane will be around 1.2km northeast of Kirkby Station.

The impact of the 2km catchments of the proposed stations are as follows: Upholland catchment overlaps with Skelmersdale and Kirkby with Kirkby Headbolt Lane. Though Upholland station is situated within 2km of the proposed Skelmersdale Station they are divided by the M58, which at present may deter some of Skelmersdale residents from using sustainable modes to travel to Upholland Station.

Shadow Stations with a similar population within 800m of Kirkby Headbolt Lane are;

- *Kirkby*
- *Fazakerley*
- *Whiston*
- *Prescot*

Stations with a similar population within 800m to Skelmersdale are;

- *Ormskirk*
- *Pemberton*
- *Wigan*
- *St Helens Junction*

Stations with a similar population within 2km to Kirkby Headbolt Lane are;

- *Fazakerley*
- *Maghull*
- *Thatto Heath*

Stations with a similar population within 2km to Skelmersdale are;

- *St Helens Central*
- *Wigan*

| Station | Within 800m | Within 2km |
|----------------------|-------------|--------------|
| Kirkby Headbolt Lane | 7226 | 20906 |
| Skelmersdale | 5310 | 27256 |
| St Helens Central | 4052 | 28752 |
| Ormskirk | 6616 | 13996 |
| Gathurst | 554 | 11275 |
| Appley Bridge | 2630 | 6155 |
| Rainford | 1024 | 5527 |
| Pemberton | 8229 | 34776 |
| Upholland | 248 | 10456 |
| Upholland Proposed | 248 | 7569 (-28%) |
| Fazakerley | 6636 | 23748 |
| Maghull | 3759 | 21613 |
| Thatto Heath | 9780 | 20921 |
| Whiston | 7819 | 12700 |
| Wigan | 5224 | 27348 |
| Town Green | 2613 | 4461 |
| Aughton Park | 3931 | 6515 |
| Prescot | 7600 | 13444 |
| Eccleston Park | 5824 | 7641 |
| St Helens Junction | 4769 | 13344 |
| Kirkby Existing | 8196 | 28203 |
| Kirkby proposed | 7935 (-3%) | 14091 (-50%) |
| Orrell | 5323 | 13564 |

Table 3-B Population within 800m and 2km Proposed and Existing Stations

3.3.2 Households

Table 3-C shows the households within the station catchments. Kirkby and Upholland stations have catchments that will be altered with the proposed stations so they are included in the tables for both scenarios.

Kirkby Headbolt Lane has a higher number of households within 800m (2,882 households) which is just over 600 more than that of the existing Kirkby Station (existing catchment). Skelmersdale has fewer Households within 800m than Kirkby Headbolt lane (at 2,168 households) which is significantly greater than the 800m catchment for Upholland Station, the closest existing station.

Shadow stations with a similar number of households within 800m of Kirkby Headbolt lane are:

- *Fazakerley.*
- *Whiston.*

Kirkby has a similar number of households within 2km as:

- *Maghull*
- *Thatto Heath*

Skelmersdale has a similar number of households within 800m as:

- *St Helens Central*
- *St Helens Junction*
- *Orrell*

And for the 2km catchment for Skelmersdale:

- *Kirkby – Existing*

| Station | Number of Households within 800m | Number of Households within 2km |
|----------------------|----------------------------------|---------------------------------|
| Kirkby Headbolt Lane | 2882 | 8454 |
| Skelmersdale | 2168 | 11109 |
| St Helens Central | 1999 | 13118 |
| Ormskirk | 2691 | 5496 |
| Gathurst | 213 | 4867 |
| Appley Bridge | 1089 | 2561 |
| Rainford | 459 | 2414 |
| Pemberton | 3399 | 14435 |
| Upholland | 94 | 4280 |
| Fazakerley | 2600 | 9844 |
| Maghull | 1616 | 8831 |
| Thatto Heath | 4250 | 8960 |
| Whiston | 3212 | 5333 |
| Wigan | 2964 | 12810 |
| Town Green | 1058 | 1807 |
| Aughton Park | 1607 | 2617 |
| Prescot | 3368 | 5983 |
| Eccleston Park | 2290 | 3032 |
| St Helens Junction | 2071 | 5644 |
| Kirkby | 3504 | 11616 |
| Orrell | 1911 | 5925 |

Table 3-C Number of Households (800m and 2 Km Catchments)

3.3.3 Age (2011 Census)

Table 3-D shows that the age range of the population within 800m of Skelmersdale and Kirby Headbolt Lane proposed stations are very similar, and coincidentally also have the highest proportion of people aged 18 or under.

Shadow stations which have a similar age demographic within 800m as Kirkby Headbolt Lane and Skelmersdale are;

Kirkby Headbolt Lane

- *Kirkby*

Skelmersdale

- Kirkby
- Appley Bridge
- Wigan
- Town Green
- St Helens Junction

| Station | 18 & Under | Age 18-20 | Age 20-29 | Age 30 to 44 | Age 45 to 59 | Age 60 to 64 | Age 65 to 74 | Age 75 to 84 | Age 85+ | Aged between 18 and 64 |
|----------------------|------------|-----------|-----------|--------------|--------------|--------------|--------------|--------------|---------|------------------------|
| Kirkby Headbolt Lane | 26% | 3% | 16% | 20% | 18% | 5% | 7% | 4% | 1% | 62% |
| Skelmersdale | 27% | 3% | 14% | 20% | 18% | 6% | 8% | 3% | 1% | 61% |
| St Helens Central | 20% | 3% | 18% | 20% | 19% | 5% | 8% | 6% | 2% | 65% |
| Ormskirk | 21% | 3% | 15% | 23% | 21% | 5% | 7% | 4% | 1% | 66% |
| Gathurst | 15% | 8% | 24% | 15% | 15% | 6% | 9% | 6% | 3% | 68% |
| Appley Bridge | 17% | 1% | 10% | 16% | 25% | 9% | 12% | 7% | 4% | 61% |
| Rainford | 21% | 2% | 9% | 23% | 23% | 8% | 9% | 4% | 1% | 65% |
| Pemberton | 17% | 2% | 11% | 19% | 24% | 8% | 12% | 6% | 1% | 64% |
| Upholland | 23% | 2% | 9% | 23% | 25% | 5% | 7% | 4% | 1% | 65% |
| Fazakerley | 23% | 2% | 9% | 23% | 25% | 5% | 7% | 4% | 1% | 65% |
| Maghull | 18% | 2% | 10% | 17% | 20% | 7% | 13% | 9% | 3% | 57% |
| Thatto Heath | 22% | 2% | 14% | 22% | 21% | 5% | 6% | 5% | 2% | 65% |
| Whiston | 17% | 2% | 9% | 15% | 23% | 7% | 13% | 10% | 4% | 56% |
| Wigan | 22% | 3% | 13% | 20% | 20% | 6% | 9% | 5% | 2% | 62% |
| Town Green | 24% | 3% | 13% | 21% | 20% | 5% | 9% | 5% | 1% | 61% |
| Aughton Park | 14% | 2% | 19% | 22% | 22% | 5% | 8% | 6% | 2% | 70% |
| Prescot | 19% | 2% | 7% | 15% | 22% | 8% | 14% | 9% | 3% | 55% |
| Eccleston Park | 18% | 2% | 9% | 15% | 21% | 8% | 13% | 9% | 3% | 56% |
| St Helens Junction | 23% | 3% | 14% | 20% | 20% | 5% | 8% | 6% | 2% | 62% |
| Kirkby | 21% | 2% | 12% | 19% | 22% | 7% | 9% | 7% | 2% | 61% |
| Orrell | 18% | 2% | 12% | 19% | 22% | 9% | 12% | 4% | 1% | 64% |

Table 3-D Age of Population within 800m with Proposed Stations

3.3.4 Social Grade (2011 Census)

Social grade is an indicator of the social status and occupation of the population of an area. The social classifications used in the 2011 (approximated) social grade table are outlined in Table 3-E.

| Social Grade | Social Status | Example Occupation |
|--------------|--------------------------------------|--|
| A | Upper middle-class | higher managerial, administrative or professional |
| B | Middle class | intermediate managerial, administrative or professional |
| C1 | Lower middle class | supervisory or clerical, junior managerial, administrative or professional |
| C2 | Skilled working class | skilled manual workers |
| D | Working class | semi and unskilled manual workers |
| E | those at lowest level of subsistence | state pensioners or widows (no other earner), casual or lowest grade workers |

Table 3-E Social Class Definitions

Table 3-F aggregates the social grade into Upper / Middle Class (A, B and C1) and Working Class (C2, D and E). The analysis shows that social grade does not differ significantly from the 800m to 2km catchments. For Skelmersdale and Kirkby Headbolt Lane around 50% of the population (in 800m) are classed as Social Grade D and E, followed by C1 and C2 with around 20% in each category.

Only St Helens Central station has a higher proportion of the population within 800m classed as working class. However, the 2km catchment working class proportion for this station lower than both Kirkby Headbolt Lane and Skelmersdale.

The majority of the population within 800m and 2km Skelmersdale and Kirkby Headbolt Lane station catchments are working class. Stations with good accessibility to Liverpool such as Ormskirk, Aughton Park, Maghull and Town Green, around 70% of the population is considered Upper / Middle Class.

Similarly stations with a direct service to Manchester such as Upholland and Orrell have a higher proportion of Upper / Middle Class residents than Working Class residents.

Kirkby Headbolt Lane and Skelmersdale have a similar breakdown of social grade to each other and the following shadow stations within the 800m station catchment:

Kirkby Headbolt Lane:

- *Kirkby*
- *Thatto Heath*
- *Whiston*
- *Prescott*

Skelmersdale:

- *Kirkby*
- *St Helens Central*
- *Wigan*
- *St Helens Junction*

Kirkby Headbolt Lane and Skelmersdale have a similar breakdown of social grade to each other and the following Shadow stations within 2km station catchment:

Kirkby Headbolt Lane:

- *Kirkby*
- *Whiston*

- Prescott

Skelmersdale:

- Kirkby
- St Helens Central
- Pemberton
- St Helens Junction
- Upholland

| Station | 800m | | 2km | |
|----------------------|----------|----------|----------|----------|
| | A, B, C1 | C2, D, E | A, B, C1 | C2, D, E |
| Kirkby Headbolt Lane | 35% | 65% | 35% | 65% |
| Skelmersdale | 30% | 70% | 33% | 67% |
| St Helens Central | 30% | 70% | 36% | 64% |
| Ormskirk | 65% | 35% | 63% | 37% |
| Gathurst | 55% | 45% | 41% | 59% |
| Appley Bridge | 68% | 32% | 67% | 33% |
| Rainford | 53% | 47% | 65% | 35% |
| Pemberton | 43% | 57% | 37% | 63% |
| Upholland | 64% | 36% | 38% | 62% |
| Fazakerley | 49% | 51% | 44% | 56% |
| Maghull | 62% | 38% | 61% | 39% |
| Thatto Heath | 39% | 61% | 43% | 57% |
| Whiston | 34% | 66% | 36% | 64% |
| Wigan | 36% | 64% | 42% | 58% |
| Town Green | 73% | 27% | 73% | 27% |
| Aughton Park | 74% | 26% | 72% | 28% |
| Prescot | 38% | 62% | 40% | 60% |
| Eccleston Park | 64% | 36% | 62% | 38% |
| St Helens Junction | 38% | 62% | 33% | 67% |
| Kirkby | 39% | 61% | 38% | 62% |
| Orrell | 59% | 41% | 57% | 43% |

Table 3-F *Approximated Social Grade by Station Catchment (Source: 2011 Census)*

3.3.5 Highest Level of Qualification (2011 Census)

For the assessment of the of Highest Level of Qualification 2011 census data was used using the definitions as outline in Table 3-G, with the corresponding data for 800m catchments presented in Table 3-H.

| Qualification Level | Qualification |
|---------------------|---|
| No Qualifications | No academic or professional qualifications |
| Level 1 | 1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ level 1, Foundation GNVQ, Basic/Essential Skills |
| Level 2 | 5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma Apprenticeship |
| Level 3 | 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advanced Diploma, NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma |
| Level 4 | Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional qualifications (for example teaching, nursing, accountancy) |
| Other | Vocational/Work-related Qualifications, Foreign Qualifications (Not stated/ level unknown). |

Table 3-G ONS Level of Qualification Definitions

Kirkby Headbolt lane has the highest proportion of population with no qualifications at 40%, slightly higher than the existing Kirkby station catchment at 38% and this figure does not change with the proposed station in place. Skelmersdale also has a significantly high level with no qualifications at 32% of the population.

The shadow stations with similar level of qualifications within the 800m catchments are;

Kirkby Headbolt Lane:

- *Kirkby*

Skelmersdale:

- *Wigan*
- *St Helens Junction*

| Station | Level of Qualification | | | | | | |
|----------------------|------------------------|---------|---------|----------------|---------|---------|-------|
| | None | Level 1 | Level 2 | Apprenticeship | Level 3 | Level 4 | Other |
| Kirkby Headbolt Lane | 40% | 15% | 16% | 3% | 10% | 12% | 4% |
| Skelmersdale | 32% | 18% | 19% | 3% | 12% | 12% | 5% |
| St Helens Central | 38% | 16% | 16% | 3% | 10% | 12% | 5% |
| Ormskirk | 17% | 9% | 14% | 3% | 27% | 26% | 4% |
| Gathurst | 26% | 13% | 15% | 6% | 11% | 26% | 3% |
| Appley Bridge | 14% | 11% | 16% | 5% | 15% | 36% | 3% |
| Rainford | 24% | 16% | 17% | 4% | 11% | 25% | 3% |
| Pemberton | 28% | 16% | 17% | 6% | 13% | 17% | 3% |
| Upholland | 15% | 12% | 19% | 5% | 12% | 35% | 2% |
| Fazakerley | 27% | 16% | 18% | 4% | 13% | 19% | 3% |
| Maghull | 25% | 13% | 15% | 5% | 12% | 27% | 3% |
| Thatto Heath | 30% | 16% | 17% | 3% | 13% | 17% | 4% |
| Whiston | 34% | 17% | 17% | 3% | 12% | 14% | 3% |
| Wigan | 33% | 14% | 14% | 3% | 11% | 17% | 7% |
| Town Green | 17% | 11% | 14% | 4% | 13% | 39% | 3% |
| Aughton Park | 15% | 11% | 14% | 4% | 13% | 39% | 3% |
| Prescot | 34% | 15% | 16% | 3% | 12% | 16% | 3% |
| Eccleston Park | 19% | 13% | 16% | 4% | 13% | 31% | 3% |
| St Helens Junction | 30% | 16% | 17% | 4% | 12% | 17% | 4% |
| Kirkby | 38% | 15% | 15% | 4% | 11% | 13% | 3% |
| Orrell | 19% | 13% | 16% | 5% | 13% | 31% | 3% |

Table 3-H Level of Qualification within 800m Station Catchments

3.3.6 Hours worked by Station (2011 Census)

Generally people that travel to work by rail and work full time are more likely to buy a season ticket than passengers which work part time, who are more likely to buy single or return tickets depending on how many days a week they are likely to be travelling to work. In the 2011 Census working part time is defined as working 30 hours or less a week and Full time is defined in working in excess of 30 hours a week.

Skelmersdale and Kirkby Headbolt Lane have the same split between residents that work full and part time, with 70% working full time and the remaining 30% employed part time, for both the 800m and 2km catchments as shown in Table 3-I.

| Station | 800m | | 2km | |
|-----------------------------|------------|------------|------------|------------|
| | Part-time | Full-time | Part-time | Full-time |
| Kirkby Headbolt Lane | 30% | 70% | 30% | 70% |
| Skelmersdale | 30% | 70% | 30% | 70% |
| St Helens Central | 29% | 71% | 29% | 71% |
| Ormskirk | 41% | 59% | 39% | 61% |
| Gathurst | 29% | 71% | 29% | 71% |
| Appley Bridge | 26% | 74% | 28% | 72% |
| Rainford | 24% | 76% | 29% | 71% |
| Pemberton | 27% | 73% | 29% | 71% |
| Upholland | 25% | 75% | 27% | 73% |
| Fazakerley | 28% | 72% | 30% | 70% |
| Maghull | 30% | 70% | 30% | 70% |
| Thatto Heath | 30% | 70% | 28% | 72% |
| Whiston | 31% | 69% | 30% | 70% |
| Wigan | 24% | 76% | 27% | 73% |
| Town Green | 31% | 69% | 32% | 68% |
| Aughton Park | 31% | 69% | 33% | 67% |
| Prescot | 30% | 70% | 29% | 71% |
| Eccleston Park | 30% | 70% | 30% | 70% |
| St Helens Junction | 24% | 76% | 28% | 72% |
| Kirkby | 30% | 70% | 29% | 71% |
| Orrell | 26% | 74% | 27% | 73% |

Table 3-1 Hours worked by Station Catchments; 800m and 2km (source; 2011 Census)

Shadow stations with the same proportion split in the 800m catchments are;

Kirkby Headbolt Lane:

- *Kirkby*
- *Maghull*
- *Thatto Heath*
- *Prescott*
- *Eccleston Park*

Skelmersdale:

- *Kirkby*

And for the 2km catchments;

Kirkby Headbolt Lane:

- *Kirkby*
- *Fazakerley*
- *Maghull*
- *Whiston*
- *Eccleston Park*

Skelmersdale:

- *Kirkby*

3.3.7 Car Availability by Station (2011 Census)

The propensity to travel by rail is influenced by whether a person has access to a car. Table 3-J shows that Skelmersdale and Kirkby Headbolt Lane have very similar car availability characteristics within the 800m catchments. They both have a high proportion of households with no cars available at 43% and 40% respectively. The only Shadow Stations with a higher proportion of no cars available is St Helens Central with 51% followed by Wigan at 50%.

| Station | Number of Households | No cars or vans in household | 1 car or van in household | 2 car or van in household | 3 car or van in household | 4 + car or van in household |
|-----------------------------|----------------------|------------------------------|---------------------------|---------------------------|---------------------------|-----------------------------|
| Kirkby Headbolt Lane | 2882 | 43% | 40% | 14% | 2% | 0% |
| Skelmersdale | 2168 | 40% | 41% | 16% | 2% | 0% |
| St Helens Central | 1999 | 51% | 38% | 9% | 1% | 0% |
| Ormskirk | 2691 | 28% | 41% | 23% | 5% | 2% |
| Gathurst | 213 | 9% | 38% | 38% | 10% | 5% |
| Appley Bridge | 1089 | 7% | 40% | 43% | 8% | 2% |
| Rainford | 459 | 19% | 42% | 30% | 6% | 2% |
| Pemberton | 3399 | 20% | 47% | 27% | 5% | 1% |
| Upholland | 94 | 8% | 33% | 45% | 9% | 5% |
| Fazakerley | 2600 | 31% | 45% | 20% | 3% | 1% |
| Maghull | 1616 | 22% | 44% | 27% | 5% | 2% |
| Thatto Heath | 4250 | 33% | 43% | 19% | 3% | 1% |
| Whiston | 3212 | 35% | 44% | 17% | 3% | 1% |
| Wigan | 2964 | 50% | 39% | 10% | 1% | 0% |
| Town Green | 1058 | 11% | 39% | 38% | 9% | 3% |
| Aughton Park | 1607 | 10% | 41% | 38% | 8% | 2% |
| Prescot | 3368 | 41% | 41% | 15% | 2% | 0% |
| Eccleston Park | 2290 | 15% | 41% | 35% | 7% | 2% |
| St Helens Junction | 2071 | 32% | 42% | 22% | 3% | 1% |
| Kirkby | 3504 | 38% | 41% | 18% | 3% | 1% |
| Orrell | 1911 | 16% | 42% | 35% | 6% | 2% |

Table 3-J Cars Availability by Household 800m Catchment (Source; 2011 Census)

The shadow stations that have similar car availability characteristics are;

Kirkby Headbolt Lane:

- *Kirkby*
- *Whiston*
- *Prescot*

Skelmersdale:

- *Kirkby*

The car ownership by household for the 2km catchments is contained in Table 3-K. The increased distance from a station is reflected by slightly different car ownership characteristics than the 800m station catchments. Skelmersdale has fewer no car households and an increase in households with 2 or more cars, with 36% of households with no car compared to 40% within 2km compared to within 800m. Kirkby Headbolt Lane has the highest proportion of no car households at 41%. Overall across all the stations in the 2km catchments the majority of households have 1 car available.

| Station | Number of Households | No cars or vans in household | 1 car or van in household | 2 car or van in household | 3 car or van in household | 4 + car or van in household |
|----------------------|----------------------|------------------------------|---------------------------|---------------------------|---------------------------|-----------------------------|
| Kirkby Headbolt Lane | 8454 | 41% | 39% | 16% | 3% | 1% |
| Skelmersdale | 11109 | 36% | 42% | 18% | 3% | 1% |
| St Helens Central | 13118 | 38% | 42% | 17% | 3% | 1% |
| Ormskirk | 5496 | 23% | 42% | 26% | 6% | 2% |
| Gathurst | 4867 | 25% | 43% | 25% | 5% | 2% |
| Appley Bridge | 2561 | 9% | 39% | 41% | 9% | 2% |
| Rainford | 2414 | 13% | 42% | 35% | 8% | 2% |
| Pemberton | 14435 | 27% | 44% | 23% | 4% | 1% |
| Upholland | 4280 | 33% | 40% | 22% | 4% | 1% |
| Fazakerley | 9844 | 33% | 45% | 18% | 3% | 1% |
| Maghull | 8831 | 17% | 45% | 30% | 6% | 2% |
| Thatto Heath | 8960 | 30% | 43% | 22% | 4% | 1% |
| Whiston | 5333 | 33% | 45% | 18% | 3% | 1% |
| Wigan | 12810 | 34% | 44% | 18% | 3% | 1% |
| Town Green | 1807 | 11% | 38% | 38% | 10% | 3% |
| Aughton Park | 2617 | 11% | 41% | 37% | 8% | 3% |
| Prescot | 5983 | 39% | 41% | 17% | 3% | 1% |
| Eccleston Park | 3032 | 15% | 41% | 35% | 7% | 2% |
| St Helens Junction | 5644 | 34% | 41% | 21% | 3% | 1% |
| Kirkby | 11616 | 39% | 40% | 18% | 3% | 1% |
| Orrell | 5925 | 16% | 44% | 32% | 6% | 2% |

Table 3-K Cars Availability by Household 2km Catchment (Source; 2011 Census)

Shadow stations with similar car ownership characteristics are;

Kirkby Headbolt Lane:

- *Kirkby*
- *Prescott*

➤ *St Helens Central*

Skelmersdale;

- *Kirkby*
- *St Helens Central*
- *St Helens Junction*
- *Wigan*

3.3.8 Household Composition by Station (2011 Census)

Household composition by station is shown in Table 3-L.

| Station | All categories | One person household | One Family only | | | | | | | | Other household types |
|----------------------|----------------|----------------------|----------------------|---|--|--|-------------------------------|--------------------------------------|--|-------------|-----------------------|
| | | | All aged 65 and over | Married or same-sex civil partnership No children | Married or same-sex civil partnership Dependent children | Married or same-sex civil partnership Non Dependent children | Cohabiting couple No children | Cohabiting couple Dependent children | Cohabiting couple All children non-dependent | Lone parent | |
| Kirkby Headbolt Lane | 2882 | 27% | 5% | 8% | 11% | 7% | 5% | 6% | 0% | 23% | 8% |
| Skelmersdale | 2168 | 30% | 5% | 9% | 13% | 6% | 4% | 6% | 1% | 19% | 7% |
| St Helens Central | 1999 | 46% | 5% | 7% | 7% | 4% | 6% | 5% | 1% | 14% | 6% |
| Ormskirk | 2691 | 32% | 8% | 10% | 12% | 6% | 5% | 3% | 0% | 8% | 15% |
| Gathurst | 213 | 20% | 11% | 20% | 19% | 12% | 2% | 4% | 0% | 8% | 5% |
| Appley Bridge | 1089 | 24% | 7% | 19% | 21% | 8% | 7% | 3% | 1% | 8% | 3% |
| Rainford | 459 | 28% | 9% | 14% | 13% | 7% | 7% | 4% | 1% | 14% | 4% |
| Pemberton | 3399 | 25% | 9% | 15% | 16% | 8% | 5% | 6% | 1% | 10% | 5% |
| Upholland | 94 | 22% | 6% | 14% | 27% | 9% | 6% | 3% | 0% | 7% | 5% |
| Fazakerley | 2600 | 28% | 5% | 10% | 17% | 8% | 4% | 5% | 1% | 16% | 6% |
| Maghull | 1616 | 31% | 13% | 11% | 14% | 8% | 4% | 4% | 0% | 10% | 4% |
| Thatto Heath | 4250 | 32% | 7% | 11% | 13% | 7% | 4% | 5% | 1% | 15% | 5% |
| Whiston | 3212 | 30% | 6% | 9% | 13% | 7% | 4% | 6% | 1% | 17% | 6% |
| Wigan | 2964 | 54% | 4% | 7% | 6% | 3% | 7% | 4% | 1% | 9% | 6% |
| Town Green | 1058 | 23% | 16% | 15% | 19% | 10% | 3% | 2% | 0% | 8% | 4% |
| Aughton Park | 1607 | 25% | 16% | 15% | 18% | 9% | 2% | 2% | 0% | 7% | 5% |
| Prescot | 3368 | 36% | 6% | 8% | 11% | 6% | 5% | 6% | 1% | 17% | 6% |
| Eccleston Park | 2290 | 24% | 10% | 13% | 23% | 9% | 3% | 4% | 1% | 8% | 4% |
| St Helens Junction | 2071 | 31% | 5% | 11% | 14% | 5% | 5% | 6% | 1% | 15% | 6% |
| Kirkby | 3504 | 32% | 8% | 9% | 12% | 9% | 3% | 4% | 1% | 17% | 6% |
| Orrell | 2265 | 28% | 11% | 13% | 20% | 7% | 4% | 4% | 1% | 9% | 3% |

Table 3-L Household Composition 800m Catchment (Source; 2011 Census)

The proposed stations have a similar split of household composition with around 30% classified as one person households and around 20% lone parent families, with around a quarter of households have dependent or non-dependent children (married + cohabiting couples).

Shadow stations with households with a similar composition are;

Kirkby Headbolt Lane:

- Kirkby
- Fazakerley
- Whiston

Skelmersdale:

- Kirkby

3.3.9 Household Tenure by Station (2011 Census)

Household Tenure by station is shown in Table 3-M.

| Station | All households | Owned | Shared ownership | Social rented | Private rented | Living rent free |
|----------------------|----------------|-------|------------------|---------------|----------------|------------------|
| Kirkby Headbolt Lane | 2882 | 53% | 1% | 34% | 12% | 1% |
| Skelmersdale | 2168 | 51% | 0% | 37% | 11% | 1% |
| St Helens Central | 1999 | 39% | 1% | 33% | 25% | 2% |
| Ormskirk | 2691 | 58% | 2% | 14% | 23% | 1% |
| Gathurst | 213 | 88% | 0% | 5% | 6% | 1% |
| Appley Bridge | 1089 | 89% | 0% | 1% | 8% | 1% |
| Rainford | 459 | 79% | 0% | 12% | 7% | 1% |
| Pemberton | 3399 | 79% | 0% | 9% | 10% | 1% |
| Upholland | 94 | 85% | 1% | 4% | 8% | 1% |
| Fazakerley | 2600 | 69% | 0% | 14% | 15% | 1% |
| Maghull | 1616 | 81% | 2% | 10% | 7% | 2% |
| Thatto Heath | 4250 | 61% | 0% | 25% | 12% | 1% |
| Whiston | 3212 | 59% | 1% | 31% | 8% | 1% |
| Wigan | 2964 | 33% | 0% | 41% | 23% | 2% |
| Town Green | 1058 | 86% | 0% | 8% | 4% | 2% |
| Aughton Park | 1607 | 89% | 2% | 2% | 7% | 1% |
| Prescot | 3368 | 53% | 1% | 30% | 15% | 1% |
| Eccleston Park | 2290 | 85% | 0% | 5% | 9% | 1% |
| St Helens Junction | 2071 | 60% | 1% | 21% | 16% | 1% |
| Kirkby | 3504 | 66% | 1% | 21% | 10% | 1% |
| Orrell | 2265 | 77% | 0% | 13% | 8% | 1% |

Table 3-M Household Tenure by Station 800m Catchment (Source; 2011 Census)

Skelmersdale and Kirkby Headbolt Lane have a similar split of Household composition by tenure within the 800m catchment. Just over half the households in

Skelmersdale and Kirkby Headbolt Lane are owned, with around 35% of households that are classed Social rented.

Overall the shadow stations have a much higher proportion of households that are owned, with the majority of shadow station catchments ranging from 70-80% of households that are owned within 800m of the station.

Shadow stations with a similar proportion of owned and socially rented households within 800m are;

Kirkby Headbolt Lane:

- *Prescot*
- *Whiston*

Skelmersdale:

- *Ormskirk*

3.3.10 Method of Travel to work By Station (2011 Census)

The assessment of method of travel to work is based on 2011 Census Data excluding not in Employment. Skelmersdale has a relatively high proportion of residents that walk to work at 18% this is double the amount that currently walk to work from residents within 800m of the proposed Kirkby Headbolt Lane station.

It is noted that Skelmersdale has a very low percentage of rail users which is a reflection of there being no station north of the M58. Kirkby Headbolt Lane on the other hand has a higher percentage of rail users at 8% but, this is three percentage points lower than the rail users within 800m of the existing Kirkby Station.

It is also noted that the percentage of rail users on the Kirkby line declines at stations where interchange at Kirkby is required for travel to Liverpool. For example: Upholland has 4% of people travelling to work by rail, and decreases to 3% at Orrell and 2% for Pemberton.

The shadow station assessment concentrates on the proportion driving to work compared to public transport in general. Many of the shadow stations have a much higher proportion of residents that drive to work with many having in excess of 70% travelling by car. This is likely to be a reflection of car ownership.

Shadow stations with a similar car modal split as Kirkby Headbolt Lane,

- *Kirkby*
- *Whiston*
- *Prescot*
- *Fazakerley*

Shadow stations with a similar modal split as Skelmersdale,

- *Kirkby*
- *St Helens Central*

| Station | Work mainly at or from home | Underground, metro, light rail, train | Train | Bus, minibus or coach | Taxi | Motorcycle, scooter or moped | Driving a car or van | Passenger in a car or van | Bicycle | On foot | Other method of travel to work |
|-----------------------------|-----------------------------|---------------------------------------|-----------|-----------------------|-----------|------------------------------|----------------------|---------------------------|-----------|------------|--------------------------------|
| Kirkby Headbolt Lane | 2% | 0% | 8% | 10% | 4% | 1% | 55% | 9% | 2% | 9% | 1% |
| Skelmersdale | 2% | 0% | 1% | 5% | 3% | 1% | 57% | 10% | 2% | 18% | 1% |
| St Helens Central | 2% | 0% | 3% | 10% | 1% | 0% | 48% | 8% | 2% | 25% | 0% |
| Ormskirk | 3% | 0% | 8% | 4% | 1% | 0% | 56% | 5% | 2% | 21% | 1% |
| Gathurst | 5% | 0% | 2% | 4% | 1% | 1% | 75% | 5% | 2% | 7% | 0% |
| Appley Bridge | 5% | 0% | 4% | 2% | 0% | 0% | 79% | 5% | 1% | 3% | 1% |
| Rainford | 4% | 0% | 3% | 7% | 0% | 0% | 75% | 5% | 1% | 4% | 0% |
| Pemberton | 2% | 0% | 2% | 6% | 1% | 1% | 70% | 8% | 2% | 8% | 0% |
| Upholland | 6% | 0% | 4% | 2% | 0% | 0% | 77% | 5% | 2% | 3% | 0% |
| Fazakerley | 3% | 1% | 10% | 9% | 2% | 0% | 55% | 6% | 1% | 13% | 1% |
| Maghull | 5% | 1% | 13% | 2% | 1% | 0% | 65% | 5% | 2% | 6% | 1% |
| Thatto Heath | 2% | 0% | 3% | 9% | 1% | 1% | 63% | 8% | 2% | 9% | 0% |
| Whiston | 2% | 0% | 7% | 8% | 2% | 1% | 58% | 7% | 1% | 14% | 1% |
| Wigan | 3% | 0% | 5% | 7% | 1% | 0% | 52% | 6% | 2% | 23% | 1% |
| Town Green | 6% | 1% | 8% | 1% | 1% | 1% | 72% | 4% | 1% | 4% | 1% |
| Aughton Park | 5% | 0% | 8% | 1% | 0% | 0% | 72% | 4% | 2% | 6% | 0% |
| Prescot | 2% | 0% | 6% | 9% | 2% | 1% | 55% | 7% | 1% | 18% | 0% |
| Eccleston Park | 4% | 0% | 5% | 4% | 1% | 1% | 71% | 6% | 1% | 8% | 0% |
| St Helens Junction | 3% | 0% | 4% | 6% | 1% | 1% | 68% | 8% | 1% | 7% | 0% |
| Kirkby | 2% | 1% | 11% | 8% | 2% | 0% | 58% | 8% | 1% | 8% | 1% |
| Orrell | 4% | 0% | 3% | 3% | 0% | 1% | 78% | 5% | 1% | 5% | 0% |

Table 3-N Mode of Travel to Work by Station 800m Catchment (Source; 2011 Census)

There is a potential for journey to work characteristics to change in the future to reflect the decrease in dependency on car in society; particularly among younger demographics. Figure 3-A shows the trend in the number of people taking their driving test. The number of people taking their test has declined overall from 2008 to 2013, if this trend continues future generation may not be dependent on private car for their journey to work.

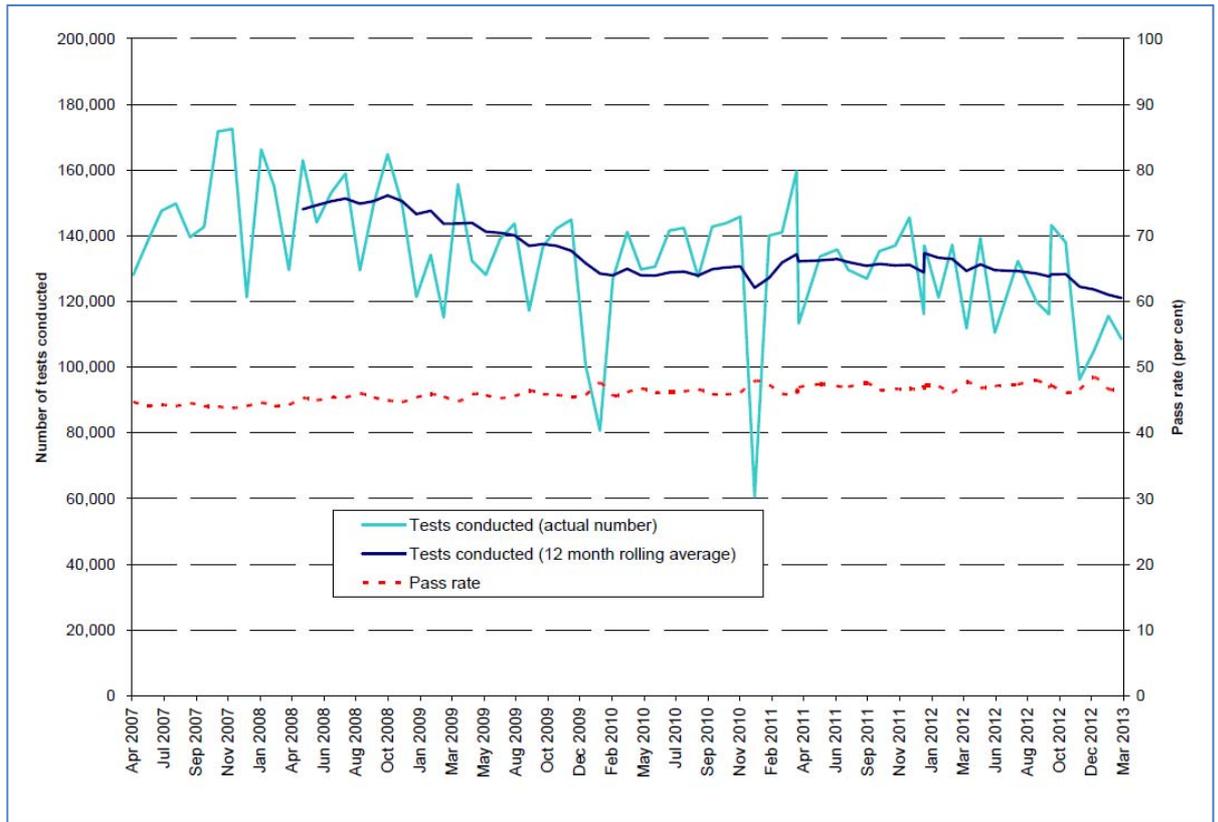


Figure 3-B Practical Car Tests: Great Britain April 2007 – March 2013 (source DfT)

The journey to work by age breakdown by method of travel to work for the 2011 census is shown in Table 3-O. The percentage of people driving to work that are aged between 16 and 24 is significantly lower than the other age groups. For this age group overall percentage of people travelling to work by rail is significantly greater than other older age categories.

For the Kirkby Headbolt Lane site the same proportion of the population aged 16-24 travel to work by public transport as driving a car, this is higher than the percentage split at Kirkby at present, with 38% driving and 33% travelling by public transport.

At Skelmersdale over half of the 16-24 age group travel by modes other than car. This is probably sustainable modes such as walking.

Shadow stations which show similar characteristics are;

Kirkby Headbolt Lane:

- Kirkby
- Fazakerley
- Whiston

Skelmersdale:

- St Helens Central
- Ormskirk
- Wigan

| Station | 16 to 24 | | | | Age 25 to 34 | | | | Age 35 to 49 | | | | Age 50 to 64 | | | |
|----------------------|-----------------------------|--|----------------------|-------------------------------------|-----------------------------|--|----------------------|-------------------------------------|-----------------------------|--|----------------------|-------------------------------------|-----------------------------|--|----------------------|-------------------------------------|
| | Work mainly at or from home | Train, underground, metro, light rail, tram, bus, minibus or coach | Driving a car or van | All other methods of travel to work | Work mainly at or from home | Train, underground, metro, light rail, tram, bus, minibus or coach | Driving a car or van | All other methods of travel to work | Work mainly at or from home | Train, underground, metro, light rail, tram, bus, minibus or coach | Driving a car or van | All other methods of travel to work | Work mainly at or from home | Train, underground, metro, light rail, tram, bus, minibus or coach | Driving a car or van | All other methods of travel to work |
| Kirkby Headbolt Lane | 2% | 32% | 32% | 34% | 3% | 15% | 62% | 19% | 6% | 14% | 57% | 24% | 6% | 18% | 49% | 28% |
| Skelmersdale | 3% | 12% | 29% | 56% | 5% | 6% | 56% | 32% | 5% | 4% | 60% | 31% | 7% | 6% | 60% | 28% |
| St Helens Central | 4% | 16% | 31% | 49% | 4% | 16% | 48% | 32% | 7% | 9% | 53% | 31% | 9% | 12% | 46% | 33% |
| Ormskirk | 3% | 16% | 35% | 45% | 6% | 16% | 52% | 26% | 8% | 8% | 66% | 17% | 11% | 6% | 56% | 27% |
| Gathurst | 3% | 20% | 50% | 27% | 3% | 10% | 78% | 9% | 7% | 2% | 80% | 11% | 15% | 1% | 71% | 13% |
| Appley Bridge | 2% | 10% | 60% | 28% | 5% | 8% | 80% | 8% | 11% | 5% | 78% | 5% | 12% | 4% | 76% | 8% |
| Rainford | 1% | 26% | 58% | 15% | 6% | 7% | 78% | 10% | 10% | 8% | 72% | 10% | 8% | 11% | 72% | 9% |
| Pemberton | 3% | 15% | 47% | 35% | 5% | 7% | 71% | 17% | 6% | 6% | 73% | 14% | 8% | 8% | 66% | 19% |
| Upholland | 3% | 21% | 40% | 36% | 3% | 6% | 76% | 15% | 10% | 5% | 80% | 6% | 19% | 2% | 70% | 10% |
| Fazakerley | 3% | 33% | 34% | 30% | 7% | 20% | 55% | 18% | 8% | 16% | 56% | 20% | 9% | 15% | 55% | 21% |
| Maghull | 5% | 25% | 38% | 32% | 4% | 19% | 64% | 13% | 10% | 12% | 66% | 11% | 10% | 13% | 66% | 11% |
| Thatto Heath | 3% | 21% | 40% | 36% | 4% | 11% | 66% | 19% | 6% | 10% | 67% | 17% | 7% | 12% | 60% | 20% |
| Whiston | 3% | 26% | 34% | 37% | 4% | 17% | 60% | 19% | 7% | 12% | 60% | 22% | 7% | 11% | 55% | 27% |
| Wigan | 2% | 18% | 35% | 45% | 4% | 13% | 51% | 31% | 6% | 11% | 56% | 28% | 11% | 11% | 49% | 30% |
| Town Green | 3% | 15% | 49% | 33% | 3% | 17% | 69% | 11% | 11% | 11% | 71% | 7% | 12% | 6% | 74% | 8% |
| Aughton Park | 3% | 16% | 50% | 31% | 7% | 13% | 69% | 11% | 10% | 10% | 71% | 8% | 13% | 6% | 70% | 11% |
| Prescot | 3% | 26% | 37% | 34% | 3% | 16% | 55% | 26% | 6% | 11% | 57% | 26% | 8% | 10% | 52% | 30% |
| Eccleston Park | 3% | 19% | 47% | 31% | 6% | 11% | 70% | 13% | 8% | 7% | 71% | 14% | 9% | 6% | 69% | 16% |
| St Helens Junction | 4% | 18% | 41% | 37% | 4% | 10% | 72% | 14% | 7% | 9% | 69% | 15% | 8% | 10% | 67% | 15% |
| Kirkby | 2% | 33% | 38% | 27% | 3% | 22% | 58% | 17% | 6% | 15% | 61% | 18% | 7% | 18% | 55% | 20% |
| Orrell | 3% | 13% | 55% | 29% | 7% | 8% | 75% | 10% | 9% | 5% | 78% | 8% | 10% | 4% | 74% | 12% |

Table 3-O Mode of Travel to Work by Age & Station; 800m Catchment (Source; 2011 Census)

The distance travelled to work by age group is contained in Table 3-P. The distance travelled by age does not vary significantly across the different age categories, with around 50% of each age category travelling less than 10km from Kirkby Headbolt Lane and around 60% from Skelmersdale. Kirkby Headbolt Lane has around 30% travelling between 10km and 30km whereas Skelmersdale has around 20% travelling this distance.

Shadow stations with similar characteristics are;

Kirkby Headbolt Lane:

- *Kirkby*
- *Maghull*

Skelmersdale:

- *St Helens Central*
- *Pemberton*
- *Wigan*
- *St Helens Junction*

| Station | Aged 16-24 | | | | | Aged 25-34 | | | | | Aged 35-49 | | | | | Aged 50-64 | | | | |
|----------------------|----------------|------------------------|-------|-----------------------------|-------|----------------|------------------------|-------|-----------------------------|-------|----------------|------------------------|-------|-----------------------------|-------|----------------|------------------------|-------|-----------------------------|-------|
| | Less than 10km | 10km to less than 30km | 30km+ | Work mainly at or from home | Other | Less than 10km | 10km to less than 30km | 30km+ | Work mainly at or from home | Other | Less than 10km | 10km to less than 30km | 30km+ | Work mainly at or from home | Other | Less than 10km | 10km to less than 30km | 30km+ | Work mainly at or from home | Other |
| Kirkby Headbolt Lane | 53% | 31% | 6% | 2% | 9% | 48% | 34% | 5% | 3% | 10% | 52% | 28% | 6% | 6% | 9% | 57% | 26% | 4% | 6% | 7% |
| Skelmersdale | 69% | 19% | 3% | 3% | 5% | 64% | 19% | 5% | 5% | 7% | 63% | 20% | 4% | 5% | 7% | 62% | 22% | 4% | 7% | 5% |
| St Helens Central | 67% | 17% | 5% | 4% | 7% | 54% | 26% | 7% | 4% | 8% | 61% | 17% | 7% | 7% | 7% | 66% | 13% | 4% | 9% | 8% |
| Ormskirk | 44% | 26% | 19% | 3% | 8% | 43% | 37% | 9% | 6% | 5% | 42% | 36% | 7% | 8% | 7% | 51% | 28% | 5% | 11% | 6% |
| Gathurst | 64% | 14% | 12% | 3% | 7% | 57% | 25% | 6% | 3% | 10% | 50% | 27% | 9% | 7% | 6% | 54% | 18% | 4% | 15% | 9% |
| Appley Bridge | 56% | 23% | 7% | 2% | 11% | 39% | 35% | 16% | 5% | 5% | 38% | 32% | 13% | 11% | 7% | 41% | 35% | 7% | 12% | 6% |
| Rainford | 57% | 28% | 11% | 1% | 2% | 37% | 42% | 10% | 6% | 5% | 35% | 40% | 7% | 10% | 8% | 46% | 34% | 7% | 8% | 4% |
| Pemberton | 67% | 16% | 5% | 3% | 9% | 51% | 28% | 7% | 5% | 9% | 58% | 23% | 6% | 6% | 7% | 62% | 18% | 5% | 8% | 8% |
| Upholland | 63% | 22% | 11% | 3% | 2% | 50% | 34% | 6% | 3% | 7% | 41% | 31% | 9% | 10% | 9% | 44% | 23% | 7% | 19% | 7% |
| Fazakerley | 72% | 13% | 4% | 3% | 8% | 64% | 14% | 6% | 7% | 9% | 65% | 13% | 7% | 8% | 7% | 65% | 13% | 6% | 9% | 8% |
| Maghull | 54% | 30% | 5% | 5% | 6% | 41% | 40% | 8% | 4% | 7% | 44% | 32% | 8% | 10% | 7% | 47% | 31% | 4% | 10% | 8% |
| Thatto Heath | 65% | 18% | 7% | 3% | 8% | 55% | 27% | 8% | 4% | 7% | 60% | 21% | 6% | 6% | 6% | 66% | 16% | 4% | 7% | 7% |
| Whiston | 60% | 26% | 5% | 3% | 6% | 54% | 27% | 6% | 4% | 9% | 56% | 24% | 5% | 7% | 8% | 62% | 21% | 5% | 7% | 6% |
| Wigan | 68% | 19% | 4% | 2% | 7% | 59% | 22% | 7% | 4% | 8% | 62% | 20% | 3% | 6% | 9% | 63% | 14% | 4% | 11% | 9% |
| Town Green | 56% | 28% | 8% | 3% | 6% | 35% | 44% | 11% | 3% | 7% | 32% | 42% | 8% | 11% | 7% | 39% | 35% | 6% | 12% | 8% |
| Aughton Park | 50% | 31% | 10% | 3% | 6% | 34% | 40% | 10% | 7% | 8% | 35% | 42% | 7% | 10% | 6% | 43% | 34% | 6% | 13% | 4% |
| Prescot | 60% | 22% | 7% | 3% | 9% | 58% | 27% | 6% | 3% | 6% | 57% | 23% | 6% | 6% | 8% | 62% | 18% | 5% | 8% | 7% |
| Eccleston Park | 60% | 25% | 7% | 3% | 6% | 45% | 35% | 9% | 6% | 5% | 49% | 30% | 8% | 8% | 6% | 55% | 24% | 5% | 9% | 6% |
| St Helens Junction | 69% | 17% | 6% | 4% | 4% | 55% | 27% | 7% | 4% | 6% | 59% | 22% | 6% | 7% | 6% | 65% | 17% | 4% | 8% | 7% |
| Kirkby | 51% | 33% | 6% | 2% | 8% | 50% | 32% | 6% | 3% | 9% | 54% | 26% | 7% | 6% | 7% | 56% | 25% | 5% | 7% | 8% |
| Orrell | 64% | 20% | 6% | 3% | 8% | 43% | 30% | 12% | 7% | 9% | 48% | 28% | 9% | 9% | 6% | 56% | 24% | 4% | 10% | 5% |

Table 3-P Distance Travelled to Work by Age & Station; 800m Catchment (Source; 2011 Census)

3.3.11 Economic Activity (2011 Census)

Table 3-Q shows that the proposed stations have very similar economic activity within the 800m catchments with just over half the population is classed as economically active. The proportion of employees is also similar at 35% for both of the proposed stations.

Shadow stations with similar economically active populations are;

Kirkby Headbolt Lane:

- *Kirkby*
- *Thatto Heath*
- *Whiston*
- *Prescott*

Skelmersdale:

- *Kirkby*
- *St Helens Central*
- *Wigan*

| Station | Employee Part-time | Employee Full-time | Self Employed | Unemployed | Retired | Student (including full-time students) | Other Economically Inactive |
|----------------------|--------------------|--------------------|---------------|------------|---------|--|-----------------------------|
| Kirkby Headbolt Lane | 14% | 35% | 5% | 7% | 12% | 7% | 20% |
| Skelmersdale | 14% | 35% | 5% | 8% | 13% | 9% | 16% |
| St Helens Central | 12% | 34% | 5% | 10% | 13% | 6% | 19% |
| Ormskirk | 11% | 30% | 6% | 2% | 13% | 32% | 5% |
| Gathurst | 14% | 37% | 10% | 3% | 22% | 6% | 6% |
| Appley Bridge | 14% | 46% | 10% | 3% | 16% | 6% | 6% |
| Rainford | 12% | 41% | 7% | 4% | 21% | 7% | 8% |
| Pemberton | 14% | 43% | 7% | 4% | 18% | 5% | 9% |
| Upholland | 12% | 46% | 13% | 5% | 11% | 7% | 5% |
| Fazakerley | 14% | 42% | 7% | 5% | 11% | 8% | 14% |
| Maghull | 14% | 38% | 8% | 3% | 21% | 7% | 8% |
| Thatto Heath | 15% | 38% | 5% | 7% | 15% | 7% | 13% |
| Whiston | 15% | 35% | 5% | 6% | 14% | 8% | 16% |
| Wigan | 12% | 39% | 6% | 8% | 12% | 5% | 17% |
| Town Green | 14% | 34% | 11% | 3% | 23% | 8% | 7% |
| Aughton Park | 14% | 36% | 9% | 2% | 23% | 10% | 6% |
| Prescot | 14% | 36% | 5% | 7% | 13% | 8% | 17% |
| Eccleston Park | 16% | 41% | 8% | 3% | 17% | 8% | 8% |
| St Helens Junction | 13% | 43% | 5% | 6% | 12% | 6% | 15% |
| Kirkby | 14% | 36% | 6% | 6% | 14% | 8% | 16% |
| Orrell | 14% | 44% | 8% | 3% | 18% | 6% | 7% |

Table 3-Q Economic Activity by Station 800m Catchment (Source; 2011 Census)

3.4 Summary of Socio-Economic Assessment

A summary of the socio-economic analysis of the shadow stations is presented in Appendix A, from which the stations with the closest socio-economic characteristics have been selected and presented in Table 3-R. For each station the main rail markets are identified as well as key issues that will need to be taken into account within the trip rate analysis.

For Skelmersdale the most similar shadow stations were Kirkby, St Helens Central, St Helens Junction and Wigan. The key markets covered are Liverpool and Manchester but only St Helens Central covers flows to Wigan. The second group shown of Ormskirk and Pemberton will add further evidence of the market for Liverpool from further away from the city and further Wigan and Manchester flows. The key issues relate mainly to the difference between the proposed level of service and the existing levels of service.

For Kirkby Headbolt Lane the closest shadow station is Kirkby. There was more similarity between this location and all of the identified shadow stations options. The closest comparator stations include Fazakerley on the same line and Whiston and Prescott on other lines with services into Liverpool Lime Street Station. The level of fit between the socio-economic scores is taken account of in the weighting / choice of trip rates adopted in the trip rate forecast.

| Station | Shadow Station | Socio-Economic Score | Key Rail Markets | Key Issues |
|-----------------------------|--------------------|----------------------|-------------------------------------|--|
| Skelmersdale | Kirkby | 11 | Liverpool Wigan / Manchester | 4tph compared to proposed 2tph + significantly further from Liverpool Same level of service |
| | St Helens Central | 9 | Liverpool Wigan | 4tph compared to proposed 2tph 4tph compared to proposed 1tph |
| | St Helens Junction | 9 | Liverpool Manchester | 3tph compared to 2tph 2 tph compared to 1tph |
| | Wigan | 9 | Manchester | 5tph compared to 1 tph |
| | | | | |
| 2 nd group | Ormskirk | 4 | Liverpool | 4tph compared to proposed 2tph Similar distance |
| | Pemberton | 3 | Wigan and Manchester | Same level of service |
| | | | | |
| Kirkby Headbolt Lane | Kirkby | 14 | Liverpool | Same level of service |
| | Whiston | 11 | Liverpool | 2tph compared to proposed 4tph |
| | Prescot | 9 | Liverpool (Wigan) | 4tph (4 tph compared with 2 / 1) |
| | Fazakerley | 7 | Liverpool | Same level of service |
| | | | | |

Table 3-R Summary of Socio-Economic Assessment

3.5 Trip Rate Analysis

This sections defines the trip rates that will be used for the proposed stations analysing the options outlined in table 3-R, for Skelmersdale and then Kirkby Headbolt Lane.

(a) Skelmersdale Trip Rate Analysis

The trip rates for Skelmersdale Station were based on the analysis of the following stations:

- *Kirkby to Liverpool*
Wigan
Manchester

- *St Helens Central to Liverpool*
Manchester

- *Wigan to Manchester*
- *Ormskirk to Liverpool*
- *Pemberton to Wigan*
Manchester

(i) Trip Rate Analysis Skelmersdale to Liverpool

Table 3-T shows the trip rate for the shadow stations that could be applied to Skelmersdale Station. The table contains two trip rates; one based on the population within 2km and the annual flows per year to Liverpool and a trip rate with an elasticity factor applied. The elasticity factor represents the difference in the travel characteristics for Skelmersdale in terms of frequency and journey time. The elasticity factor was generated by calculating the generalised journey time for each station and the difference in generalised journey time for a new station at Skelmersdale. A journey time elasticity of -0.9 was employed as per PDFH guidance.

| Description | Trip Rate (MOIRA) | Trip rate with elasticity | % of trips | |
|-----------------------------|-------------------|---------------------------|--------------|-----------------------|
| | | | To Liverpool | To Other Destinations |
| Based on Kirkby | 30.60 | 19.11 | 91%* | 9% |
| Based on St Helens Central | 9.69 | 9.53 | 46% | 54% |
| Based on St Helens Junction | 4.88 | 4.72 | 27% | 73% |
| Based on Ormskirk | 68.38 | 67.24 | 87% | 13% |

*and Merseyside combined (due to lack of Moira top flow data)

Table 3-S Skelmersdale to Liverpool Trip Rate

As outlined earlier in the report Skelmersdale is very similar demographically to the existing Kirkby Station population. Although Kirkby station is significantly closer to Liverpool than Skelmersdale and therefore it is likely that Liverpool would not be as dominant an attractor for Skelmersdale residents. Ormskirk is a similar distance geographically from Liverpool as Skelmersdale it differs significantly in comparison to the socio economic demographics of the population, in particularly Social grade. This is significant as white collar workers have in general a greater propensity to travel by rail, 63% of the population within 2km of Ormskirk is classed as middle class compared to 33% of Skelmersdale.

St Helens Junction and St Helens Central are a similar distance from Liverpool as Skelmersdale and have a population fairly similar demographically to Skelmersdale. However, St Helens benefits from a higher frequency of trains to Manchester therefore residents have more travel options, in particular, mode of travel to work.

As outlined in Section 2 St Helens and Skelmersdale residents travel a similar distance to work favouring shorter journeys over longer distance travel. Also, residents from Skelmersdale have a tendency to travel west within Merseyside and Liverpool than towards Manchester and the east similar to that of Kirby Residents. Therefore the trip rate to be applied to trips to Liverpool from Skelmersdale was based on the Kirby flows.

Part of the reduction in the rate with elasticity applied relates to the increased distance from Liverpool. However, as the propensity to use rail increases with distance, the trip rate with elasticity applied is considered cautious. A central forecast is based on the average of the higher and lower Kirkby trip rates.

(ii) Trip Rate Analysis Skelmersdale to Manchester

Table 3-B contains the calculated trip rates that could be applied to Skelmersdale station.

| Description | Trip Rate (MOIRA) | Trip rate with elasticity | % of trips | |
|-----------------------------|-------------------|---------------------------|---------------|-----------------------|
| | | | To Manchester | To Other Destinations |
| Based on Kirkby | 0.58 | 0.34 | 2% | 98% |
| Based on St Helens Junction | 7.65 | 5.00 | 42% | 58% |
| Based on Wigan | 30.85 | 30.85 | 30% | 70% |
| Based on Pemberton | 0.49 | 0.44 | 25% | 75% |

Table 3-T Skelmersdale to Manchester Trip Rate

Out of the stations assessed only Pemberton has the same level of service as the proposed Skelmersdale station and is situated on the same line. Though geographically closer to Pemberton; Skelmersdale has lower car availability and a smaller proportion of houses that are owner occupied. Based on Journey to work data, rail use at Pemberton is low (table 3-N) at 2% this is one percentage point more than Skelmersdale existing journey to work by rail. St Helens Junction has a higher frequency of service than Pemberton or Skelmersdale and the demand for rail travel to Manchester is very high at 42% of all rail trips. As the population of Skelmersdale have a tendency to travel towards Liverpool it is unlikely that 42% of rail trips would be to Manchester.

Wigan demographically is similar to Skelmersdale, but it has a better service and faster connections to Manchester than Pemberton. Wigan station itself is an attractor of rail users from the wider area i.e. beyond the 2km catchment and this is reflected in a higher trip rate. Geographically Wigan is approximately half way between Liverpool and Manchester and, as for St Helens, residents are attracted to both destinations rather than favouring Liverpool.

St Helens Junction and Wigan have similar characteristics to Skelmersdale such as; social grade, distance travelled to work, age and car ownership. Wigan is closer to Manchester and has a significantly higher trip rate than that of Pemberton or Kirkby.

Taking account of the factors identified it was decided to use a demand range based on St Helens Junction with elasticity for the high trip rate assumption and Pemberton for the low trip rate assumption. A central forecast uses the average.

(iii) Trip Rate Analysis Skelmersdale to Wigan

Table 3-B contains the calculated trip rates that could be applied to Skelmersdale station.

| Description | Trip Rate | Trip rate with elasticity | % of trips | |
|----------------------------|-----------|---------------------------|------------|-----------------------|
| | | | To Wigan | To Other Destinations |
| Based on Kirkby | 0.36 | 0.42 | 1% | 99% |
| Based on St Helens Central | 1.81 | 1.43 | 9% | 91% |
| Based on Pemberton | 0.54 | 0.43 | 27% | 73% |

Table 3-U Skelmersdale to Wigan Trip Rate

For journeys to Wigan; St Helens Central and Pemberton both have an existing generalised journey time of 37 minutes (and similar to Skelmersdale) compared to 57 minutes for Kirkby. Geographically Kirkby is much further away from Wigan. The Journey to Work Analysis revealed Wigan to be an attractor for work trips for residents from Skelmersdale and in the future would have the option to use a direct rail service as an alternative to private car. A relatively high proportion of trips from Pemberton are travelling to Wigan which reflects the poor connectivity to Liverpool. Demographically St Helens Central is similar to Skelmersdale.

It was therefore decided to base the central demand forecast around a high forecast based on St Helens Central with elasticity factor applied and a low forecast based on Pemberton.

(iv) Wider Network Trips

Table 3-W shows the key flows for comparator stations for Skelmersdale including the proportion beyond the main flows. The average proportion of wider flows for the existing stations in the vicinity of Skelmersdale (Rainford, Upholland, Orrell and Pemberton) is 31%. Skelmersdale would be well connected to Liverpool / Merseyside and also to a wide range of destinations via Wigan and Manchester.

The lack of direct connectivity to Liverpool depresses the proportion of flows to that destination at the surrounding stations, so the proportion of wider network flows to / from Skelmersdale would be expected to be below that level. The proportion of wider network flows is lowest for Kirkby and higher for Ormskirk. Kirkby is particularly well connected to Liverpool and Ormskirk is also not well connected to the wider network.

The journey to work data presented in Figure 2-B revealed that Skelmersdale residents have a propensity to travel east towards Liverpool and Merseyside. On balance it was decided to use a central forecast of 20% within a range of 15% to

25% for wider network trips in the production of the demand forecast range for the new station.

| Destination Station | Kirkby | Ormskirk | Rainford | Upholland | Orrell | Pemberton |
|------------------------|--------|----------|----------|-----------|--------|-----------|
| Liverpool / Merseyside | 91% | 87% | 40% | 41% | 26% | 21% |
| Manchester | 2% | | 13% | 12% | 22% | 25% |
| Wigan | 1% | | 16% | 15% | 18% | 27% |
| Elsewhere | 6% | 13% | 31% | 32% | 34% | 27% |

Table 3-V Key Flow Proportions

(v) Summary Skelmersdale Trip Generation

Table 3-W contains the trip rates applied for the proposed Skelmersdale population. The table contains a high and low trip rate which are used in the assessment of the business case for the scheme.

| Key Flow | High Forecast | Trip Rate / Factor | High Journeys | Low Forecast | Trip Rate / Factor | Low Journeys | Central Forecast Journeys |
|---------------|------------------------------------|--------------------|---------------|---------------------------|--------------------|--------------|---------------------------|
| Liverpool | Kirkby existing | 30.60 | 834,034 | Kirkby with elasticity | 19.11 | 520,862 | 677,448 (73%) |
| Manchester | St Helens Junction with elasticity | 5.00 | 136,280 | Pemberton with elasticity | 0.44 | 11,993 | 74,136 (8%) |
| Wigan | St Helens Central with elasticity | 1.43 | 38,976 | Pemberton with elasticity | 0.43 | 11,720 | 25,348 (3%) |
| Wider Network | | 25% | 252,322 | | 15% | 81,686 | 155,386 (17%) |
| Total | | | 1,261,612 | | | 626,261 | 932,319 |

Table 3-W Skelmersdale Station Demand Forecasts (High, Low and Central)

Figure 3-A showed that there was very little overlap between the catchments of the new Skelmersdale Station and the existing Upholland and Rainford Stations. As a result now assessment of abstraction has been included within the demand forecast. Although the Census JTW data suggested a level of rail use from Skelmersdale residents it is not known where they access the network.

Figures 3-C and 3-D present the increase in the proportion of rail commuting and business trips with distance, based on National Travel Survey data from 2011. Rather than the fall in demand with increasing journey time incorporated in the Generalised Journey Time functions, rail tends to gain a journey time advantage over other modes over longer distances. Indeed, the evidence suggests a three-fold increase between the 5 to 10 miles and 10 to 25 miles categories – the difference between Kirkby and Skelmersdale. Overall, this evidence supports the use of a central case between the high and low scenarios presented.

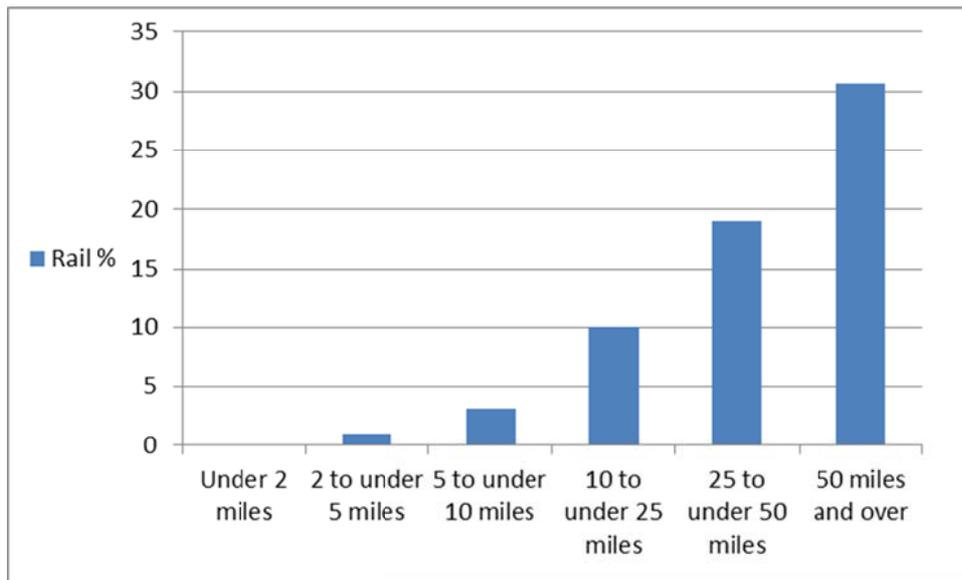


Figure 3-C Percentage of Commuting Trips by Rail by Distance (source: NTS April 2011)

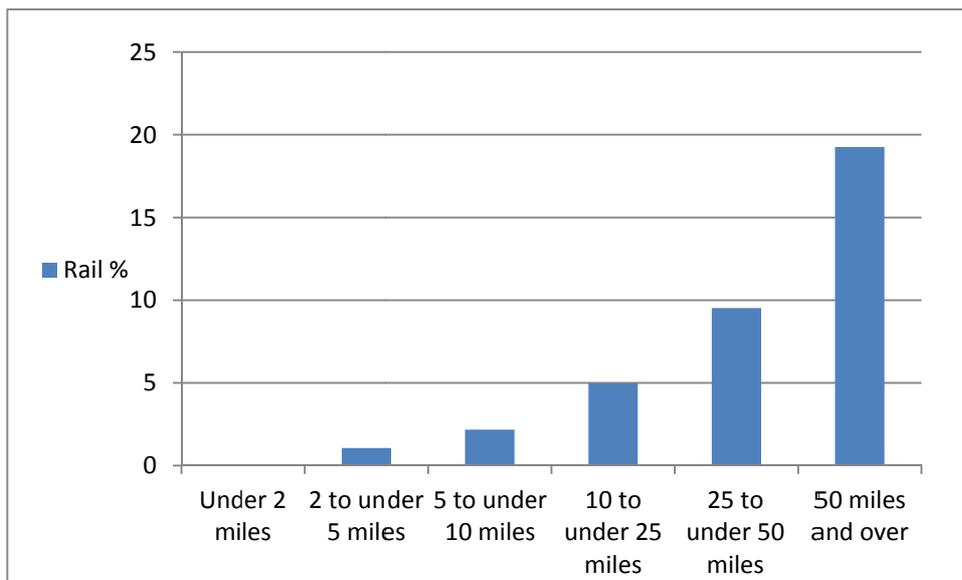


Figure 3-D Percentage of Business Trips by Rail by Distance (source: NTS April 2011)

Table 3-X shows the passenger flows for existing stations in the vicinity based on data published by the ORR. The central demand forecast for Skelmersdale is in the order of Fazakerley and St Helens Central and significantly lower than Ormskirk and Kirkby and Wigan. It is significantly higher than the existing demand levels at Rainford, Upholland, Orrell and Pemberton but the service level assumptions are for the new station are significantly higher than those stations currently receive, especially in terms of access to Liverpool.

| Station | Annual Passenger Journeys |
|---------------------|---------------------------|
| Kirkby | 2,357,814 |
| Ormskirk | 2,058,604 |
| Maghull | 1,765,756 |
| Wigan Wallgate | 1,688,758 |
| Wigan North Western | 1,154,040 |
| St Helens Central | 1,096,844 |
| Fazakerley | 1,061,930 |
| Huyton | 990,284 |
| Old Roan | 864,554 |
| Prescot | 376,624 |
| St Helens Junction | 344,124 |
| Orrell | 112,236 |
| Pemberton | 69,790 |
| Rainford | 51,992 |
| Upholland | 27,436 |

Table 3-X Comparative Stations Rail Passenger Journeys Per Annum (Source ORR, 2013/14)

(b) Kirkby Headbolt Lane Trip Rate Generation

The trip rates for Kirkby Headbolt Lane Station were based on the analysis of the following stations:

- *Kirkby to Liverpool*
- *Whiston to Liverpool*
- *Fazakerley to Liverpool*
- *Prescot to Wigan
Liverpool*

(i) Kirkby Headbolt Lane – Liverpool / Merseyside

Table 3-Y shows the trip rates for shadow station that could be applied to the proposed Kirkby Headbolt Lane Station. The table contains a trip rate based on the 2km station catchment taking into account any overlapping catchments from existing stations, following the same methodology as applied previously to Skelmersdale Station.

| Description | Trip Rate | Trip rate with elasticity | % of trips to Liverpool | % of trips to the other Destinations |
|---------------------|-----------|---------------------------|-------------------------|--------------------------------------|
| Based on Kirkby | 30.60 | | 91% | 9% |
| Based on Whiston | 9.99 | 13.38 | 58% | 42% |
| Based on Fazakerley | 36.26 | | 100%* | 0%* |
| Based on Prescot | 11.79 | 14.87 | 72% | 28% |

**Based on ORR Annual Entry & Exits not Moira therefore no breakdown of Destinations*

Table 3-Y Kirkby Headbolt Lane to Liverpool Trip Rate

As Kirkby Headbolt Lane stations is going to act as a terminus instead of the existing Kirkby station. The proposed station has a very similar social demographic to Kirkby station, because it is situated to the edge of the same town. In addition to this it will have the same level of service to Liverpool; therefore the existing Kirkby station trip rate to Liverpool was applied as shown below in Table 3-Y for the proposed station.

(ii) Kirkby Headbolt Lane – Wigan

Table 3-Z contains the trip rates for shadow station that could be applied to the proposed Kirkby Headbolt Lane Station, following the same methodology as applied previously.

| Description | Trip Rate | Trip rate with elasticity | % of trips | |
|------------------|-----------|---------------------------|------------|-----------------------|
| | | | To Wigan | To Other Destinations |
| Based on Kirkby | 0.36 | 0.42 | 1% | 99% |
| Based on Prescot | 0.63 | 0.46 | 4% | 96% |

Table 3-Z Kirkby Headbolt Lane to Wigan

Kirkby and Prescot were assessed to establish the trip rate from Kirkby Headbolt Lane to Wigan. Prescott has a higher frequency of trains than Kirkby and even though it is similar demographically to the proposed station. The trip applied to the proposed station catchment was based on the existing Kirkby station for the purpose of this assessment. The adjusted rate with elasticity applied was used to reflect the frequency change and interchange required.

(iii) Kirkby Headbolt Lane Wider Network Trips

At the existing Kirkby Station, trips to Liverpool & Merseyside and Wigan equate to 92% of trips, therefore it can be assumed that 8% of trips are going to destinations on the wider network.

(iv) Kirkby Station Revised Forecast

As shown in Figure 3-E the proposed Kirkby Headbolt Lane Station is within 2km of the existing Kirkby Station. Table 3-AA shows that around half of the existing Kirkby Station catchment residents will be closer to the new station and the catchment population of Kirkby Station will reduce to 14,901 people.

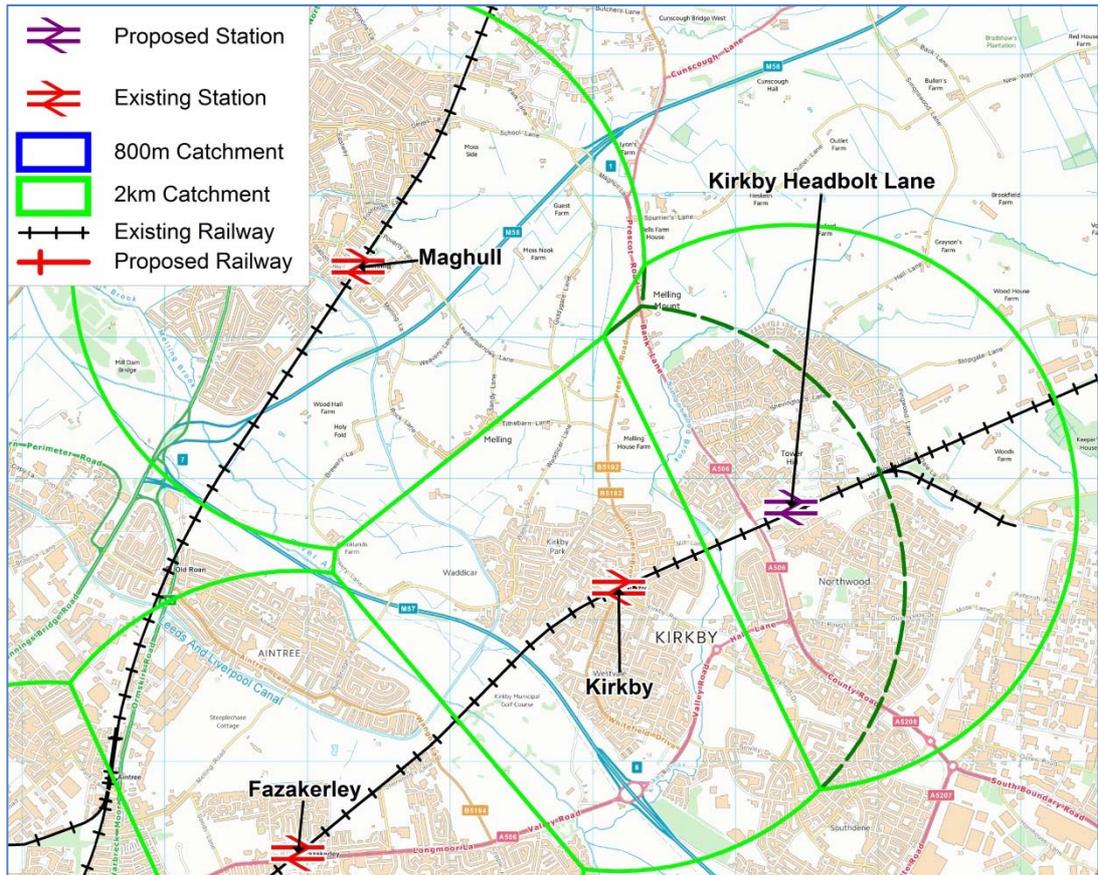


Figure 3-E Station Catchments in and around Kirkby

| Scenario | 2km Population |
|---|----------------|
| Kirkby Existing Station Catchment | 28203 |
| Kirkby Existing Station Catchment with Proposed Station at Kirkby Headbolt Lane | 14901 |
| Net Change | -14111 |

Table 3-AA Net Change in Population at Kirkby Station with Proposed Station

To assess the level of trip abstraction and therefore calculate the net gain in trips, the existing trip rate for Kirkby Station was applied to the revised population, as shown in Table 3-BB.

| Flow | Description | Trip Rate / Factor | Journeys | |
|---------------|------------------------|--------------------|--------------------|-------------------|
| | | | Existing Catchment | Revised Catchment |
| Liverpool | Kirkby existing | 30.60 | 863,012 | 431,185 |
| Wigan | Kirkby with elasticity | 0.42 | 11,845 | 5,918 |
| Wider Network | Kirkby existing 8% | 2.48 | 69,943 | 34,946 |
| Total | | | 944,801 | 472,049 |

Table 3-BB Trip Rates Applied to Existing Kirkby Station

(v) Kirkby Headbolt Lane Summary Trip Generation

Table 3-CC shows the application of the trip rates for the proposed station at Kirkby Headbolt Lane.

| Flow | Description | Trip Rate Applied | Number of Trips |
|---------------|------------------------|-------------------|--------------------|
| to Liverpool | Kirkby existing | 30.60 | 639,724 (91.3%) |
| To Wigan | Kirkby with elasticity | 0.42 | 8,781 (1.3%) |
| Wider Network | Kirkby existing 8% | 2.48 | 51,847 (7.4%) |
| Total | | | 700,351 |

Table 3-CC Kirkby Headbolt Lane and number of trips

The total rail journeys from the two stations is therefore forecast to be 1,172,400 passengers – a net increase of 227,599 passenger journeys per annum, an increase of 24%.

3.5.2 Impact on Existing Stations

Table 2-B showed the generalised journey time savings of key flows for existing stations resulting from the proposed timetable changes in the scheme. It is normal practice to include the impacts on existing stations within the appraisal of a scheme. The rail industry MOIRA model is an incremental model that is used to assess timetable changes. However, some changes, particularly at Rainford, are beyond the usual scope of incremental changes and are checked using the trip rate forecasts.

Within the MOIRA model detailed timetable changes can be tested. However, the GRIP 2 report contains only a sample hour timetable scenario and the study remit precluded a detailed timetable analysis. It is also not possible to input the additional stations so the model was adjusted to reflect the impact on existing services taking account of frequency and interchange changes; specifically;

- *Extending two of the four trains per hour between Liverpool and Kirkby to Rainford using the 9 minutes journey time that reflects the additional station call at Kirkby Headbolt Lane.*
- *Shortening the Kirkby to Manchester Victoria service to start from Rainford and altering the times between UpHolland and Rainford to reflect the journey time via Skelmersdale and the offset to reflect the interchange time.*

It was noted that the alterations were based on the standard hour and did not apply to the peak periods. Simple timetable adjustments were made to existing services – those do not optimise connections. Also, the process recast the timetable between Upholland and Manchester Victoria which results in change of connectivity at key interchange points, particularly in the 1thp scenario.

The key results are shown in Table 3-DD for the key changes to Rainford, Kirkby, Upholland, Orrell and Pemberton.

| Station | Total Journeys Change | Key Flow | Journeys Change |
|-----------------|-----------------------|-----------------|-----------------|
| Rainford | 7,622 | Liverpool | 6,108 |
| | | Kirkby | 1,160 |
| | | Kirkdale | 557 |
| | | Wigan | -283 |
| Kirkby | -14,984 | Wigan | -3,227 |
| | | Manchester | -3,115 |
| | | Rainford | 1,160 |
| | | Orrell | -4,891 |
| | | Pemberton | -1,027 |
| | | Upholland | -941 |
| Upholland | -2,377 | Salford Central | -379 |
| | | Liverpool | -1,027 |
| Orrell | -7,762 | Kirkby | -941 |
| | | Liverpool | -2,198 |
| Pemberton | -3,089 | Kirkby | -4,891 |
| | | Liverpool | -1,572 |
| All MOIRA Flows | -31,990 | Kirkby | -1,027 |

Table 3-DD MOIRA Forecast Changes to Existing Stations

Table 3-EE shows the application of the trip rate approach to Rainford producing a demand forecast substantially higher than the MOIRA forecast. Given the transformation of service from hourly plus interchange at Kirkby for Liverpool to half-hourly and through service to Liverpool, the trip rate forecast is taken forward.

| Flow | Description | Trip Rate Applied | Journeys |
|---------------|---------------------------------|-------------------|----------------|
| Liverpool | Based on Kirkby | 30.6 | 169,126 |
| | Based on Kirkby With Elasticity | 20.48 | 113,193 |
| | Central | | 141,160 |
| Wigan | Based on Kirkby | 0.37 | 2,045 |
| | Based on Kirkby With Elasticity | 0.27 | 1,492 |
| | Central | | 1,769 |
| Wider Network | Assumed 10% | | 14,293 |
| Total | Central Forecast | | 157,221 |

Table 3-EE Trip Rate Demand Forecast Rainford

Existing Rainford journeys are reported as 51,414 per annum (ORR Data 2013/13) so the net additional journeys per annum are forecast as 105,807.

Detailed timetable planning would be likely to reduce the negative impacts of the timetable changes and retain key connection opportunities. For the purposes of the appraisal a negative journey impact of the timetable of 31,500 journeys per annum is included.

3.6 Half-Hourly Manchester Scenario

Table 2-C showed the change in accessibility forecast for the scenario with two trains per hour from Skelmersdale to Wigan and Manchester as well as to Kirkby and Liverpool. The revised demand forecasts for Skelmersdale station is shown in Table 3-FF. The central forecast includes 4,500 additional journeys per annum to Wigan and almost 3,000 additional journeys per annum to Manchester.

| Key Flow | High Forecast | Trip Rate / Factor | High Journeys | Low Forecast | Trip Rate / Factor | Low Journeys | Central Forecast Journeys |
|---------------|------------------------------------|--------------------|---------------|---------------------------|--------------------|--------------|---------------------------|
| Liverpool | Kirkby existing | 30.60 | 834,034 | Kirkby with elasticity | 19.11 | 520,862 | 677,448 (72%) |
| Manchester | St Helens Junction with elasticity | 5.15 | 140,368 | Pemberton with elasticity | 0.5 | 13,628 | 76,998 (8%) |
| Wigan | St Helens Central with elasticity | 1.68 | 45,790 | Pemberton with elasticity | 0.51 | 13,901 | 29,845 (3%) |
| Wider Network | | 25% | 255,048 | | 15% | 82,259 | 156,858 (17%) |
| Total | | | 1,275,240 | | | 630,649 | 941,150 |

Table 3-FF Skelmersdale Station Demand Forecasts (High, Low and Central) – With Half Hourly Manchester Service

Table 3-GG shows the trip rates applied to Kirkby Station for the existing and revised population for the two trains per hour service. The service to Liverpool does not change with the 2 train per hour scenario. There is a slight increase in eastbound trips i.e: Wigan.

| Flow | Description | Trip Rate / Factor | Journeys | |
|---------------|------------------------|--------------------|--------------------|-------------------|
| | | | Existing Catchment | Revised Catchment |
| Liverpool | Kirkby existing | 30.60 | 863,012 | 431,185 |
| Wigan | Kirkby with elasticity | 0.49 | 13,819 | 6,905 |
| Wider Network | Kirkby existing 8% | 2.49 | 70,225 | 35,087 |
| Total | | | 947,057 | 473,176 |

Table 3-GG Trip Rates Applied to Existing Kirkby Station – With Half Hourly Service to Manchester from Skelmersdale

Table 3-HH presents the revised Kirkby Headbolt Lane forecast with two trains per hour to Manchester.

| Flow | Description | Trip Rate Applied | Number of Trips |
|---------------|------------------------|-------------------|--------------------|
| to Liverpool | Kirkby existing | 30.60 | 639,724 (91.1%) |
| To Wigan | Kirkby with elasticity | 0.49 | 10,244 (1.5%) |
| Wider Network | Kirkby existing 8% | 2.49 | 52,056 (7.4%) |
| Total | | | 702,023 |

Table 3-HH Kirkby Headbolt Lane and number of trips – With Half hourly Manchester Service

The total rail journeys from Kirkby Headbolt Lane and Kirkby Station is forecasted at 1,175,199 passengers – a net increase of 228,143 passenger journeys per annum. The additional train between Skelmersdale and Manchester is forecast to generate around 544 additional journeys per annum.

The revised demand forecast for Rainford station in the 2 train per hour scenario to Manchester is contained in Table 3-II.

| Flow | Description | Trip Rate Applied | Journeys |
|---------------|---------------------------------|-------------------|----------------|
| Liverpool | Based on Kirkby | 30.6 | 169,126 |
| | Based on Kirkby With Elasticity | 20.48 | 113,193 |
| | Central | | 141,160 |
| Wigan | Based on Kirkby | 0.37 | 2,045 |
| | Based on Kirkby With Elasticity | 0.31 | 1,713 |
| | Central | | 1,879 |
| Wider Network | 10% | | 14,304 |
| Total | Central Forecast | | 157,343 |

Table 3-II Trip Rate Demand Forecast Rainford – With half hourly service to Manchester

Existing Rainford journeys are reported as 51,414 (ORR data 2012/13) so the net additional journeys are forecast as 105,929. That is 122 additional journeys per annum compared to the 1 train per hour scenario. Most journeys from Rainford in the future scenario are expected to be to / from Liverpool.

Table 3-JJ contains the figures for the impact at existing stations through application of the MOIRA model. The additional train per hour between Skelmersdale and Manchester is forecast to lead to a net increase in journeys of 110,110 per annum.

The forecast still contains several negative impacts – most notably Kirkby station – though the lost passenger journeys are reduced by 4,483 per annum. There are negative changes between Upholland / Orrell / Pemberton and Liverpool / Kirkby but at significantly reduced levels. There are significant numbers of new journeys from those stations and Wigan and Manchester and between local stations on the line which outweigh the scale of the negative impacts in terms of annual passenger journeys.

| Station | Total Journeys Change | Key Flow | Journeys Change |
|-----------------|-----------------------|-----------------|-----------------|
| Rainford | 10,770 | Liverpool | 6,108 |
| | | Kirkby | 1,160 |
| | | Kirkdale | 557 |
| | | Wigan | 665 |
| | | Manchester | 525 |
| | | Orrell | 810 |
| | | | |
| Kirkby | -10,501 | Wigan | -2,296 |
| | | Manchester | -2,610 |
| | | Rainford | 1,160 |
| | | Orrell | -3,126 |
| | | Pemberton | -667 |
| | | Upholland | -613 |
| | | Salford Central | -269 |
| | | | |
| Upholland | 2,914 | Liverpool | -25 |
| | | Kirkby | -613 |
| | | Wigan | 1,415 |
| | | Manchester | 587 |
| | | Orrell | 557 |
| | | | |
| Orrell | 14,571 | Liverpool | -135 |
| | | Kirkby | -3,126 |
| | | Wigan | 4,793 |
| | | Manchester | 4,911 |
| | | Upholland | 557 |
| | | | |
| Pemberton | 10,830 | Liverpool | -70 |
| | | Kirkby | -667 |
| | | Wigan | 5,270 |
| | | Manchester | 3,081 |
| | | Salford | 770 |
| All MOIRA Flows | 110,110 | | |

Table 3-JJ MOIRA Forecast Changes to Existing Stations – 2tph Skelmersdale – Manchester

The forecast growth at Rainford is 3,148 over the 1 tph scenario. However that may be overestimated as Rainford is used as the terminus of the new service in the model (which cannot model new stations). As before, it is proposed to remove the Rainford trips in favour of the trip rate model forecast.

The net MOIRA model figures include growth at other stations along the line between Wigan and Manchester Victoria. Those are summarised in Table 3-KK. The appraisal of this scenario utilised a figure of 99,340 additional journeys.

It should be noted that further assessment should be given at the next stage to the benefits at existing stations as MOIRA has previously been shown to underestimate demand where the change in level of service is large, specifically a rise from hourly

to half hourly services. The level of change at each location would need to be considered.

| Station | Additional Journeys per annum |
|---------------------|-------------------------------|
| Walkden | 21,253 |
| Atherton Manchester | 17,460 |
| Wigan | 14,891 |
| Swinton Manchester | 12,294 |
| Daisy Hil | 11,993 |
| Salford Crescent | 11,690 |
| Salford Manchester | 7,990 |
| Moorside | 5,908 |
| Hagfold | 4,473 |
| Hindley | 2,984 |

Table 3-KK MOIRA Forecast Changes at Other Stations between Wigan and Manchester

3.7 Revenue Forecasts

The revenue forecast is based on existing revenue rates for each demand flow based on information for comparator flows from MOIRA. As revenue forecasts are commercially confidential the detailed workings are not shown.

3.8 Summary Demand and Revenue Forecasts

A summary of the demand and associated revenues are contains in Table 3-LL. The additional train per hour between Skelmersdale and Manchester is forecast to generate around 140,000 additional journeys per annum and £321,000 additional revenue. This is relatively low additional growth compared to the base scenario and is a result of the relatively low trip rates for Manchester and low base flows in that direction.

| Scenario | Annual Additional Rail Passenger Journeys | Annual Additional Revenue |
|---|---|--|
| Base (2 tph Skelmersdale – Liverpool and 1tph Skelmersdale – Manchester) | | |
| <ul style="list-style-type: none"> • High Forecast • Central Forecast • Low Forecast | <p>1,564k</p> <p>1,234k</p> <p>928k</p> | <p>£3,606k</p> <p>£2,748k</p> <p>£1,958k</p> |
| Enhanced (2ph Skelmersdale – Liverpool plus 2tph Skelmersdale – Manchester) | | |
| <ul style="list-style-type: none"> • High Forecast • Central Forecast • Low Forecast | <p>1,709k</p> <p>1,375k</p> <p>1,064k</p> | <p>£3,941k</p> <p>£3,069k</p> <p>£2,266k</p> |

Table 3-LL Summary of Demand and Revenue Forecasts / Scenario



4.1 Introduction

Economic appraisal is used to determine the value for money of the project to inform the case for investment. The demand and revenue forecasts are combined with User and Non-User benefits plus capital and operating costs and the monetary values discounted over the appraisal period in a Cost Benefit Analysis model. In the context of Skelmersdale and the franchised context of the rail industry, establishing the financial case and the direct analysis of costs vs revenues is also important and is brought out within this section.

4.2 User Benefits

User benefits have been assessed based on the demand forecast flows detailed in the previous chapter and applied to the central forecast and low and high demand scenarios.

Based on DfT guidance in WebTAG and the results of other similar schemes the following assumed previous mode breakdown was assumed;

- 44% from Car (drivers and passengers),
- 44% from Bus, and
- 12% Generated Trips

Rail tends to be used by people with relatively high car ownership. It is noted that car ownership levels are low in Skelmersdale so this assumption should be examined in the next stage of scheme development.

The generated trips are a result of change in accessibility - opening up new journey opportunities. As new users their benefits are assumed to be half the benefits for other users on average, in accordance with appraisal guidance. However, the full revenue impact is included.

The journey times by rail were taken from the GRIP 1-2 report example standard hour timetables, as analysed in the previous section. The comparative bus journey times were taken from published timetables and on-line journey planners. The car journey times were assessed on-line journey planners plus 'live traffic data' through the Tom-Tom on-line journey planner and also checked with Google live traffic data to assess variability. This was important as the majority of rail trips would be expected to be made in the peak and the perception of travel at congested times would be relevant to the decision to use rail. These times are therefore considered suitable for use in the appraisal. The actual times are applied with no weighting for perceived delays.

The analysis was undertaken for the key flows; Skelmersdale – Liverpool, Skelmersdale - Manchester and Kirkby Headbolt Lane – Liverpool.

Table 4-A shows the journey time saving assumptions by key flow and mode. Although the Tom-Tom average peak car times were significantly lower than rail times between Skelmersdale and Manchester the journey time is highly variable due to the distance and congested motorways involved (M6 and M62). It is assumed that

a person choosing to use rail would perceive at least an average time saving of 5 minutes per journey.

| Key Flow | Rail Time | Bus Time | Bus User Time Saving | Car Time | Car User Time Saving |
|----------------------------------|-----------|----------|----------------------|----------|----------------------|
| Skelmersdale – Liverpool | 31mins | 97mins | 66mins | 33.3mins | 2.3mins |
| Skelmersdale – Manchester | 61mins | 150mins | 89mins | 45.1mins | 5mins |
| Kirkby Headbolt Lane – Liverpool | 20mins | 50mins | 30mins | 25mins | 5mins |

Table 4-A Journey time by Mode for Key Flows

The time savings are weighted by mode and passenger flow for each scenario and a value of time of £9,26 / hour in 2010 prices is applied assuming the average distribution of journey purposes for rail passengers.

The user and new user benefits are estimated as £5,597k per annum for the 1tph between Skelmersdale and Manchester scenario and £6,224k per annum for the 2tph scenario.

4.3 Non User Benefits

The non-user benefits associated with the scheme have been assessed using the DfT Guidance on Highway External Costs. This procedure uses the demand forecasts converted to rail miles and produces monetary values for congestion, infrastructure, accident, local air quality, noise and greenhouse gases benefits resulting from the assumed transfer of trips from car.

The proportion of newly generated trips transferring from car was taken from WebTAG (44%) and a car occupancy factor of 1.2 was used to derive the net change in car kms. This is held constant throughout the appraisal. The car journey distances for the key demand flows were assessed using online journey planning software and the distances weighted by the flows.

The forecasts for 2026 and 2036 were based on the demand growth assumption of 2.5% per annum.

The values for the highways external costs from WebTAG for the journey types were applied to the weighted proportion of travel on each road type and weighted by the demand distribution. Each flow journey miles were split by road type (Conurbation Motorway; Conurbation A-road; Other Urban A-roads; Other urban other roads; Rural Motorway; Rural A-roads, and; Rural other roads) based on interpretation of the route informed by online route planning software.

For information the proportions of travel by road type are given in Table 4-B for the central scenario. Most of the diverted trips are from rural motorways and to a lesser extent rural A-roads, however a significant element will be taken from conurbation motorways and A-roads.

| Proportions | Motorways | A Roads | Other |
|-------------|-----------|---------|-------|
| Conurbation | 3.6% | 37.5% | 0.0% |
| Other Urban | | 5.7% | 1.5% |
| Rural | 49.6% | 2.2% | 0.0% |

Table 4-B Proportion of miles by road type and area.

The weighted factors (p/km) for each benefit type are shown in Table 4-C and are interpolated for intervening years in the appraisal to produce the benefits from the date of opening to the demand cap year (2036). After the demand cap year the growth in value of time is applied to these benefits

| Factor | Weighted Values by year (p/km) | | |
|-------------------|--------------------------------|-------|-------|
| | 2010 | 2026 | 2036 |
| Congestion | 14.83 | 26.54 | 41.09 |
| Infrastructure | 0.05 | 0.05 | 0.09 |
| Accidents | 1.35 | 1.76 | 2.12 |
| Local Air Quality | 0.10 | 0.00 | 0.00 |
| Noise | 0.10 | 0.14 | 0.14 |
| Greenhouse Gas | 0.89 | 0.70 | 1.09 |
| Indirect Taxation | -5.22 | -3.82 | -3.47 |

Table 4-C Weighted Marginal External Benefits Factors per Carkm reduced (p/km)

The resultant benefits are shown in Table 4-D.

| | 2010 | 2026 | 2036 |
|-------------------|-------------------|-------------------|-------------------|
| Congestion | £1,503,349 | £3,708,837 | £7,349,423 |
| Infrastructure | £4,741 | £6,536 | £16,732 |
| Accidents | £137,207 | £245,854 | £379,330 |
| Local Air Quality | £10,285 | £0 | £0 |
| Noise | £9,778 | £20,218 | £25,881 |
| Greenhouse Gas | £90,442 | £98,024 | £195,633 |
| Total | £1,755,801 | £4,079,469 | £7,966,999 |

Table 4-D Marginal External Benefits by Key Year (2010 prices)

The change in the proportion of the benefits is shown in Table 4-E – showing an increase in the proportion of congestion benefits from 86% to 92%.

| | 2010 | 2026 | 2036 |
|-------------------|-------|-------|-------|
| Congestion | 85.6% | 90.9% | 92.2% |
| Infrastructure | 0.3% | 0.2% | 0.2% |
| Accidents | 7.8% | 6.0% | 4.8% |
| Local Air Quality | 0.6% | 0.0% | 0.0% |
| Noise | 0.6% | 0.5% | 0.3% |
| Greenhouse Gas | 5.2% | 2.4% | 2.5% |

Table 4-E Proportion of Non User Benefit Type By Key Year (2010 prices)

Similarly, the indirect taxation factors are shown in Table 4-F, which result from the lower levels of fuel being purchased, and corresponding reductions in indirect tax revenues to government.

| | 2010 | 2026 | 2036 |
|-------------------|-----------|-----------|-----------|
| Indirect Taxation | -£529,289 | -£533,676 | -£620,610 |

Table 4-F Indirect Taxation values by key year (2010 prices)

4.4 Option Value

In 2012 the Department of Transport introduced quantification of option values within the business case. WebTAG guidance specifies that options are valued by users and non-users within the catchment area and values are prescribed for rail and for bus. This appraisal has assumed that the option value for residents is an incremental uplift from bus to rail. Application of the value to the 2km additional population that would be captured by rail shows that the option value for the scheme is £1,691,865 per annum.

4.5 Health Benefits

Appraisal guidance states that the key factor in the assessment of physical fitness is encouraging people to walk for 36 minutes per day. Passengers who choose to use rail instead of driving to their destination will walk to and from the stations at both ends of their journeys. From the assessment of new passengers generated by the scheme we have estimated that around 870 persons per day would be likely to receive some health related benefits – dependent on their previous travel mode and existing activity levels associated with their trips or otherwise.

For example; a person transferring from car to rail may undertake new walk trips to and from the stations at each end of each trip, whereas a bus passenger may already walk to and from bus stops so there may be an incremental benefit.

A significant proportion of people gaining this benefit as a result of the scheme reside in the Skelmersdale where there is a significant emphasis on this health related objective.

The valuation of physical fitness impacts concentrates on reduced mortality through encouraging a significant change in activity levels and also reduced absenteeism as a result of a healthier workforce. We have assumed significant changes relate only to commuters as these benefits relate to those who would gain regularly physical exercise.

4.5.1 Reduced Mortality

The benefits of improved physical fitness on mortality are likely to be significant where levels of mode shift change are expected. Table 4-G shows the calculation of the reduced mortality benefits based on the appraisal guidance / values.

The full rate of benefit is included assuming an average walk of 10 minutes to / from Liverpool and Manchester stations to final destinations and 8 minutes to and from origin stations.

| Element | Values |
|---|------------|
| New Journeys from car per annum | 543,059 |
| New Trips from car per annum | 271,529 |
| Individuals (assuming annual factor of 311) | 873 |
| Assumed frequent travellers (assuming commuters @ 50%) | 437 |
| Assumed non-car access frequent travellers (@85%) | 371 |
| Mean proportion of population who die p.a. ³ | 0.00235 |
| Expected deaths in the population | 0.872 |
| Relative Risk Reduction (based on Copenhagen factor) | 0.28 |
| Reduced Mortality p.a. | 0.244 |
| Value of fatality (2010 Prices) | £1,838,457 |
| Reduced Mortality Benefits p,a, | £448,874 |

Table 4-G Calculation of Reduced Mortality Benefits

4.5.2 Absenteeism Benefits

In addition to reduced mortality benefits there are benefits to users through reduced sickness and morbidity (including reduced obesity and related illnesses). Appraisal guidance recommends inclusion of a value for employer benefits from improved absenteeism as a result of improved health.

Table 4-H presents the calculation of the absenteeism impact using the methodology and values provided in the Guidance for walking and cycling schemes.

Appraisal guidance assumes that for each employee who takes up physical exercise for 30 minutes a day for 5 days a week as a result of the intervention the annual benefit to employers is likely to be (on average) at least 0.4 days gross salary costs. The gross salary cost in DfT guidance⁴ is £27.07 per hour in 2010 prices and values.

| Element | Values |
|---|---------|
| Relevant journeys per annum | 115,400 |
| Working passengers per day (assumed 250 working days) | 462 |
| Working hours benefit (days per person) | 0.4 |
| Assumed hours per day | 8 |
| Assumed hours per employee | 3.2 |
| Value per employee | £27.07 |
| Reduced Absenteeism benefits p.a. | £39,968 |

Table 4-H Calculation of Absenteeism Benefits

³ Source ONS, 2007, Mean proportion of England and Wales population aged 15 – 64 who die each year from all causes.

⁴ WebTAG Workbook, Tab A1.3.1, DfT, Autumn 2014

4.6 Scheme Costs

4.6.1 Capital Costs

The scheme capital costs are under development and yet to be fixed for the GRIP 1-2 report. As a result a Capital cost range was applied.

Merseytravel are considering procuring new rolling stock to replace the life expired emu's operating the Merseyrail services. They plan to continue avoiding paying lease costs for rolling stock. It is therefore assumed that the order for rolling stock would be extended and for this scheme involving procuring two additional 3-car emu sets. A cost of £1.7m per vehicle was assumed – ie £5.1m per 3-car set.

It is assumed that Northern Rail would operate the Manchester – Skelmersdale service and would continue with the leasing of rolling stock (see operating costs assumptions below).

The combined capital cost assumptions are shown in Table 4-G, these have been assume as 2010 prices for the appraisal.

| Element | Low | Central | High |
|---------------------------|---------|---------|---------|
| Infrastructure | £250m | £320m | £350m |
| Capitalised Rolling Stock | £10.2m | £10.2m | £10.2m |
| Total | £260.2m | £330.2m | £360.2m |

Table 4-I Capital Cost Assumptions

4.6.2 Operating Costs

Operating costs were estimated using a Jacobs model calibrated for a similar city region operation in the UK. Both diesel and electric operations were modelled as appropriate. For commercial reasons the detail of the model cannot be reported but the input assumptions and outputs are shown below.

Merseytravel provided indicative costs for staffing additional services and station operation and maintenance for checking with the model. This concluded that the model was cautious and some savings might be possible locally.

Merseytravel require Kirkby Headbolt Lane station to be staffed (using the figures provided by Merseytravel) and, though most Lancashire local stations are not staffed, the same assumption was applied for Skelmersdale as a public transport hub is proposed at that location.

The input assumptions are shown in Table 4-H and the cost estimates shown in Table 4-I. Although the additional train per hour between Skelmersdale and Manchester Victoria has a journey time of 1 hour, two diagrams were assumed. This assumes that the service could be either speeded up (the average time is relatively slow) or that the service can be integrated with another service to provide sufficient turnaround and recovery time.

| Element | Extension of Electric Service Kirkby - Skelmersdale | Second Diesel train per hour Skelmersdale – Manchester Victoria |
|---|---|---|
| Route Miles | 7.5 | 25 |
| Journey Time | 13 mins | 60 mins |
| Operating Hours M-S Daytime | 15 | 14 |
| Operating Hours M-S Evening | 5 | 0 |
| Operating Hours Sunday | 12 | 0 |
| Frequency M-S Daytime | 2 | 1 |
| Frequency M-S Evening | 1 | 0 |
| Frequency Sunday | 1 | 0 |
| Additional Stations | 2 | 0 |
| Main Stations triggering marginal costs | 1 | 2 |

Table 4-J Operating Cost Model Inputs

| Cost Element | Electric Service | Diesel Service |
|---------------------------------|------------------|----------------|
| Rolling Stock Leasing | £0 | £630 |
| Servicing and Light Maintenance | £216 | £386 |
| Fuel | £56 | £177 |
| Staff – Driver / Conductors | £748 | £568 |
| Staff – Stations | £246 | £0 |
| Network Rail Charges | £71 | £74 |
| Station running costs | £184 | £49 |
| Retail Commission | £270 | £23 |
| Overheads (Income and HQ) | £165 | £65 |
| Total | £1,955 | £1,970 |

Table 4-K Operating Cost Estimates, £k p.a. (2010 Prices)

4.7 Cost Benefit Analysis

The economic appraisal links the user and non-user benefits with the scheme costs and assesses the value for money over an appraisal period of 60 years. The appraisal has been undertaken in accordance with the WebTAG Guidance on Rail Appraisal.

Key assumptions include the use of:

- *2010 price base and 2010 prices, inflating / deflating values using CPI Factors, Capital costs were assumed to be in 2014 prices;*
- *Optimism Bias of 66% is applied to the Capital Costs and 41% is applied to the operating costs – both reflect the early stage of scheme development as prescribed by WebTAG and lack of locally calibrated cost model – the impact of this is tested within the sensitivity tests;*
- *Costs and benefits discounted over 60 years of operation from 2020 to a 2010 base assuming a discount rate of 3.5% for 30 years from the appraisal year (2015) and 3.0% for the remaining years;*

- Application of demand growth of 2.5% per annum based on NR Market Analysis. Demand is capped in 2036, 20 years after scheme opening in accordance with appraisal guidance;
- Assuming value of time growth in accordance with appraisal guidance (WebTAG Databook Autumn 2014);
- Interpolation of the growth in external costs of car use (non-user benefits) between the forecasts for 2010 and 2026 and between 2026 and 2036, with only value of time growth thereafter;
- Application of market price adjustment factor of 19% to costs and revenues (benefits are in Market Prices);
- Revenue is grown by +1% per annum in real terms with a revenue elasticity of 0.4 applied from 2014 and assumed to accrue from an assumed year of opening of 2020, and;
- Benefits are ramped up assuming 80% years 1, 90% year 2 and 95% year 3, based on standard industry assumptions.

4.8 Commercial Case Results

Table 4-L shows that for the central case revenue forecasts the estimated revenues are forecast to cover the incremental operating costs in the first scenario with 1 train per hour between Skelmersdale and Manchester and two trains per hour between Skelmersdale and Liverpool. The figures shown are 2010 prices and all figures are in real terms (without inflation). The affordability is aided by the assumption of capitalisation of the rolling stock costs.

| | 2020 | 2021 | 2022 | 2023 |
|--------------------|---------|---------|---------|---------|
| Operating Costs £k | £2,327 | £2,327 | £2,327 | £2,327 |
| Revenues £k | £3,552 | £4,169 | £4,593 | £5,048 |
| Subsidy £k | -£1,224 | -£1,843 | -£2,267 | -£2,721 |

Table 4-L Subsidy Implications, 1 tph Skelmersdale – Manchester, Central Demand Scenario

In the scenario of two trains per hour between Skelmersdale and Manchester, shown in Table 4-M, there is a forecast revenue surplus in the third year of operation, due to the assumed demand ramp up.

| | 2020 | 2021 | 2022 | 2023 |
|--------------------|--------|--------|--------|--------|
| Operating Costs £k | £4,672 | £4,672 | £4,672 | £4,672 |
| Revenues £k | £3,967 | £4,657 | £5,131 | £5,638 |
| Subsidy £k | £705 | £15 | -£459 | -£966 |

Table 4-M Subsidy Implications, 2 tph Skelmersdale – Manchester, Central Demand Scenario

Consideration needs to be given to the affordability of the 2 tph Manchester service scenario and the possible need for short term subsidies. The scheme features within Rail North’s plans and would benefit passengers in both the Lancashire and Greater Manchester LEP areas offering the potential for partnership funding.

4.9 Value for Money (Transport Economic Case) Results

The economic case has been assessed for the two timetable scenarios and the range within the capital costs and in the demand forecasts.

4.9.1 Base Scenario – 1 tph Skelmersdale - Manchester

The economic appraisal results for the three cost scenarios for the base scheme scenario (1tph Skelmersdale – Manchester) and for the central demand forecast scenario are shown in Table 4-N. The transport economic efficiency, public accounts and analysis of monetised benefits detailed table for the central case middle capital cost is shown in Appendix C.

| Scenario | Low Capital Cost | Mid Capital Cost | High Capital Cost |
|------------------------------|------------------|------------------|-------------------|
| Present Value Benefits (PVB) | £531m | £531m | £531m |
| Present Value Costs (PVC) | £336m | £414m | £451m |
| Net Present Value (NPV) | £205m | £117m | £80m |
| Benefit Cost Ratio (BCR) | 1.6 | 1.3 | 1.2 |

Table 4-N Economic Appraisal Results – Capital Cost Range 1tph Manchester

Table 4-O shows the breakdown of the benefits within the appraisal of the central demand forecast for the initial scenario. Nearly all of the benefits are composed of three elements, user and new user time savings, non-user highway decongestion and revenues. Most of the other non-user benefits are insignificant.

| Benefit Element | % |
|--------------------------------|-----|
| User and New User Benefits | 55% |
| Non – User Congestion Benefits | 22% |
| Revenues | 11% |
| Option Value | 8% |
| Health Benefits | 2% |
| Accident Benefits (Net) | 1% |
| Greenhouse Gas Reduction | 1% |
| Noise Reduction | 0% |
| Infrastructure Savings | 0% |
| Local Air Quality | 0% |

Table 4-O Breakdown of Benefit Central Case Scenario.

Table 4-P shows the economic appraisal results for the three demand scenarios for the base scheme scenario (1tph Skelmersdale – Manchester); the central demand forecast and the low and high demand forecast range. The capital costs are held constant and are for the mid-cost scenario.

| Scenario | Low Demand | Central Demand | High Demand |
|------------------------------|------------|----------------|-------------|
| Present Value Benefits (PVB) | £406m | £531m | £678m |
| Present Value Costs (PVC) | £426m | £414m | £413m |
| Net Present Value (NPV) | £-20m | £117m | £265m |
| Benefit Cost Ratio (BCR) | 1.0 | 1.3 | 1.6 |

Table 4-P Economic Appraisal Results, Demand Range, Mid Cost 1tph Manchester

A demand cap is included within the appraisal. Table 4-Q shows the impact of moving the demand cap forward and backwards by 10 years for the base scenario (1tph Skelmersdale – Manchester) for the central demand forecast and mid cost scenario. In the scenario with the demand cap 10 years earlier there is a subsidy requirement included in the appraisal.

| Scenario | Demand Cap – 10 years | Base Scenario | Demand Cap + 10 Years |
|------------------------------|-----------------------|---------------|-----------------------|
| Present Value Benefits (PVB) | £466m | £531m | £616m |
| Present Value Costs (PVC) | £419m | £414m | £413m |
| Net Present Value (NPV) | £46m | £117m | £202m |
| Benefit Cost Ratio (BCR) | 1.1 | 1.3 | 1.5 |

Table 4-Q Economic Appraisal Results – Demand Sensitivity Mid Cost, Central Demand 1tph Manchester

4.9.2 Alternative Scenario – 2tph Skelmersdale - Manchester

The economic appraisal results for the three cost scenarios for the alternative scheme scenario (2tph Skelmersdale – Manchester) and for the central demand forecast scenario are shown in Table 4-R. The transport economic efficiency, public accounts and analysis of monetised benefits detailed table for the central case middle capital cost is shown in Appendix C.

| Scenario | Low Capital Cost | Mid Capital Cost | High Capital Cost |
|------------------------------|------------------|------------------|-------------------|
| Present Value Benefits (PVB) | £576m | £576m | £576m |
| Present Value Costs (PVC) | £370m | £458m | £495m |
| Net Present Value (NPV) | £206m | £118m | £81m |
| Benefit Cost Ratio (BCR) | 1.6 | 1.3 | 1.2 |

Table 4-R Economic Appraisal Results – Capital Cost Range 2tph Manchester

In this scenario a significant subsidy figure is included within the appraisal which is related to the 41% Optimism Bias applied to the operating costs. The actual short term subsidy requirements were shown in Table 4-M. Removing the optimism bias on operating costs raises the BCR for the central demand forecast mid capital cost scenario to 1.2.

The economic appraisal results for the three demand scenarios for the alternative scheme scenario (2tph Skelmersdale – Manchester) and for the mid-cost scenario are shown in Table 4-S. In all demand scenarios the revenues do not cover the operating costs and a significant subsidy figure is included within the appraisal.

| Scenario | Low Demand | Central Demand | High Demand |
|------------------------------|------------|----------------|-------------|
| Present Value Benefits (PVB) | £456m | £576m | £705m |
| Present Value Costs (PVC) | £476m | £458m | £438m |
| Net Present Value (NPV) | £-20m | £118m | £268m |
| Benefit Cost Ratio (BCR) | 1.0 | 1.3 | 1.6 |

Table 4-S Economic Appraisal Results, Demand Range, Mid Cost 2tph Manchester

In concluding the strength of the business case for the scheme account was taken of the DfT's guidance on value for money for transport schemes (Guidance on Value for Money: Explanatory Note, DfT, 15.12.04).

Specifically most schemes with a quantified benefit cost ratio (BCR) of 2.0 or above will be supported, some schemes with BCR between 1.5 and 2.0 will be supported and few schemes with BCR below 1.5 would be supported.

However, where a scheme has significant non-monetised benefits, such as providing economic regeneration benefits to an assisted area, the BCR and funding decision can be raised by one category. I.e.: a scheme with BCR above 1.5 would be likely to be supported subject to available funds.

The BCR based on the transport benefits for the scheme alone varies between 1.0 and 1.6 around a central BCR of 1.3 for both scenarios.

The BCR's of 1.6 were for the low capital cost scenario and for the high demand scenario. With a central BCR of 1.3 there is some justification for investing in the scheme where there are significant wider economic benefits - which are assessed in the next section.



5.1 Introduction

This section presents the methodology and findings of the wider economic impacts assessment of the Skelmersdale Rail Link. This assessment is based on a Gross Value Added (GVA) analysis of the proposed rail scheme whose benefits are additional to the benefits for the conventional transport appraisal.

Three components of GVA are affected by transport interventions:

- *Labour Productivity;*
- *Business Benefits and Agglomeration; and*
- *Regenerative Impact (Unlocked Development).*

Labour productivity increases are created where enhanced transport links and greater capacity increase accessibility to employment areas. This may lead to people commuting to a preferred job and gives businesses access to a greater supply of prospective employees who can be matched to tasks which best fit their skill set.

Business benefits and agglomeration result where improved transport links make business travel between two locations more attractive. Businesses may benefit from a more productive use of employees time as journey times reduce and may also gain access to new businesses or markets within an acceptable trading distance.

Regenerative impacts for a rail scheme are found where an improved rail service increases capacity for new rail users and can attract current highway users to rail, therefore freeing up road space, and unlocking or accelerating key growth and re-development sites. In promoting higher accessibility, and thereby rental, values, additional commercial viability of sites can be promoted, and additional investment and redevelopment of existing sites be promoted. The increase in transport capacity can then support new residential or employment development in the local area, creating net additional jobs.

The GVA analysis has been conducted for 2 scenarios. The first scenario considers an hourly service between Skelmersdale and Manchester and the second considers a half hourly service between Skelmersdale and Manchester.

Importantly, each of these benefits are recognised in WebTAG, although they must be presented outside of the core BCR for the scheme. Regeneration benefits are not incorporated in WebTAG as WebTAG assumes land use is fixed.

However, there is growing evidence, and especially for rail schemes, that they can be transformation in both land use and social terms, so the additionality of regeneration benefits is an important one; not only for Skelmersdale, but also in the context of the Masterplan, and with the Strategic Economic Plan produced by the LEP, within which the strategic context for this scheme lies.

5.2 GVA Appraisal

GVA measures the total value of goods and services; i.e. economic activity. In its simplest terms, it is therefore GDP at a local/regional level, minus indirect taxation.

An income approach to measuring GVA has been adopted, as the amount of new development unlocked, net additional jobs and productivity gains due to the instatement of a rail line are quantifiable.

In order to quantify these benefits the Kirkby to Wigan line has been split into zones based on a catchment area of 2km radius around each station on the line. Liverpool and Manchester are the key centres of employment to the west and east of Skelmersdale and are included as zones in the GVA calculations.

In order to be consistent with other rail studies in the sub-region, we have based our analysis in Network Rail's econometric analysis of the subsequent uplift in labour productivity and business based impact on GVA in their October 2013 Regional Urban Market Study and Long Distance Market Study. Network Rail's findings and model coefficients are used to derive the GVA benefits for labour productivity and business benefits and agglomeration.

5.2.1 Labour Productivity

(a) Methodology

Labour productivity benefits have been calculated based on a change in GJT. An improvement in GJT leads to an increase in willingness to commute. The decay curve of willingness to commute is shown in Figure 5-A.

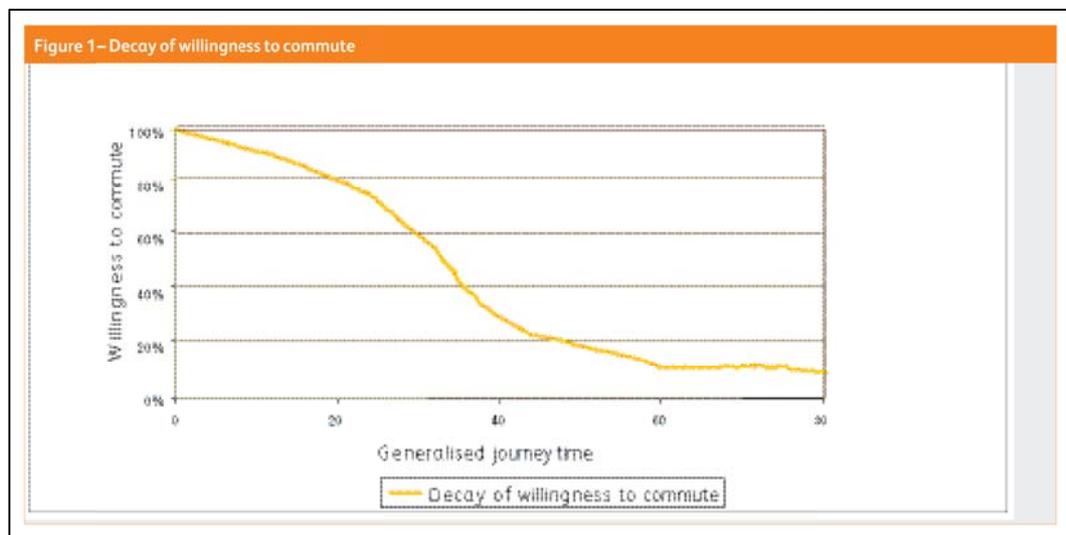


Figure 5-A: Decay of Willingness to Commute

Source: Network Rail - Regional Urban Market Study, 2013 (Appendix H)

An increased willingness to commute through shorter GJTs causes an increase in the supply of labour to a zone. The willingness to commute was multiplied by the population living within each station catchment to provide with and without scheme numbers of people willing to commute from the other zones.

Network Rail econometric analysis derived that each additional person in the labour catchment area of a zone increases the productivity of employees in that zone by 0.25p per annum.

The 0.25p productivity increase was multiplied by the sum of the difference in people willing to commute to a station zone, then multiplied by the number of employees in that station zone.

(b) Annual Results

Table 5-A shows the annual increase in labour productivity in the major station zones.

| Labour Productivity Increase 2014 (2010 Prices) | | |
|---|-------------------|-------------------|
| Area | 1 train per hour | 2 trains per hour |
| Liverpool | £2,241,898 | £2,291,339 |
| Manchester | -£82,136 | £81,668 |
| Wigan | -£438,318 | £774,397 |
| Skelmersdale | £1,122,214 | £1,495,388 |
| Kirkby | -£288,022 | -£91,184 |
| Total | £2,555,636 | £4,551,608 |

Table 5-A: Annual Labour Productivity Increase

Table 5-A shows that Liverpool receives the greatest level of benefit followed by Skelmersdale. This is due to the large numbers of jobs in Liverpool that receive a productivity increase due to an improved direct rail service through Kirkby to Skelmersdale. Skelmersdale itself benefits from the introduction of the rail station allowing access to the existing rail network.

The hourly Skelmersdale - Manchester service scenario creates dis-benefits for Manchester, Wigan and Kirkby. This is due to high GJTs for journeys which must pass through Skelmersdale, caused by the interchange penalty and long wait times during the interchange in Skelmersdale.

In the 2 trains per hour scenario, the interchange wait times are reduced and all zones see an increase in labour productivity benefits. Wigan notably receives a large benefit from the improved frequency of its direct service to Skelmersdale and the intermediate stations as connectivity to Manchester improves. However, it should be noted that this is at the expense of the need for subsidy of the service at least in the short term.

5.2.2 Business Benefits and Agglomeration

(a) Methodology

Business benefits and agglomeration have been calculated based on a change in generalised cost of travel. Generalised cost is the fare plus GJT multiplied by the traveller’s value of time.

The decay curve for the willingness to travel for business purposes against the generalised cost of travel is shown in Figure 5-B.

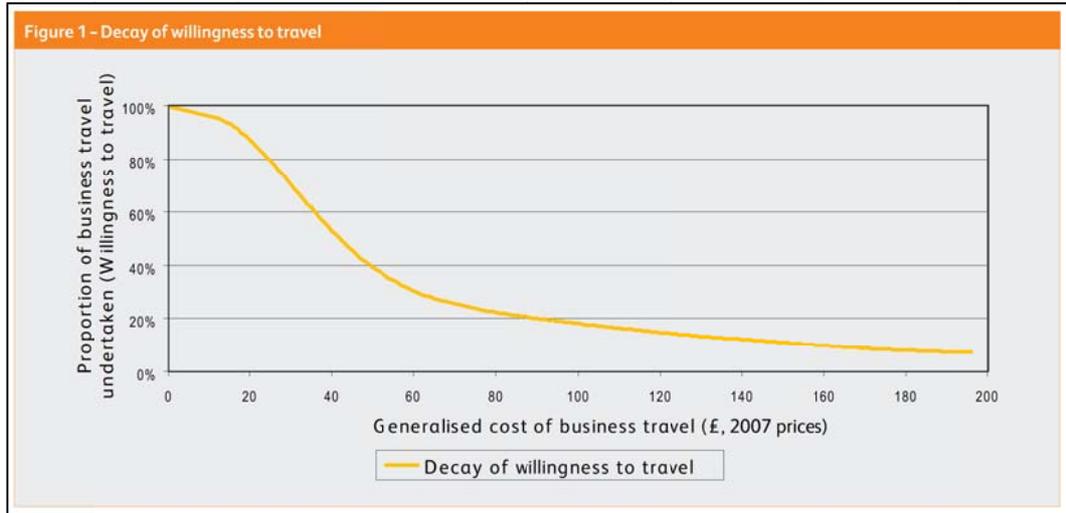


Figure 5-B: Decay of Willingness to Travel

Source: Network Rail - Long Distance Market Study, 2013 (Appendix B)

The number of jobs in the TEMPRO zones around each station was multiplied by the willingness to travel both with and without the scheme in place. The sum of these values is the effective density (i.e. the number of employees willing to travel between locations).

Figure 5-C shows the Network Rail findings of the relationship between effective density and GDP per worker.



Figure 5-C: Effective Density against GDP per Worker

Source: Network Rail - Long Distance Market Study, 2013 (Appendix B)

Figure 5-C shows that as effective density increases, GDP per worker increases.

The change in effective density for each zone was multiplied by the uplift in GDP given in Figure 5-C to derive the change in GVA per job. The sum of the changes in GVA per job was then multiplied by the number of jobs within the station catchment area.

(b) Annual Results

Table 5-B shows the annual increase in business benefits in the major zones.

| Business Benefits 2014 (2010 Prices) | | |
|--------------------------------------|-------------------|-------------------|
| Area | 1 train per hour | 2 trains per hour |
| Liverpool | £1,420,628 | £1,987,580 |
| Manchester | -£898,685 | -£264,222 |
| Wigan | -£787,183 | -£496,148 |
| Skelmersdale | £4,134,937 | £4,269,579 |
| Kirkby | -£1,140,437 | -£928,958 |
| Total | £2,729,260 | £4,567,830 |

Table 5-B: Annual Business Benefits

Table 5-B shows that Skelmersdale receives the largest annual benefit followed by Liverpool. This is due to the increased access to Skelmersdale via the rail link and the extension of the Merseyrail service from Kirkby to Skelmersdale improving access to Liverpool.

Whilst the 2 trains per hour between Skelmersdale and Manchester scenario offers a 67% increase in the total level of business benefits, 3 stations, Manchester, Wigan and Kirkby, receive dis-benefits in both scenarios. This is due to the need to interchange for all journeys passing through Skelmersdale. There is also a need to subsidise the additional service.

5.2.3 Regenerative Impact

The extension of the railway to the town centre and the introduction of direct trains to Manchester and Airport City, plus improved linkages with Liverpool, could have a transformational impact on the town, particularly its residential property market and possibly its population profile.

The high level of out commuting from West Lancashire (51%) demonstrates the attractiveness of the broader district as a place to live and also demonstrates the proximity to a good number of employment locations. Skelmersdale, currently, is an exception to this. However the introduction of the railway could achieve two things:

- *Enable residents of Skelmersdale to access more employment and training opportunities;*
- *Provide a better and more accessible place from which even more onward travel could take place to centres including Liverpool, Manchester and Wigan.*

Both of these enhance West Lancashire's attractiveness as a location for new housing. Almost 90,000 people live within 5-miles of the proposed station location. The recent adoption of a CIL Charging Schedule for new housing, albeit with the exception of Skelmersdale, serves to show the potential of the area as a place for a significant amount of new housing.

Table 5-C shows three 15-year housing growth scenarios for West Lancashire and Skelmersdale. As the quantum of development increases, the proportion within Skelmersdale increases.

| Scenario | West Lancashire – 15 Years | Skelmersdale – 15 years | Skelmersdale % |
|----------------------|----------------------------|-------------------------|----------------|
| 1 – Current Need | 4,860 | 2,100 | 43% |
| 2 – Realistic Growth | 5,250 | 3,000 | 57% |
| 3 – Enhanced Growth | 6,000 | 3,750 | 63% |

Table 5-C 15-year housing growth scenarios

Figure 5-D shows the potential locations of the developments and Table 5-D highlights how existing allocated sites in or very close to Skelmersdale could already accommodate just under 2,500 houses. In addition to allocated sites, approximately 500 new homes can be accommodated on unallocated SHLAA sites within the existing built-up area of Skelmersdale, which would all lie within 1.5 miles of the potential railway station location.

| Distance Band | Existing Households | Existing Population | Proposed New Homes (On allocated sites) |
|-----------------------------------|---------------------|---------------------|---|
| Within 0.5 miles (10 minute walk) | 1,662 | 4,155 | 500 (500) |
| Within 1 mile (20 minute walk) | 10,013 | 25,033 | 230 (730) |
| Within 1,5 miles (30 minute walk) | 15,472 | 38,680 | 615 (1,345) |
| Within 2 miles (40 minute walk) | 17,380 | 43,450 | 575 (1,920) |

Table 5-D Development and Population Growth and Distance from Potential Rail Station

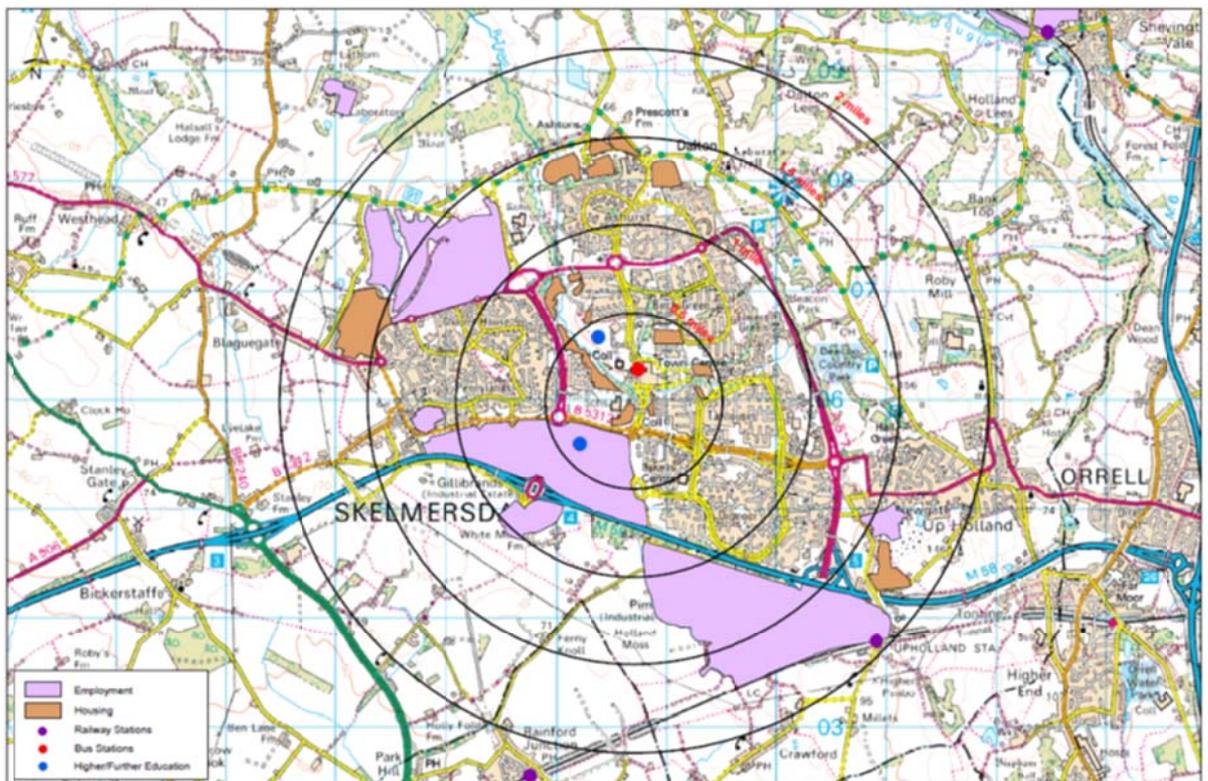


Figure 5-D: Locations of potential housing and employment growth around Skelmersdale.

The allocated sites shown in the diagram and Table are housing sites within the Skelmersdale Town Centre Strategic Development Site and the Whalleys, Firswood Road and Chequer Lane housing sites. In addition to the allocated sites, approximately 500 new homes can be accommodated on unallocated SHLAA sites within the existing built-up area of Skelmersdale, which would all lie within 1.5 miles of the potential rail station location.

Note that the demand forecasts include a demand growth line based on background / forecast rail demand growth. The growth in housing in Skelmersdale and regeneration impact has not been translated back through the demand forecasts. That would warrant more attention at the next stage of development of the scheme.

(a) Methodology

Regenerative impacts are based on the benefits, either employment or residential, of unlocked development opportunities created by the improved transport links. The GVA benefits of a rail line are based on the train service attracting current highways users, therefore freeing up capacity, or contribution to higher rates of return for developers by increasing land values. Extra capacity means more trips can be made so additional jobs may be located in the area.

The additional highways capacity is calculated using the expected usage of the rail line. Of the daily rail usage, 44% (WebTAG unit A5.4) are expected to have travelled by car for the same journey before the rail service was available. 11% of daily traffic occurs in the morning peak (DMRB).

Additional jobs may be generated directly through land developed for employment uses. The GVA benefits are quantified by multiplying the number of jobs a new rail link may support by GVA per employee; in gross terms, prior to using Green Book and HCA guidance on additionality to ensure that only net values of GVA associated with the transport scheme on its own are actually incorporated within the appraisal

GVA per employee is calculated as a weighted average of GVA per job by sector and the number of jobs in Lancashire in each sector.

Net additional GVA can also arise indirectly through the completion of residential development. New housing can support new jobs in an area and GVA benefits are calculated by multiplying the number of new jobs by the GVA per employee.

HCA guidance states that each home creates 0.5 trips in the morning peak. Therefore dividing the increased morning peak capacity on the highways by 0.5 gives the maximum number of new homes that could be built.

The HCA state that the average number of net additional jobs supported by a household is 0.15. The number of new jobs supported by housing developments is 0.15 multiplied by the number of newly built homes.

All GVA figures reported are net figures, with allowances for deadweight, displacement and leakage made based on the above sources; and which is important to not overstate the case associated with the attribution of benefits to the transport scheme in isolation

The GVA calculation does not include any new development which might be unlocked as a result of the rail scheme over and above the local plan, as this is not presently known. However it is acknowledged that a new rail link is likely to have a positive impact upon the level of development in an area, and that specific regeneration and commercial benefits could (and should) form part of the brief for the next stage of the business case, if progressed by the client group.

(b) Annual Results

The total benefit generated by unlocked development depends on the mix of employment and residential development completed. The mix of development is not available so a range of benefits has been quantified.

The lower limit is quantified by considering all residential development. Housing supports jobs indirectly and no new employment would be created on the development land itself.

The upper limit is quantified by employment only development. This will ensure the maximum numbers of new jobs are created.

It is recognised that any development is likely to include a mix of housing and employment and the level of benefit will lie within the bounds calculated in Table 5-E.

| Regenerative Impact Benefits 2014 (2010 Prices) | | |
|---|------------------------------|-----------------------------|
| Scenario | Residential Only Development | Employment Only Development |
| 1 train per hour | £751,811 | £2,784,486 |
| 2 trains per hour | £837,715 | £3,102,648 |

Table 5-E: Annual Regenerative Impact Benefits

Table 5-E shows that employment only development delivers more than three times the benefit of residential only development. The larger the proportion of employment development to residential development, the greater the regenerative impact benefits will be.

The 2 trains per hour scenario between Skelmersdale and Manchester generates an additional 11% of benefits over 1 train per hour.

5.3 Results

The annual benefits calculated in the GVA analysis have been forecast over a 60 year period to be consistent with WebTAG guidance

A 2% per annum GVA growth rate has been applied from the current year to the opening year of 2020 in line with WebTAG2 and the WebTAG2 databook guidance on forecast real increases in productivity over time.

The benefits over the 60 year period have then been discounted using a 3.5% discount rate for the first 30 years and then a 3% discount rate as defined in WebTAG, and in line with Treasury Green Book guidance.

Table 5-F shows the 60 year benefits for each of the GVA components.

| 60 Year GVA Benefits (2010 prices, discounted to 2010) | | | | |
|--|---------------------|-------------------|----------------------|---------------|
| Scenario | Labour Productivity | Business Benefits | Regenerative Impacts | Total |
| 1 train per hour | £58m | £62m | £17m - £64m | £137m - £184m |
| 2 trains per hour | £104m | £104m | £19m - £71m | £227m - £279m |

Table 5-F: 60 Year GVA Benefits

The wider economic benefits are expected to be in the range of 20% to 30% of the scheme benefits. For the 1tph scenario the wider benefits are between 21% and 26% of the scheme benefits, within the expected range. For the 2tph scenario the wider benefits are between 28% and 33% of the scheme benefits. This suggests that the main benefit may be underestimated such as through the user benefits being weighted towards Liverpool trips and the potential for larger perceived time savings for trips to Manchester.

Table 5-F shows that the 2 train per hour scenario between Skelmersdale and Manchester generates at least 52% higher wider economic benefits than 1 train per hour, but required a service subsidy over the first 3 years.

In the 1 train per hour central scenario, and in the context of any future assurance framework, adding the wider economic benefits into the cost benefit analysis raises the BCR from 1.3 to the range 1.6 to 1.7.

That supports the conclusion that the inclusion of wider economic benefits can raise the BCR by a level and that the scheme could be supported.

Similarly, in the 2 trains per hour central scenario adding the wider economic benefits into the cost benefit analysis raises the BCR from 1.3 to the range 1.8 to 1.9. These results support the conclusion that the wider economic benefits could be important in securing support for the investment.



6.1 Introduction

This section assesses the risk with the demand forecasting methodology employed in the study of Skelmersdale Station through further analysis of the catchment area and access to / from the proposed Skelmersdale station itself.

6.2 Walk-in Catchment Population

Whilst the guidance for rail demand forecasting uses a catchment area of 2km, it is known that the majority of passengers walk or cycle to most suburban stations. Typically around 75% of passengers therefore come from within 800m of the station.

Figure 6-A shows the density of the population within 800m of the proposed Skelmersdale Station based on 2011 census data.

Figure 6-B shows the density of the population within 800m of Kirkby Station – the key shadow station used in the study. Comparison between the figures shows that the density of population within 800m of the proposed Skelmersdale Station is less than for Kirkby. Also, the higher density zones are further away from the station and towards the 800m catchment boundary.

Figures 6-C and 6-D show the numbers of resident population in each zone within the 800m catchments of Skelmersdale and Kirkby stations. The population within walking distance of the proposed Skelmersdale Station is 65% of the equivalent area of Kirkby Station.

6.3 Permeability

Figure 6-E shows the walk and cycle network in the vicinity of the proposed Skelmersdale Station. This shows that;

- *The walk and cycle network is relatively sparse;*
- *There is a lack of continuity of routes through the residential area;*
- *There is a lack of connectivity north of the proposed station, through the shopping centre (especially when the shopping centre is closed);*
- *The strategic Cycle routes cross the open areas surrounding the town centre and the highways but;*
- *There is a lack of connectivity between the local walk routes and the strategic routes.*

As identified in the West Lancashire Highways and Transportation Masterplan – there is a need to improve the permeability of the centre of Skelmersdale.

Without it there is a risk that the poor walk / cycle access will constrain station demand to a lower level than forecast, which would reduce the revenue forecasts and commercial case and the benefit cost ratio and economic case. The GVA benefits would also not be realised to the same extent. Consideration also needs to be given to integrating development around the station (housing, retail, employment, services, etc), and integrating other modes of transport, both bus and car (park and ride).

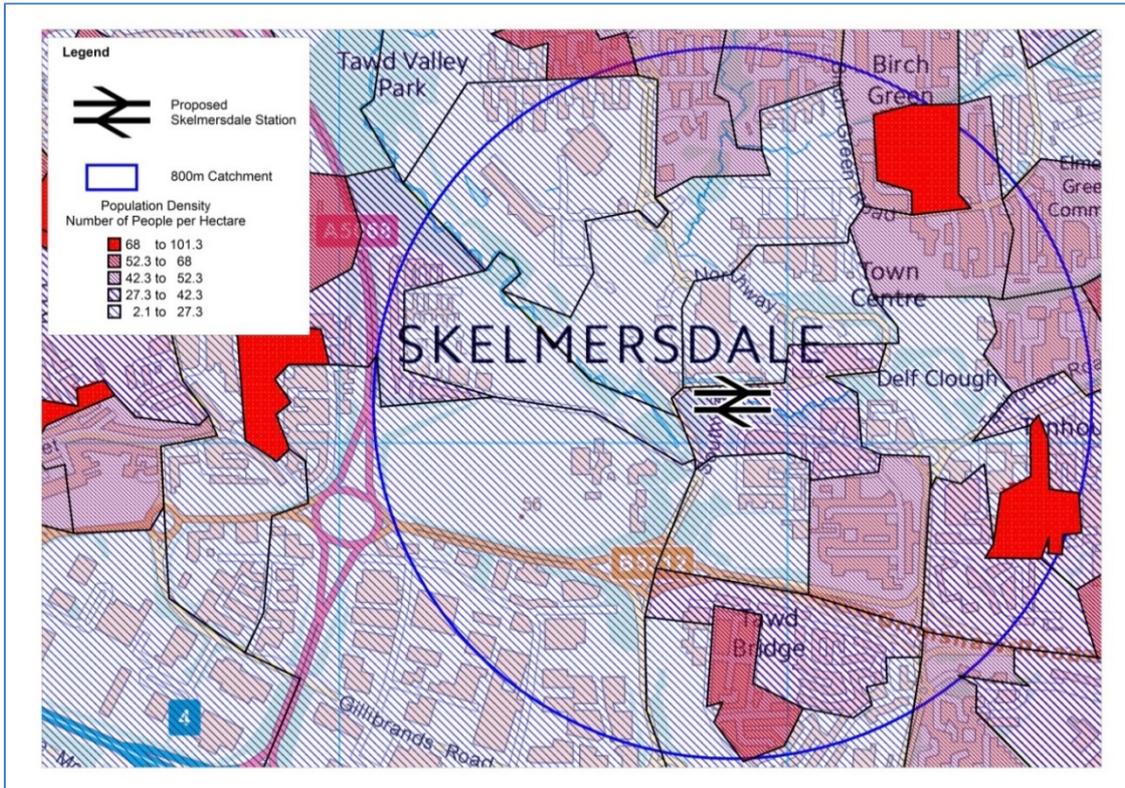


Figure 6-A: Population Density – 800m Catchment, Skelmersdale (Source: 2011 Census).

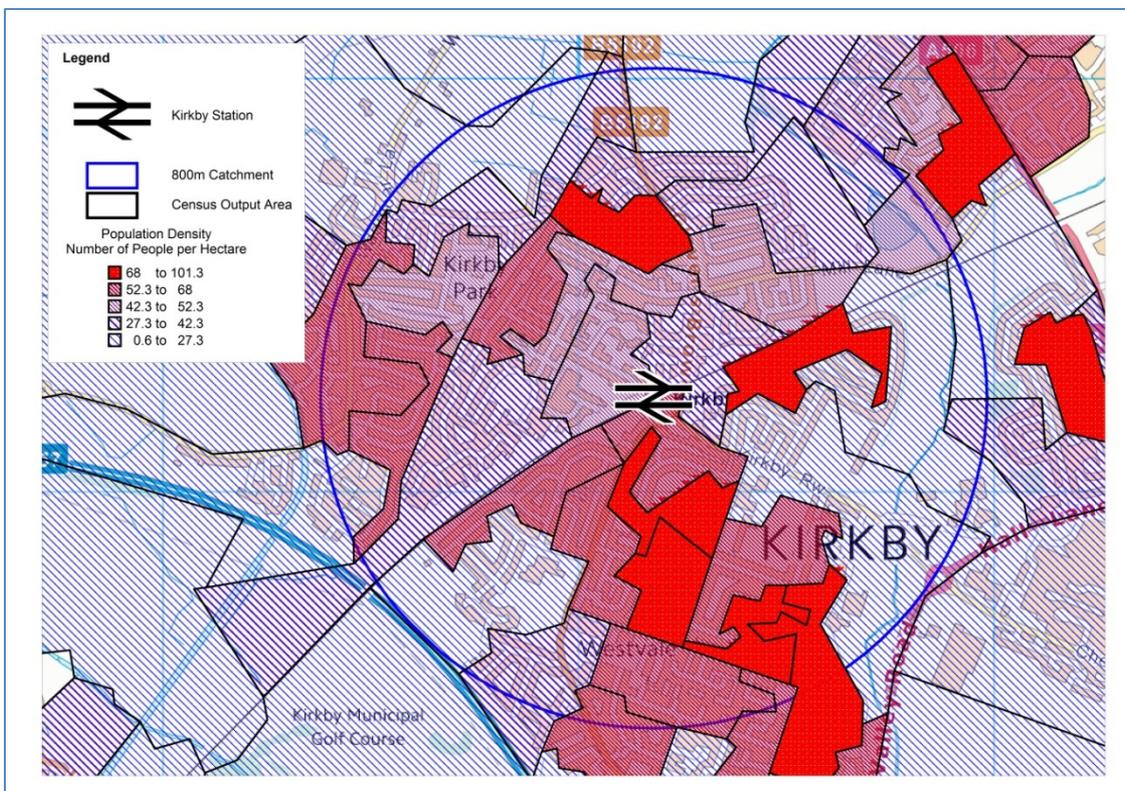


Figure 6-B: Population Density – 800m Catchment, Kirkby (Source: 2011 Census).

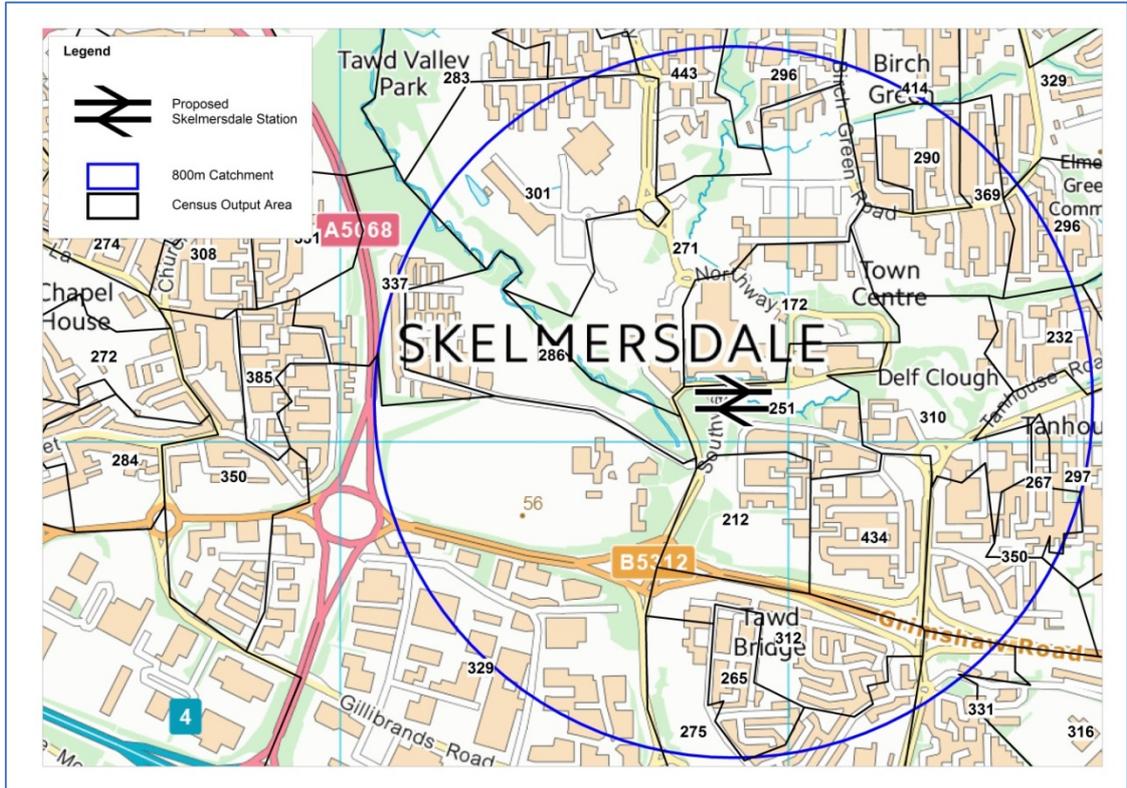


Figure 6-C: Population by Zone – 800m Catchment, Skelmersdale (Source: 2011 Census).

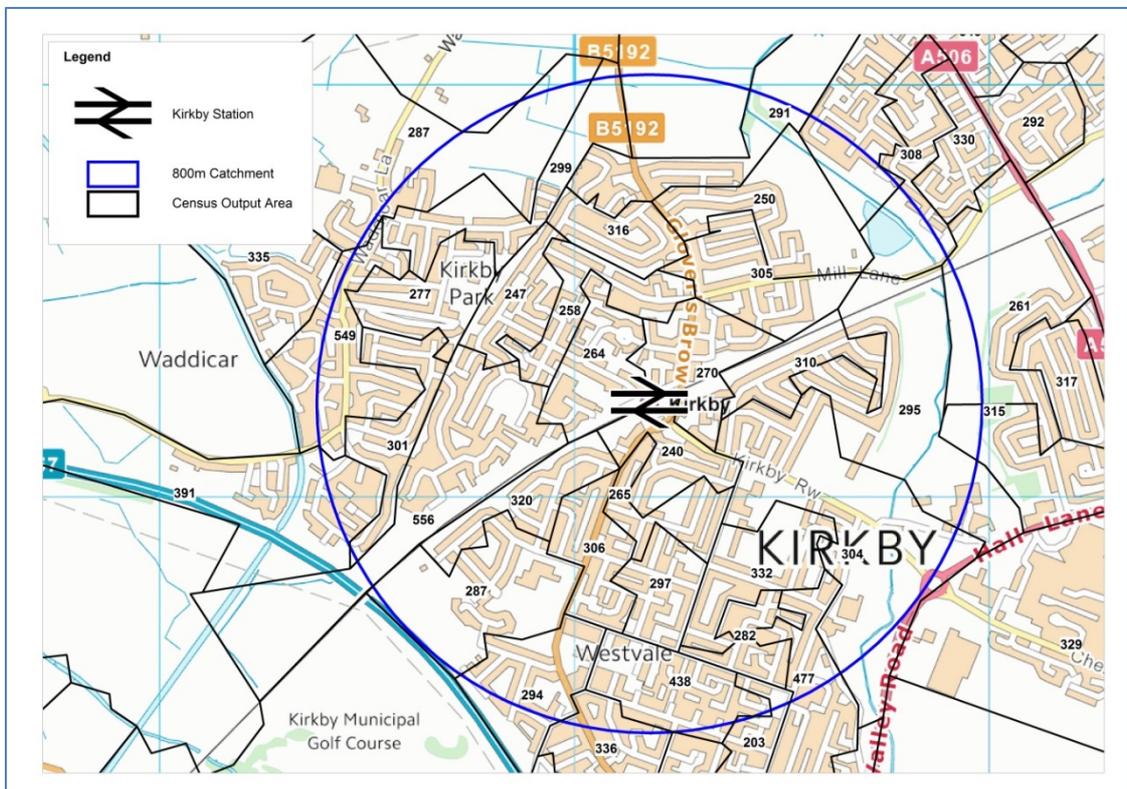


Figure 6-D: Population By Zone – 800m Catchment, Kirkby (Source: 2011 Census).

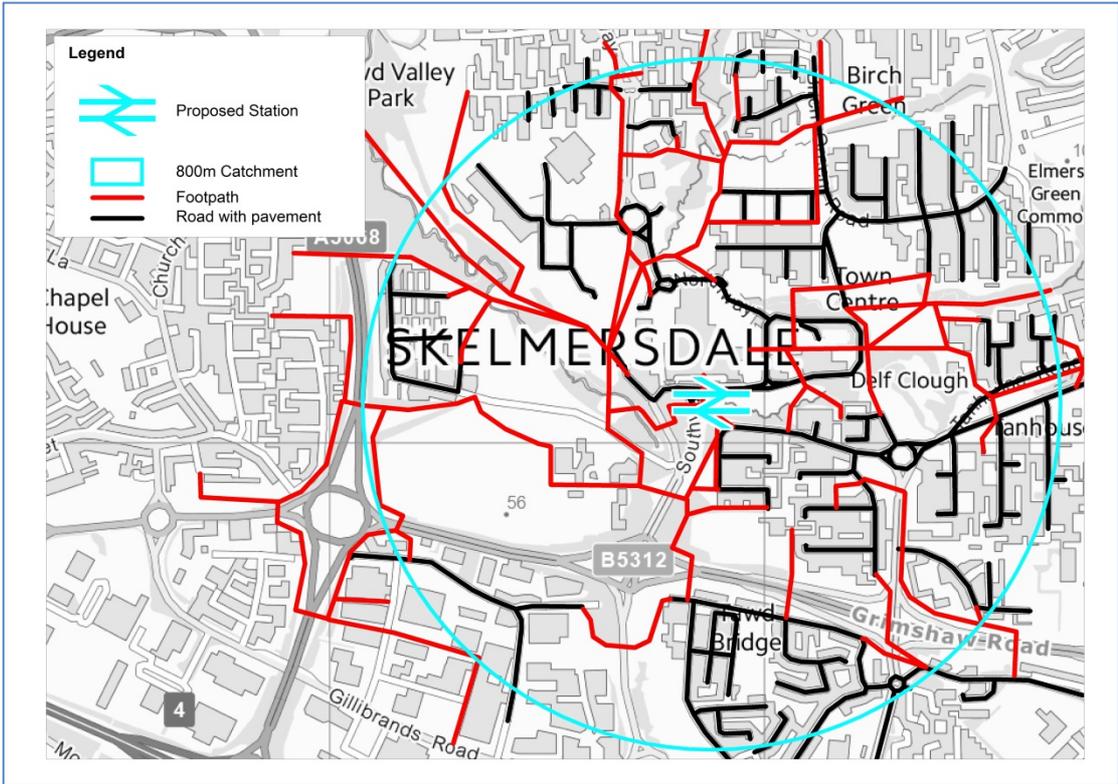


Figure 6-E: Walk and Cycle Network within 800m Catchment Proposed Skelmersdale Station

7.1 Summary and Conclusions

This study was required to assess the first, initial, demand and revenue forecasts and outline business case for the scheme to support taking the project forward from GRIP level 2 to level 3. The study employed standard rail demand forecasting procedures and concluded that the provision of direct rail access to Skelmersdale could generate a substantial increase in rail use.

The demand forecasts for the scheme concluded that, with 2 tph to Liverpool and 1 tph to Manchester, a new station at Skelmersdale could generate between 616k and 1.262k passenger journeys per annum. The new station at Kirkby Headbolt Lane could generate 700k passenger journeys per annum but as some would be abstracted from Kirkby Station with a net increase of 227k passenger journeys per annum (24%). The new service through Rainford could generate a157k passenger journeys per annum and increase of 106k. There would be some negative impacts of the service changes as a result of the change in interchange arrangements and removal of direct rail access for some communities (i.e. Kirkby – Wigan). Those impacts are estimated as around 32k lost passenger journeys per annum. The total additional rail passengers could be between 928k and 1,564k per annum.

With 2 tph to Liverpool and 2 tph to Manchester, a new station at Skelmersdale could generate between 631k and 1.275k passenger journeys per annum. The new station at Kirkby Headbolt Lane could generate 702k passenger journeys per annum a net increase of 228k passenger journeys per annum. The new service through Rainford could generate a157k passenger journeys per annum and increase of 106k. There would be some wider positive impacts of the service changes for existing stations estimated as 110k passenger journeys per annum. The total additional rail passengers could be between 1 million and 1.7 million per annum.

Additional rail revenues are estimated as between £2.0m and £3.6m per annum for the 1tph Manchester service option and between £2.2m and £3.9m per annum for the 2tph Manchester service option.

The revenues are forecast to cover the operating costs and deliver a significant revenue surplus for the 1tph Manchester service option, as a result of the assumption to purchase the rolling stock (capitalised) for the Skelmersdale – Liverpool service. In the 2tph Manchester service option it is assumed that the additional rolling stock is leased. As a result there is a need for subsidy – at least through the initial years as demand is assumed to build up.

The value for money assess based only on transport benefits revealed a low to medium economic case with benefit to cost ratio between 1.0 and 1.6 around a central scenario of 1.3. The economic case was similar for both operating scenarios.

The study has assessed the wider economic impacts through enhanced labour productivity, business benefits and regeneration impacts and estimating the local value to be between £137 and £188m for the 1tph Manchester service scenario and between £227m and £279m for the 2tph scenario. The addition of the wider impacts to the economic benefits raises the BCR to between 1.5 and 2.0.

The business case for the scheme would be considered between low and medium in traditional economic terms for a transport scheme. However, the business case is significantly improved when taking account of the wider economic benefits that the improved accessibility will bring.

The option of increasing the service frequency between Skelmersdale and Manchester from one to two trains per hour would significantly reduce the negative transport impacts and significantly enhance the wider economic impacts.

A significant risk to the demand and revenue forecasts was identified relating to the relatively low density of housing in the immediate vicinity of the station and permeability of the town in terms of walking and cycling to the station. This needs to be considered in the context of the regeneration of the town and the need for the identified movement strategies for all modes, but especially for improving walk / cycle access to / from the station.

7.2 Recommendations

The West Lancashire Highways and Transportation Masterplan identified the potential transformational change that a rail station and improved rail access could bring and that the new station could be a focus for urban realm improvements and reshaping public transport. This study has produced evidence that provision of rail access could wider travel horizons, open up access to employment and higher paid / more secure employment linked to the ambitions of the Strategic Economic Plan.

This study suggests that there could be a business case for the station which is a key focus for the wider regeneration of Skelmersdale which is a fundamental part of the Highways and Transportation Masterplan.

It is recommended that consideration is also given to land-use changes in the vicinity of the station that would support the business case for the rail scheme and enhance its likelihood of success.

In taking the business case forward it is recommended that additional consideration is given to the optimum station location and the transformation around the station in terms of development, integrating transport modes and urban realm improvements.

It is recommended that the business case should review the potential to include wider benefits of the wider works and changes.

It is also recommended that further consideration is given to the identification and mitigation of negative impacts of the scheme and identification of the relative importance of the issues to the communities affected. Further consideration could be given to optimising the revenue forecasts through consideration of gating at stations to reduce ticketless travel, staffing assumptions and car parking provision at stations.

Appendix A Summary of Shadow Station Socio-Economic Scores



| Station | Population 800m | Population 2km | Households 800m | Households 2km | Age Groups | Social Grade 800m | Social Grade 2km | Qualifications | Hours Worked 800m | Hours Worked 2km | Car Owners' 800m | Car Owners' 2km | Hh Composition | Housing Tenure | Travel to Work | TTW by Age | Distance to work | Economic Activity | Number of Scores |
|-----------------------------|-----------------|----------------|-----------------|----------------|------------|-------------------|------------------|----------------|-------------------|------------------|------------------|-----------------|----------------|----------------|----------------|------------|------------------|-------------------|------------------|
| Skelmersdale | | | | | | | | | | | | | | | | | | | |
| St Helens Central | | x | x | | | x | x | | | | | x | | | x | x | x | x | 9 |
| Ormskirk | x | | | | | | | | | | | | x | x | | | x | | 4 |
| Gathurst | | | | | | | | | | | | | | | | | | | 0 |
| Appley Bridge | | | | | | | x | | | | | | | | | | | | 1 |
| Rainford | | | | | | | | | | | | | | | | | | | 0 |
| Pemberton | x | | | | | | x | | | | | | | | | | x | | 3 |
| Upholland | | | | | | | x | | | | | | | | | | | | 1 |
| Wigan | x | x | | | x | x | | x | | | | x | | | | x | x | x | 9 |
| Town Green | | | | | x | | | | | | | | | | | | | | 1 |
| Aughton Park | | | | | | | | | | | | | | | | | | | 0 |
| St Helens Junction | x | | x | | x | x | x | x | | | | x | x | | | | x | | 9 |
| Orrell | | | x | | | | | | | | | | | | | | | | 1 |
| Kirkby | | | | x | x | x | x | | x | x | x | x | x | | x | | | x | 11 |
| Kirkby Headbolt Lane | | | | | | | | | | | | | | | | | | | |
| Kirkby | x | | | | x | x | x | x | x | x | x | x | x | | x | x | x | x | 14 |
| Fazakerley | x | x | x | | | | | | | x | | | x | | x | x | | | 7 |
| Maghull | | x | | x | | | | | x | x | | | | | | | x | | 5 |
| Thatto Heath | | x | | x | | x | | | x | | | | | | | | | x | 5 |
| Whiston | x | | x | | | x | x | | | x | x | | x | x | x | x | | x | 11 |
| Prescot | x | | | | | x | x | | x | | x | x | | x | x | | | x | 9 |
| Eccleston Park | | | | | | | | | x | x | | | | | | | | | 2 |

Appendix B Summary of Negative Impacts

| Flow | Scenario 1 (1tph Skelmersdale – Manchester) | | Scenario 2 (2 tph Skelmersdale – Manchester) | |
|---------------------------|--|------------------|---|------------------|
| | Annual Journeys | Daily Passengers | Annual Journeys | Daily Passengers |
| Kirkby – Manchester | 3,115 | 5 | 2,610 | 4 |
| Kirkby – Wigan | 3,227 | 5 | 2,296 | 4 |
| Kirkby - Orrell | 4,891 | 8 | 3,126 | 5 |
| Kirkby – Pemberton | 1,027 | 2 | 667 | 1 |
| Kirkby – Upholland | 941 | 2 | 613 | 1 |
| Kirkby – Salford Crescent | 379 | 1 | 269 | 0.5 |
| Rainford – Wigan | 283 | 0.5 | - | - |
| Rainford – Manchester | 26 | - | - | - |
| Upholland – Liverpool | 1,027 | 2 | 25 | - |
| Orrell – Liverpool | 2,198 | 4 | 135 | - |
| Pemberton - Liverpool | 1,572 | 3 | 70 | - |
| Total | 18,686 | 30 | 9,811 | 16 |

Table 7-A Key Negative Impacts – Annual Journeys and Daily Passengers by Scenario



Appendix C TEE, PA & AMBC Tables

Skelmersdale Rail Link Central Case; Scenario 1 (1tph to Manchester)

Table 1: Economic Efficiency of Transport System (revenues are scored as positives, costs as negatives)

| | All Modes | Road | Bus & Coach | Rail Total | | Rail Company A e.g. NR | Rail Other e.g. TOC/FOC |
|---|--------------------|-------------------------------|-------------|--------------|----------------|------------------------|-------------------------|
| | Total | Cars, LGVs and goods vehicles | Passengers | Passengers | Walk and Cycle | | |
| Consumers - Commuting | | | | | | | |
| <i>User benefits</i> | | | | | | | |
| - travel time saving | 233,850,739 | 66,894,683 | | 166,956,056 | | | 166,956,056 |
| - Vehicle opcost | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Consumer Benefits (1a) | 233,850,739 | 66,894,683 | | 166,956,056 | | | 166,956,056 |
| Consumers - Other | | | | | | | |
| <i>User Benefits</i> | | | | | | | |
| - travel time saving | 180,539,938 | 51,644,746 | | 128,895,193 | | | 128,895,193 |
| - Vehicle opcost | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Consumer Benefits (1b) | 180,539,938 | 51,644,746 | - | 128,895,193 | | - | 128,895,193 |
| Business | | | | | | | |
| <i>User benefits</i> | | | | | | | |
| - Travel time | 34,047,234 | 9,739,456 | | 24,307,778 | | | 24,307,778 |
| - Vehicle opcost | - | | | - | | | |
| - Reduced absenteeism | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Business User Benefits (2) | 34,047,234 | 9,739,456 | - | 24,307,778 | - | - | 24,307,778 |
| Private sector provider impact | | | | | | | |
| - revenue | 62,799,947 | | | 62,799,947 | | | 62,799,947 |
| - opcost | - 57,031,415 | | | - 57,031,415 | | | -57,031,415 |
| - investment cost | - | | | - | | | |
| - grant/subsidy | - | 0 | 0 | 0 | 0 | 0 | 0 |
| - revenue transfer | - | | | - | | | |
| Sub total (3) | 5,768,532 | - | - | 5,768,532 | | - | 5,768,532 |
| Other impacts | | | | | | | |
| - Developer contribution (4) | | - | - | - | | | |
| Net business impact (5 = 2+3+4) | 39,815,766 | 9,739,456 | - | 30,076,310 | - | | |
| Total, PV of transport econ eff. Benefits (6 = 1a + 1b + 5) | 454,206,443 | | | | | | |

| Skelmersdale Rail Link Central Case; Scenario 1 (1tph to Manchester) | | | | | |
|--|--------------------|----------------|-------------|-------------|----------------|
| Table 2 Public Accounts (costs should be recorded as a positive number, surpluses as a negative one) | | | | | |
| | All Modes | Road | Bus & Coach | Rail | Walk and Cycle |
| | Total | Infrastructure | | | |
| Local Government funding | | | | | |
| - Direct Revenue | - | | | | |
| - Operating costs | - | | | | |
| - Investment costs | - 281,997 | -281,997 | | | |
| - Developer and other contributions | - | | | | |
| - Grant/Subsidy (k)* | - | | | | |
| - Revenue transfer | - | | | | |
| Net (7) | - 281,997 | - 281,997 | - | - | |
| Central Government funding: Transport | | | | | |
| - Direct Revenue | - | | | | |
| - Operating costs | - | | | | |
| - Investment costs* | 413,804,723 | | | 413,804,723 | |
| - Developer and other contributions | - | | | | |
| - Grant/Subsidy (k)* | - | 0 | 0 | 0 | 0 |
| - Indirect Tax Revenues | - | | | | |
| - Revenue transfer | - | | | | |
| Net (8) | 413,804,723 | - | - | 413,804,723 | |
| Central Government Funding: Non-Transport | | | | | |
| Indirect tax Revenues (9) | - 10,215,266 | -10,215,266 | | | |
| Totals | | | | | |
| Broad Transport Budget (10 = 7 + 8) | 413,522,726 | | | | |
| Wider Public Finances (11 = 9) | -10,215,266 | | | | |

*The public sector costs in these boxes should exclude developer contribution e.g. developer contribution is subtracted from these figures to give Net (8)

| Skelmersdale Rail Link Central Case; Scenario 1 (1tph to Manchester) | | | | | |
|---|--------------------|------------|-------------|-------------|----------------|
| Table 3: Analysis of Monetised Costs and Benefits (AMCB) | | | | | |
| | Total | Road | Bus & Coach | Rail | Walk and Cycle |
| Noise | 495,895 | | | 495,895 | |
| Local air quality | 8,742 | 8,742 | | | |
| Greenhouse gases | 3,450,093 | 3,450,093 | | | |
| Journey ambience (incl. rolling stock quality, and in vehicle crowding) | - | | | | |
| Accidents (incl. safety) | 4,386,252 | 6,975,294 | | -2,589,042 | |
| Physical Fitness | 12,831,591 | | | 12,831,591 | |
| Economic Efficiency: Consumers Users (Commuting) (1a) | 233,850,739 | 66,894,683 | | 166,956,056 | |
| Economic Efficiency: Consumers Users (Other) (1b) | 180,539,938 | 51,644,746 | 0 | 128,895,193 | |
| Economic Efficiency: Business users and providers (5) | 39,815,766 | 9,739,456 | 0 | 30,076,310 | |
| Wider Public Finances (indirect Taxation Revenues (-11)) | 10,215,266 | | | | |
| Reliability (incl. performance & reliability) | - | | | | |
| Wider Economic Benefits | - | | | | |
| Option values | 45,136,145 | | | 45,136,145 | |
| Interchange (station quality and crowding) | - | | | | |
| Present Value of Benefits (PVB) (sum all benefits - 11) | 530,730,427 | | | | |
| Broad Transport Budget (10) | 413,522,726 | | | | |
| Present Value of Costs (PVC) (10) | 413,522,726 | | | | |
| Overall Impacts | | | | | |
| Net Present Value (NPV) | 117,207,701 | | | | |
| Benefit to Cost Ratio (BCR) | 1.28 | | | | |

Skelmersdale Rail Link Central Case, Scenario 2 (2tph Manchester)
Table 1: Economic Efficiency of Transport System (revenues are scored as positives, costs as negatives)

| | All Modes | Road | Bus & Coach | Rail Total | | Rail Compan y A e.g. NR | Rail Other e.g. TOC/FOC |
|---|--------------------|-------------------------------------|-------------|--------------|-------------------|----------------------------------|----------------------------------|
| | Total | Cars, LGVs and goods vehicles | Passengers | Passengers | Walk and Cycle | | |
| Consumers - Commuting | | | | | | | |
| <i>User benefits</i> | | | | | | | |
| - travel time saving | 258,732,004 | 72,792,409 | | 185,939,595 | | | 185,939,595 |
| - Vehicle opcost | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Consumer Benefits (1a) | 258,732,004 | 72,792,409 | | 185,939,595 | | | 185,939,595 |
| Consumers - Other | | | | | | | |
| <i>User Benefits</i> | | | | | | | |
| - travel time saving | 199,749,038 | 56,197,971 | | 143,551,067 | | | 143,551,067 |
| - Vehicle opcost | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Consumer Benefits (1b) | 199,749,038 | 56,197,971 | - | 143,551,067 | | - | 143,551,067 |
| Business | | | | | | | |
| <i>User benefits</i> | | | | | | | |
| - Travel time | 37,669,794 | 10,598,129 | | 27,071,665 | | | 27,071,665 |
| - Vehicle opcost | - | | | - | | | |
| - Reduced absenteeism | - | | | - | | | |
| - user charges | - | | | - | | | |
| - during construction & maintenance | - | | | - | | | |
| Net Business User Benefits (2) | 37,669,794 | 10,598,129 | - | 27,071,665 | - | - | 27,071,665 |
| Private sector provider impact | | | | | | | |
| - revenue | 70,145,287 | | | 70,145,287 | | | 70,145,287 |
| - opcost | -114,506,420 | | | -114,506,420 | | | -114,506,420 |
| - investment cost | - | | | - | | | |
| - grant/subsidy | 44,361,133 | 0 | 0 | 44,361,133 | 0 | 0 | 44,361,133 |
| - revenue transfer | - | | | - | | | |
| Sub total (3) | - | - | - | - | | - | - |
| Other impacts | | | | | | | |
| - Developer contribution (4) | | - | - | - | | | |
| Net business impact (5 = 2+3+4) | 37,669,794 | 10,598,129 | - | 27,071,665 | - | | |
| Total, PV of transport econ eff. Benefits (6 = 1a + 1b + 5) | 496,150,836 | | | | | | |

Skelmersdale Rail Link Central Case, Scenario 2 (2tph Manchester)
Table 2 Public Accounts (costs should be recorded as a positive number, surpluses as a negative one)

| | All Modes Total | Road Infrastructure | Bus & Coach | Rail | Walk and Cycle |
|--|--------------------|------------------------|-------------|--------------------|-------------------|
| Local Government funding | | | | | |
| - Direct Revenue | - | | | | |
| - Operating costs | - | | | | |
| - Investment costs | - 318,167 | -318,167 | | | |
| - Developer and other contributions | - | | | | |
| - Grant/Subsidy (k)* | - | | | | |
| - Revenue transfer | - | | | | |
| Net (7) | - 318,167 | - 318,167 | - | - | |
| Central Government funding: Transport | | | | | |
| - Direct Revenue | - | | | | |
| - Operating costs | - | | | | |
| - Investment costs* | 413,804,723 | | | 413,804,723 | |
| - Developer and other contributions | - | | | | |
| - Grant/Subsidy (k)* | 44,361,133 | 0 | 0 | 44,361,133 | 0 |
| - Indirect Tax Revenues | - | | | | |
| - Revenue transfer | - | | | | |
| Net (8) | 458,165,856 | - | - | 458,165,856 | |
| Central Government Funding: Non-Transport | | | | | |
| Indirect tax Revenues (9) | - 11,353,212 | -11,353,212 | | | |
| Totals | | | | | |
| Broad Transport Budget (10 = 7 + 8) | 457,847,689 | | | | |
| Wider Public Finances (11 = 9) | -11,353,212 | | | | |

*The public sector costs in these boxes should exclude developer contribution e.g. developer contribution is subtracted from these figures to give Net (8)

Skelmersdale Rail Link Central Case, Scenario 2 (2tph Manchester)
Table 3: Analysis of Monetised Costs and Benefits (AMCB)

| | Total | Road | Bus & Coach | Rail | Walk and Cycle |
|---|--------------------|------------|-------------|-------------|-------------------|
| Noise | 559,268 | | | 559,268 | |
| Local air quality | 9,736 | 9,736 | | | |
| Greenhouse gases | 3,833,689 | 3,833,689 | | | |
| Journey ambience (incl. rolling stock quality, and in vehicle crowding) | - | | | | |
| Accidents (incl. safety) | 5,006,640 | 7,890,066 | | -2,883,425 | |
| Physical Fitness | 14,290,591 | | | 14,290,591 | |
| Economic Efficiency: Consumers Users (Commuting) (1a) | 258,732,004 | 72,792,409 | | 185,939,595 | |
| Economic Efficiency: Consumers Users (Other) (1b) | 199,749,038 | 56,197,971 | 0 | 143,551,067 | |
| Economic Efficiency: Business users and providers (5) | 37,669,794 | 10,598,129 | 0 | 27,071,665 | |
| Wider Public Finances (indirect Taxation Revenues (-11)) | 11,353,212 | | | | |
| Reliability (incl. performance & reliability) | - | | | | |
| Wider Economic Benefits | - | | | | |
| Option values | 45,136,145 | | | 45,136,145 | |
| Interchange (station quality and crowding) | - | | | | |
| Present Value of Benefits (PVB) (sum all benefits - 11) | 576,340,118 | | | | |
| Broad Transport Budget (10) | 457,847,689 | | | | |
| Present Value of Costs (PVC) (10) | 457,847,689 | | | | |
| Overall Impacts | | | | | |
| Net Present Value (NPV) | 118,492,429 | | | | |
| Benefit to Cost Ratio (BCR) | 1.26 | | | | |