Employment in Sustainable Transport

A Report for:

pteg

The Campaign for Better Transport

Sustrans

June 2010

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Executive Summary

The Passenger Transport Executive Group (*pteg*), Campaign for Better Transport and Sustrans commissioned this study to quantify the direct and immediate supply chain employment benefits that could result from investment in walking, cycling and public transport schemes and initiatives. This includes employment directly within or dependent on sustainable transport, but not multiplier effects or the wider catalytic effects which may be achieved by particular investments. The information provided within the report is based on the best available data.

Research

Although research relating to the direct and supply chain employment impacts of sustainable transport modes is relatively limited, there are a number of studies that focus on specific case studies or sub-sectors and which provide useful insights into the employment potential of the sector and its various sub-sectors.

The research provides a number of examples where direct job benefits have resulted or could result from investment in walking, cycling and public transport schemes and initiatives. There is, however, no single study which pulls together employment across the whole of the sector, and highlights the employment supported through the immediate supply chain. Previous research on the supply chain is particularly limited.

There are a number of key findings and metrics arising from the research which can be used to inform the analysis of employment impact. These include:

- A reduction in car travel and a transfer to public transport would result in a net increase in employment as on average rail and bus travel generates more jobs per passenger km than car travel;
- Research into transportation investment in the US provides evidence that investing in public transportation produced twice as many jobs per dollar as investing in roads.
- The UK Rail Industry employs around 190,000 people and contributes £9bn annually to the national economy;
- The creation of 100 direct rail jobs supports 140 indirect and induced jobs whereas 100 direct motor industry jobs create only 48 indirect and induced jobs;
- One additional school bus generates over 1.13 FTE jobs, one driver and 0.2 ancillary staff. Further jobs will be generated through other parts of the supply chain. The ratio is also likely to increase when considering the employment impact of a routine passenger bus service;
- Larger bus manufacturing companies, such as Volvo, employ 0.5 employees per bus produced. In the case of smaller companies, this figure is likely to include component suppliers, sub contractors and sales staff; and
- In addition to creating 'new green jobs' at a time of economic downturn, the sector also provides a wide range of jobs from drivers, ticket agents and semi-skilled and skilled manufacturing jobs to managerial and technical engineering jobs.

The evidence suggests that the employment impact of rail and bus services is considerable and that increasing public transport journeys at the expense of car journeys would result in additional employment.

Direct and Supply Chain Employment

The research provides evidence that the sustainable transport sector is a major employer in the UK. Estimates for overall direct and immediate supply chain employment within the sustainable transport sector are set out in the tables below. These figures, when put alongside the research on the wider benefits of the sector, serve to further underline the importance of the sector to the UK economy.

Overall Employment in the Sustainable Transport Sector			
Category	**High**	**Central**	**Low**
Rail Industry – Total Direct Employment	87,394	**83,700**	80,000
Rail Industry – Total Supply Chain Employment	102,600	**90,000**	70,000
Light Rail Industry – Total Direct Employment	2,744	**2,744**	2,744
Light Rail Industry – Total Supply Chain Employment	700	**550**	400
Bus & Coach Industry – Total Direct Employment	173,800	**173,800**	173,800
Bus & Coach Industry – Total Supply Chain Employment	110,000	**82,587**	50,000
Cycling Industry – Total Direct Employment	20,000	**20,000**	20,000
Cycling Industry – Total Supply Chain Employment	3,500	**3,005**	2,500
Overall Sector – Total Direct Employment	283,938	**280,244**	276,544
Overall Sector – Total Supply Chain Employment	216,800	**176,142**	122,900
Overall Sector – Total Employment	**500,738**	**456,386**	**399,444**

The central estimates suggest the sustainable transport industry provides over 450,000 jobs. Given the nature of the sector, where employment is spread out across the country – further work would be required to analyse the specific employment levels by particular areas.

Total Employment in Sustainable Transport Sector			
Mode	**Direct**	**Supply Chain**	**Total**
Train	83,700	90,000	173,700
Light Rail	2,744	550	3,284
Bus	173,800	82,587	256,387
Cycling	20,000	3,005	23,005
Total	**280,244**	**176,142**	**456,386**

Conclusions

It is widely accepted that sustainable transport is at the heart of tackling congestion, in delivering important international commitments on climate change and bringing about the change to a low carbon economy. In addition, this research firmly demonstrates that the sustainable transport sector also employs significant numbers of people (estimated at almost half a million jobs) which can make an important contribution to the economic recovery and growth. Such employment compares favourably with investment in the motor industry. The research also shows that the sector employs a diverse range of skills and occupations in a variety of transport and non-transport roles.

1 Introduction

Context for the Study

1.1 Sustainable transport has risen up the political agenda over the past 10 years in line with heightening concerns related to the environment and climate change. It has now become a central feature of transport planning and policy. The environmental benefits of the sustainable transport sector, defined for the purpose of this study as bus, rail, light rail, cycling and walking, are well documented through a significant body of research. There is, however, a lack of research which demonstrates the employment benefits of the sector and no detailed research examining the supply chain for each sub-sector in any detail.

1.2 This highlights a large gap in transport research; a gap which if filled would provide extremely valuable information that would enable the sector to more accurately communicate its economic importance. The information could also be used as a reference point for local authorities, transport groups, operators and others to help with funding bids and case making for new sustainable transport schemes. The latter is particularly important given the current economic climate, associated reductions in public sector spending, greater competition for scarcer financial resources and the need to prove the job creating potential of investment.

1.3 In recognition of this, *pteg*, Campaign for Better Transport and Sustrans commissioned this study to quantify the direct and immediate supply chain employment benefits that could result from investment in walking, cycling and public transport schemes and initiatives. This includes employment directly within or dependent on sustainable transport, but not multiplier effects or the wider catalytic effects which may be achieved by particular investments. To provide a comparative benchmark for the sector, the study outline also included employment in road building and road maintenance.

Study Coverage

1.4 This report presents the best available employment related information that has been gathered for each of the sub-sectors, highlighting where necessary the calculations which have been undertaken to quantify employment numbers. In addition to the employment information, the report also includes short summaries of previous research relevant to this study and in a separate annex, case studies are provided which look at the employment supported by specific transport schemes within the sub-sectors.

2 Review of Relevant Research

Introduction

2.1 Although research relating to the direct and supply chain employment impacts of sustainable transport modes is relatively limited, there are a number of studies which provide useful insights into the employment potential of the sector and its various sub-sectors. This section of the report provides a review of a variety of relevant research, highlighting the purpose of each study and summarising the employment impacts which are cited.

Sector Wide Research

Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997.

2.2 This report assesses the direct employment impact of pursuing sustainable policies and reaching targets for surface level passenger transport as set out in the Road Traffic Reduction Bill and recommended in the Royal Commission on Environmental Pollution's report on Transport. Scenario modelling is used to assess the employment impacts of meeting the following targets:

- A reduction in road traffic of 10% by 2010 from 1990 levels (Road Traffic Reduction Bill); and
- A 10% increase in urban journeys travelled by cycle in the year 2005 and for public transport to account for 20% of all passenger kilometres by 2005 (Royal Commission)

2.3 The model assumes that the effect of reduced demand on employment will not necessarily be linear and that changes in demand will affect the industries involved in different ways. For example in the case of cars, the fuel industry will be more directly affected than the production of cars. It is also made clear that the model only considers direct employment impacts (and not multipliers) and that the methodology used across all modes is consistent to allow for direct comparisons. Further detail on the underlying assumptions and calculations used within the model are not provided in the report.

2.4 The study concludes that between 1993 and 2010 **an increase in rail and bus patronage and cycling could generate 130,000 jobs, which would more than offset the 43,000 jobs lost in the motor industry though reduced car use.** It also concludes, however, that further research is needed to model the direct benefits in a more sophisticated manner in order to provide a more accurate estimate of how large the net increase should be.

2.5 Further analysis of the data available within the report, enables estimates of the job per vehicle km to be estimated. This shows that of the sustainable transport sectors, rail has the highest job density per km travelled and that the job density for rail and bus were both greater than that for car based industries.

Sustainable Transport Scenario Job Creation

	1993 Vehicle Km (billions)	2010 Vehicle Km (billions)	Change Vehicle Km (billions)	Jobs Created	Jobs per 1,000 km	Jobs per 1,000 km equivalent
Car	336.80	302.0	-34.8	-43,000	0.0012	1
Rail	0.35	0.6	0.25	90,000	0.35	291.7
Bus	4.60	7.9	3.3	31,000	0.009	7.5
Cycle	4.5	20.0	15.5	9,000	0.00058	0.5

Source: ekosgen, 2009 based on data in Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997.

2.6 Using the above information, for every job created for car travel, there would be 292 jobs created for the rail industry and 7.5 for the bus industry.

European Passenger Transport Research, Ecotec, 1994

2.7 The study findings of the FoE study are reinforced by research carried out by Ecotec that analyses a future European passenger transport scenario under which car passenger kilometres fall by 21% and rail passenger numbers per km increase by 36% by 2010. The employment increase above the baseline scenario is above 500,000 jobs in the rail sector across Europe and of which 90,000 jobs would be created in the UK. The methodology used to generate this scenario is not outlined within the report.

Rail Research

UK Rail: A Case for Investment, Invensys Rail, 2009

2.8 This study examines the employment within the UK rail industry including an analysis of direct, indirect and induced jobs. **The study concludes that approximately 268,000 individuals are reliant on the industry for their livelihood, with 112,000 classed as direct employees.** The significance of large employers, particularly Network Rail, which employs around 34,000, was also highlighted.

2.9 There were also findings which show that rail represents an efficient investment opportunity in terms of job creation. These include the following key metrics:

- For every £1 invested by the Government, the industry generates £1.30 in its own funding;
- As an example, £10m government investment generates an additional 524 direct, indirect and induced jobs;
- The creation of 100 direct rail jobs supports 140 indirect and induced jobs compared with 100 direct motor industry jobs creating 48 indirect and induced jobs.

High Speed Rail Command Paper, Department for Transport, March 2010

2.10 The Command Paper sets out the case for an initial core British high speed rail network, involving a detailed analysis of the costs and benefits by the Government and the case put forward by HS2 Ltd. As part of the work, an analysis is provided of the impacts of HS2[1] on government objectives relating to economic growth and support for industry, in particular looking at the agglomeration and supply chain benefits of HS2.

2.11 The report cites the new opportunities for British businesses which would be presented by a long term programme of investment in high speed rail, particularly within the design, engineering, construction and manufacturing sectors. HS2 Ltd estimates that the construction of a new London-Birmingham line over seven years would directly create over 10,000 new jobs, support additional supply chain jobs and provide significant opportunities for the development of the UK's skill base by creating demand for more skilled jobs in the rail industry. The report also makes reference to the programme enabling the UK supply chain to be showcased across a range of sectors through its delivery, and that the employment benefits in rail services, rail freight, manufacturing and maintenance would last for decades. Such benefits are not, however quantified in the report.

2.12 The report provides an analysis of the UK rail supply chain, describing the rail industry as 'increasingly globalised with complex and inter-dependent supply chains that

[1] A new high speed rail line between London and the West Midlands

cross borders'. It estimates that the UK rail industry is globally competitive and is estimated to employ around 190,000 people and be worth at least £9 billion annually. It makes reference to the links with the civil engineering, construction, aerospace and automotive industries and transferable skills between these sectors.

Planes, Trains and Automobiles Research, URS Corporation Limited, 2009

2.13 In recognition of Derby's strong industrial base related to the aerospace, automotive and rail sectors, research was undertaken to quantify the scale and impact of the three sectors and their supply chains. This included quantifying direct and indirect employment and output as summarised in the table below. **This estimated direct rail employment in Derby to be over 5,000 increasing to over 8,500 when the supply chain is included.**

Transport Sectors in Derby				
Industry Description	Economic Output £m (2007)		Employment (2007)	
	Direct	With Supply Chain	Direct	With Supply Chain
Aerospace	3,055	4,583	10,399	15,599
Automotive	2,389	3,106	16,979	22,072
Rail	1,542	2,622	5,100	8,517
Source: Planes, Trains and Automobiles Research, URS Corporation Limited, 2009				

CrossRail London in Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997.

2.14 The Friends of the Earth Report makes reference to case study examples of employment generated through the provision of rail infrastructure. This includes the CrossRail project in London to link West and East London, which was estimated to create 53,920 person-years of employment in the UK in the construction phase alone. Furthermore, only 20% of this work was expected to be labour employed directly on the project itself, with the rest stemming from induced expenditure including around 20,000 years created in off-site contractors (with unspecified roles).

Bus Research

Yellow School Bus Report and Recommendations, Yellow School Bus Commission, March 2009

2.15 The Yellow Bus Commission carried out research to examine the impacts of introducing yellow school buses in Britain. This included a cost benefit analysis which **estimated the employment impact of rolling out a yellow bus scheme to be the creation of up to 13,000 new jobs across the country, including 1,000 temporary manufacturing jobs.** Around 10,000 of these would be for drivers with an additional c.2,200 jobs created for ancillary staff, including engineers and managers. The vehicles have 60 seats and the estimated operating cost per vehicle is £42,500 per annum. The table below sets out the assumptions used to generate the total potential jobs figure as part of the cost benefit analysis.

Yellow School Bus Commission – Potential Job Generation	
Number of buses	10,967
YSB drivers new to the industry (40% based on Metro data)	5,089
New jobs for service bus drivers to replace those moving to YSB*	5,061
Creation of ancillary staff jobs	2,226
Total	**12,376**

Additional manufacturing jobs to manufacture 10,000 vehicles	1,000
Total (including temporary manufacturing jobs)	**13,376**
Source: Yellow Bus School Commission *Figures based on Nationwide rollout of primary school buses and 40% rollout of secondary school buses.* **Number of drivers transferring from existing school contract to services where are not replaced is also estimated (2,527) although it is noted that these are not new jobs*	

2.16 If the manufacturing jobs, which will be temporary, are excluded, **the data suggests a ratio of 1.13 FTE per bus and 0.2 ancillary jobs per FTE driver.** This figure excludes the supply chain.

2.17 Given that these figures relate to the operation of school buses, which will only be in operation for two relatively short periods each day of a five day week, it is expected that this ratio would increase when considering the employment impact of a routine passenger bus service.

Bus Manufacturing Research in Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997.

2.18 The Friends of the Earth report makes reference to a study that estimates employment in bus manufacturing based on a ratio of employees to vehicles. This is based on discussions with Volvo, which found that the company, at a global level in 1995, employed 3,620 in its bus operations with an output of 6,830 buses. This suggests that there is 0.5 employees per bus produced.

2.19 While the report uses the ratio to provide a rough estimate of the UK bus manufacturing workforce, it also highlights significant caveats linked to Volvo's bus making being a global business which employs many people, for example, attempting to open up new markets. It therefore suggests that a more conservative estimate of such employment would be generated under the assumption that the ratio includes component suppliers, subcontractors and sales staff. Of note, the figure does not take into account that some of this manufacturing activity may take place outside of the UK, for example, in Sweden.

Light Rail

Green Job Creation in the UK, Association for the Conservation of Energy, Friends of the Earth Ltd, GMB Research and UNISON Research, 1996.

2.20 This study was commissioned by the European Commission to increase awareness of the potential for economic activities that simultaneously protect the environment and create jobs by presenting evidence from member countries. Five sectors/components of the economy are covered, one of which is transport. The transport section included case studies on Manchester Metrolink and Sheffield Supertram, summarised versions are included below.

Manchester Metrolink

2.21 The Manchester Metrolink system was initially developed in two stages. Between 1991 and 1999 the total number of jobs created was estimated at 1,880 including those involved directly in construction, operation and maintenance (as shown in the table below). While the report does not explicitly indicate the proportion of these jobs which are permanent, it can be assumed that permanent positions are linked to operation and maintenance – 280 in total.

Direct Job Creation by Manchester Metrolink		
Phase	**Date**	**Jobs**
Phase 1 Operation and Maintenance	1990	4
Phase 1 Operation and Maintenance	1992	160

Phase 1 Operation and Maintenance	1994	200
Phase 1 Operation and Maintenance	1996	220
Phase 2 Operation and Maintenance	1999	60
Total		**280**
Source: Green Job Creation in the UK, Association for the Conservation of Energy, Friends of the Earth Ltd, GMB Research and UNISION Research.		

2.22 In addition, indirect jobs have been created in other parts of the UK manufacturing railway components, such as track and signal equipment, and in other parts of the European Union manufacturing the vehicles. There was anecdotal evidence of these jobs, and of the Manchester economy, benefitting from the Metrolink. However a study carried out for GMPTE found that there was insufficient evidence to quantify the indirect jobs, possibly due to the opening of phase one coinciding with the 1992 downturn.

Sheffield Supertram

2.23 The South Yorkshire Supertram network was built during the 1990s with construction completed in 1997. It links Sheffield City Centre with Hillsborough to the North, Mosborough to the South and the Lower Don Valley to the East. The scheme created 170 person years in construction of the track with the direct and indirect employment impact being:

- 260 jobs in direct employment on the scheme;
- Between 1000 and 2000 indirect jobs along the corridors that it serves. The report does not provide an indication of the proportion of these jobs which are new, as opposed to having simply transferred from another location.

Walking and Cycling Research

National Cycle Network, Sustrans in Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997.

2.24 The estimate of the employment impact of the planned National Cycle Network provides an indication of the number of jobs to be created in developing cycling infrastructure. Sustrans used analysis of the construction of existing cycle routes to estimate that 5,400 person-years would be created in construction and a further 600 person-years in project management. The direct employment estimates included 100 full-time path rangers and 500 person-years in transport planning jobs, for example, related to the need for traffic calming, road crossings.

2.25 The study also makes reference to a Sustrans estimate whereby one job is created per every £31,000 of public investment in cycle infrastructure. The underlying assumptions behind this estimate are not documented.

Specific Case Study Research

Global Examples

What we learned from the stimulus, Centre for Neighbourhood Technology, Smart Growth America and US PRIG.

2.26 The United States has put under contract more than $20 billion dollars in transportation investment through the American Recovery and Reinvestment Act (ARRA). States are required to report the job creation and job retention resulting from each contract paid for through these contracts. The report, based on data available in the 10 months since the ARRA was signed shows that investing in pubic transportation produced twice as many jobs per dollar as investing in roads. The data is set out in the table below.

Employment Impact of Transportation Investment			
Type of Project	**Recovery Act Funds**	**Direct, on-project jobs created or sustained (FTE Job Months)**	**Job-months per $billion**
Public transportation	$4,405,188,041	72,238	16,419
Highway infrastructure	$15,809,805,858	138,831	8,871
Source: *What we learned from the stimulus, Centre for Neighbourhood Technology, Smart Growth America and US PRIG.*			

2.27 The study also mentions that every previous study[2] of the employment impacts of transportation spending has found that investment in public transportation produces more jobs than investment in roads. The following reasons are provided:

2.28 Compared to roads, public transportation systems tend to:

- Spend less money on land acquisition;
- Be more complex; and
- Buy and maintain vehicles.

Job Impacts of Spending on Public Transportation: An Update, A white paper prepared by Economic Development Research Group, Inc. for the American Public Transportation Association, February 13, 2009.

2.29 This study, prepared by The Economic Development Research Group for the American Public Transportation Association (APTA), demonstrates the number of jobs supported through investment in public transport in America. The study suggests that an investment of one billion dollars supports and creates approximately 30,000 jobs in a variety of different sectors. The jobs total can vary from 24,000 to 41,000 jobs depending on the nature of the project - expenditure on vehicles and facilities would produce a lower number of jobs than expenditure on transit system operations.

2.30 This figure is based on the national mix of public transportation spending as of 2007. It includes a direct effect of spending in transportation related manufacturing, construction and operations as well as orders to suppliers or by re-spending of worker income on consumer purchases. Inclusion of the latter increases the employment estimates, with induced impacts The report also notes that the rate of jobs supported per billion dollars of spending will continue to change every year, as prices change and technologies evolve.

2.31 The report is used to forecast that the £8.4 billion investment set out through the US's American Recovery and Reinvestment Act will create 252,000 new jobs.

2.32 The study also sought to examine the types of jobs which would be created, concluding that two third of these jobs would be semi skilled and skilled manufacturing and construction 'blue collar jobs'. These jobs include positions in manufacturing, service, repair worker, drivers, crew, ticket agents and construction. The remaining third would comprise skilled clerical, managerial and technical engineering jobs. The project provided evidence of the importance to the economy of investing in public transport, particularly in terms of creating new 'green jobs' during a time of economic downturn.

[2] The study cites the most recent and comprehensive report, which supports this argument as: How Investments Support the US Economy: Employment, Productivity and Growth, Political Economy Research Institute. University of Massachusetts, 2009.

Summary

2.33 A variety of case study or sub-sector research has been undertaken which examines the employment potential of the sustainable transport sector. The research is useful in providing particular examples where direct job benefits have resulted or could result from investment in walking, cycling and public transport schemes and initiatives. There is however no one study which pulls together employment across the whole of the sector, and highlights the employment supported through the immediate supply chain. Indeed, previous research on the supply chain is extremely limited. This study will attempt to fill the gap in this body of research.

2.34 The case studies in particular provide useful examples of the employment impacts. There are also a number of key findings and metrics arising from the research which can be used in to generate estimates of the employment impact. These include:

- A reduction in car travel and a transfer to public transport would result in a net increase in employment as on average rail and bus travel generates more jobs per passenger km than car travel;
- Research into transportation investment in the US provides evidence that investing in public transportation produced twice as many jobs per dollar as investing in roads.
- The UK Rail Industry employs around 190,000 people and contributes £9bn annually to the national economy;
- The creation of 100 direct rail jobs supports 140 indirect and induced jobs whereas 100 direct motor industry jobs create only 48 indirect and induced jobs;
- One additional school bus generates over 1.13 FTE jobs, one driver and 0.2 ancillary staff. Further jobs will be generated through other parts of the supply chain. The ratio is also likely to increase when considering the employment impact of a routine passenger bus service;
- Larger bus manufacturing companies, such as Volvo, employ 0.5 employees per bus produced. In the case of smaller companies, this figure is likely to include component suppliers, sub contractors and sales staff;
- One job is created for every £31,000 (at 1995 prices) of public investment in cycling infrastructure; and
- In addition to creating 'new green jobs' at a time of economic downturn, the sector also provides a wide range of jobs from drivers, ticket agents and semi-skilled and skilled manufacturing jobs to managerial and technical engineering jobs.

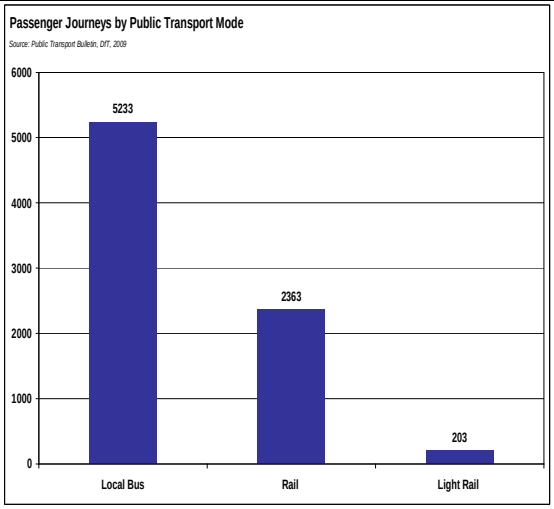
2.35 The evidence does suggest that the employment impact of rail and bus services is considerable and that increasing public transport journeys at the expense of car journeys would result in additional employment.

3 Total Sector Employment

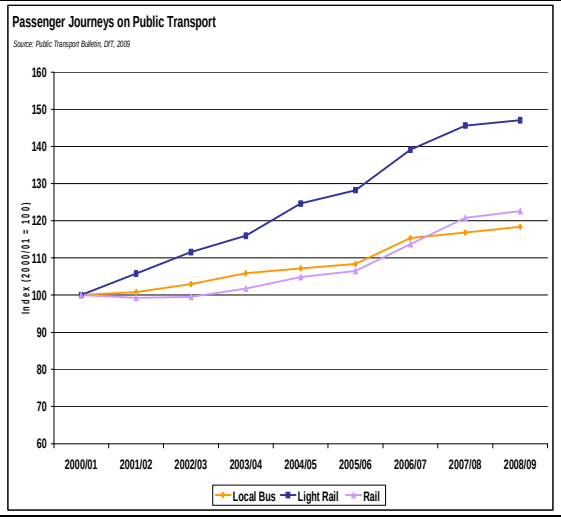
Introduction

3.1 The increasing importance of the sustainable transport sector is emphasised by the following charts which demonstrate the marked increase in public transport use over the past decade. The shift in transport mode from the car to public transport has been increasingly evident, with passenger journeys increasing by 50% for light rail, over 20% for rail and nearly 20% for bus journeys during this period. Local bus usage continues to remain the most common form of public transport, followed by rail, although the light rail sector has become increasingly important with major new schemes delivered in a number of UK cities.

Passenger Journeys by Mode: Total number of Journeys



Passenger Journeys by Mode: Change Over Time



3.2 This increased passenger transport usage alongside international commitments to delivering a low carbon economy means that the benefits of the sector in employment terms are rising. The emphasis on increasing value for money and competitive tendering in the UK also means that organisations are increasingly required to demonstrate their economic and social impacts in order to secure major public transport contracts. It is within this context that an examination of total employment within the sector is undertaken.

3.3 This section uses the best available data including a variety of published statistics and research, combined with an analysis of sub-sector employment data through the Annual Business Inquiry to set out the overall employment supported by each of the sub-sectors. In addition, information is provided with respect to estimates of the immediate supply chain employment supported by the sector. Detail is provided where calculations have needed to be made to quantify employment numbers.

3.4 It is recognised that employment within the sector, particularly the supply chain, is subject to peaks and troughs. This is particularly the case when the renewal of rolling stock or a major investment in a train or bus station is required. Expenditure on maintenance is likely to have fewer fluctuations. Case studies highlighting the employment benefits which can arise from a number of specific sustainable transport schemes are provided separately to complement the overall analysis of employment through the sector and its immediate supply chain.

The Sustainable Transport Sector as an Employer

3.5 It is possible to gauge the overall scale of the sector through the number of employers. The most recent Passenger Transport Employer survey estimated that that there are over 200,000 employers, 9,681 of which are identified as operating in sustainable transport sectors. The proportionate share of each sub-sector is, however, skewed by the large number of taxi and private hire employers which reflects the high number of sole traders operating in the sub-sector. With these excluded, employers in the sustainable transport sector account for almost three quarters of the total employers in the transport industry.

Transport Employers				
	All Employers		Excluding taxis and driving instructors	
Type	No.	Total %	No.	Total %
Taxi and Private Hire	157,000	77	-	-
Driver Training	33,000	16	-	-
Bus	5,200	3	5,200	40
Coach	3,200	2	3,200	24
Airlines	1,300	1	1,300	10
Community Transport	1,000	0	1,000	8
Transport Planning	1,000	0	1,000	8
Air Passenger Transport on the ground	900	0	900	7
Inland Waterways	250	0	250	2
Rail Engineering	206	0	206	2
Rail Operations	20	0	20	0
Light Rail, Metro & Tram	8	0	8	0
Total	**203,084**	**100**	**13,084**	**100%**
Sustainable Transport	**9,681**	**5%**	**9,681**	**74%**
Source: Passenger Transport Employer Survey 2009. Sustainable transport includes bus, coach, rail and light rail sectors, also includes community transport and applicable proportion of transport planning				

3.6 As each of these employers will have a supply chain attached, the large number of sustainable transport employers highlights the potential scale of the associated supply chain.

Employment in Rail

Total Employment in Rail

3.7 In 2008/09, over £5bn was invested in the rail industry, which generated over £6bn in passenger revenue by servicing over 1.2bn passenger journeys – a figure which has been increasing year on year over the past ten years[3]. Over half of the £5bn investment was directed at track and signalling activities, with other significant areas of investment being rolling stock and stations.

Investment in the Rail Industry (GB) (£m)						
	Track and Signalling	Rolling Stock	Stations	Other investment	Total investment	Total Investment at 08/09 prices
2004/05	3,051	897	297	195	4,440	**4,937**
2005/06	2,601	557	243	393	3,794	**4,097**
2006/07	2,629	326	503	634	4,092	**4,233**
2007/08	2,713	401	316	1,105	4,535	**4,495**

[3] Transport Bulletin, DfT, 2009

2008/09	2,823	346	285	1,696	5,149	**5,169**
Source: National Rail Trends, ORR, 2008/09						

3.8 In 2008/09 there were over 13,000 routes open for passenger traffic linking over 2,500 stations as set out in the table below.

Rail Infrastructure (GB) route kilometres and number of stations	2008/09
Routes open for Traffic	15,814
Of which Electrified	5,250
Route Open for Passenger and Freight Traffic	14,494
Route Open for Freight Traffic Only	1,320
Passenger Stations	2,516
Source: National Rail Trends, ORR, 2008/09	

3.9 The levels of investment in the rail industry and the scale of the revenues involved, combined with the extent of the UK's rail infrastructure highlight the scale of the industry across the UK and therefore its potential as a major employment generator.

3.10 Employment in the rail industry covers a variety of activities including the operation of services; the building, supply and maintenance of rolling stock; and the provision and maintenance of rail infrastructure. The latter is wide reaching and includes the manufacture and installation of track, track fittings, signalling, electrification equipment and the building and refurbishment of stations. For the purpose of this research, direct employment in the rail industry is considered to be those people employed directly by the rail operating companies along with direct employees of Network Rail.

3.11 The Association of Train Operating Companies (ATOC), the Railway Industry Association and the recent High Speed Rail Command Paper all provide overall estimates of direct and supported employment in the rail sector. The three estimates vary and are discussed in conjunction with the Department for Transport's direct employment statistics below.

3.12 The ATOC estimate provides the greatest level of detail estimating that:

- The rail sector employs over **170,000** people either directly or in supporting industries;
- About **80,000** people are employed in the train operating companies and Network Rail.

ATOC also estimates that the public sector invests £5.4bn invested in rail and that this represents less than 1% of total public spending[4]. The High Speed Rail Command Paper states that the UK rail industry is forecast to employ 190,000 people and is worth at least £9 billion annually.

3.13 The most recent statistics published by the Department of Transport show total direct employment in the rail sector in 2008/09 to be 51,256[5]. This largely aligns with the total employment in the 20 train operating companies reported by the Office of Rail Regulation (as shown in the table below). This along with the ATOC estimate suggests that Network Rail is excluded from these statistics despite being a major employer in the sector with 36,138 employees in 2008/09[6]. The large employment number reflects Network Rail's extensive role to run, maintain and develop Britain's tracks, signalling system, rail bridges, tunnels, level crossings, viaducts and 18 key stations.

[4] Statistics quoted on website: http://www.atoc.org/
[5] Transport Bulletin, DfT, 2009
[6] Source: Network Rail Annual Accounts 2008/09

3.14 As the table shows, direct employment in the rail industry is well spread across the UK.

Employment by Train Operating Company 2008/09			
Operating Company	Direct Employment[1]	Operating Company	Direct Employment[1]
First Great Western	4,865	First Capital Connect	2,203
South West Trains	4,835	Arriva	2,083
Northern Rail Limited	4,770	East Midlands Trains	2,020
First ScotRail Limited	4,353	CrossCountry	1,632
Southern Railway	4,150	Merseyrail Electrics 2002 Ltd	1,150
Southeastern Railway	3,780	First TransPennine Express	1,013
Virgin Trains	3,282	London c/o Transport for London	827
National Express East Anglia	3,047	The Chiltern Railway Co Ltd	758
National Express East Coast	3,033	c2c Rail Limited	630
London Midland Limited	2,514	Gatwick Express Limited	300
Total			**51,245**

[1] *Source: National Rail Trends, ORR, 2008/09*

3.15 The table below summarises estimates for direct employment in the rail industry based on information provided by National Rail Trends, the Association of Train Operating Companies and Network Rail.

Category	High	Central	Low
Rail Industry – Direct Employment	**87,394**	**83,700**	**80,000**

Supply Chain Employment in Rail

3.16 As noted in previous research[7], the scale of the projects undertaken by the rail supply chain, especially those related to construction, vary considerably. This may depend for example on the type of line, the inclusion of tunnels and bridges, the density of building. A range of estimates of the national employment impact of the supply chain are therefore expected and are useful to take account of varying circumstances.

3.17 The diversity of the supply chain is demonstrated through the list of suppliers registered with the Railway Industry Association, which currently totals 161 companies, grouped into 29 different categories as listed in the table below. The companies include those which supply parts, set up and maintain the infrastructure and project management.

Rail Supplier Categories		
Break systems and components	Maintenance Contractors	Station Equipment
Clothing	Legal Services	Software and IT solutions
Components electrical / electronic	Notified Body	Switches and Crossings
Components rolling stock	Project Management	Corrosion Protection
Components signalling	Radio & Telecommunication	Door Systems
Components Track	Research	Fare collection and Ticketing
Electromagnetic compatibility	Training	Information systems
Condition Monitoring	Rolling Stock (Components, consultants, leasing, maintenance, manufacturers, workshop equipment)	
Consultants (Business, Engineering, Environment, Safety and risk, operations and transport)	Signalling and communications (systems and components)	Track (components, contractors, maintenance equipment)
Electrical / electronic cables and connectors	Electrification and power supply	Finance
Source: Railway Industry Association		

[7] Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997

3.18 The diversity of the supply chain and direct employment in rail is also reflected in the varied jobs roles which the Industry offers. This was highlighted in a recent training report by ATOC which showed that there is an equal number of rail and non-rail specific roles in the sector. Examples of the different job roles within the industry are set out below.

Jobs Roles in the Rail Industry	
Rail Specific	**Non- Rail**
1. Driver	1. Company management
2. Conductor	2. Sales & marketing
3. Engineering	3. Commercial
4. Station Staff Despatch	4. Property management
5. On-train staff (excluding drivers and conductors)	5. Administration
6. Booking Office	6. Finance
7. Train Planning	7. HR
8. Operational management	8. Procurement
9. Safety & Standards	9. Catering & Retail
Source: Association of Rail Operating Companies	

3.19 There are some aspects of the supply chain which are clearer, especially in relation to the building and leasing of rolling stock. There are four companies which are involved in train building in the UK (Alstom Transport UK Ltd, Bombardier Transportation, Hitachi Europe Ltd, Siemens Transportation Ltd) and three which lease rolling stock (Angel Trains, HSBC Rail UK Ltd, Porterbrook Leasing Company Ltd).

Employment in UK Train Building and Rolling Stock Lease companies	
Company	**Role**
Alstom Transport Ltd	Train Building
Bombardier Transportation	Train Building
Hitachi Europe Ltd	Train Building
Siemens Transportation	Train Building
Angel Trains	Lease Rolling Stock
HSBC Rail (UK) Ltd	Lease Rollin Stock
Porterbrook Leasing Company Ltd	Lease Rolling Stock

3.20 There are three estimates of the supply chain:

- ATOC estimates suggest that significant employment is generated through the rail supply chain, equating to around **90,000** employees.
- The Railway Industry Association confirm that there is no definitive figure for employment in the supply chain and currently estimates employment within the chain to be **70,000**, of which 47,000 of being employed by the Association's members[8]. This covers all positions from engineering through to consultancy. This is slightly lower than the estimate from ATOC, although it is based on employment which is completely rail related and does not include, for example, some engineering jobs where only a proportion of the output is rail related.
- The recent High Speed Rail Command Paper provides a further estimate of Supply Chain employment with reference to the UK rail industry employing around 190,000. With Network Rail and the TOCs excluded, this figure would suggest that over **102,000** are employed in the supply chain. The three figures together provide a high, central and low estimate of the supply chain, which generate an average of over 87,000.

3.21 It is also possible to gain a partial picture of the supply chain through analysis of the Standard Industrial Classification codes. There are two codes in particular that relate to the supply chain; the manufacture of railway locomotive and rolling stock and the construction of railways and underground railways. In 2008 the Annual Business Inquiry shows that the two

[8] Information obtained through a telephone consultation with the Railway Industry Association in February 2010

groups combined employed over 13,000. It is likely however that these also include employment which specifically relates to the light rail industry. The two additional codes which relate to rail; passenger rail transport and the repair and maintenance of transport equipment, are likely to cover those jobs already counted within the train operating companies, and possible some aspects of Network Rail.

Employment in the Rail Industry by SIC code	
	2008
Manufacture of railway locomotives and rolling stock	3,152
Construction of railways and underground railways	9,922
Repair and maintenance of transport equipment n.e.c.	11,732
Passenger rail transport, interurban	47,088
Source: Annual Business Inquiry, 2010	

3.22 The table below summarises estimates for supply chain employment in the rail industry based on information provided by the Association of Train Operating Companies, The Railway Industry Association and the High Speed Rail Command Paper

Category	High	Central	Low
Rail Industry – Supply Chain Employment	**102,600**	**90,000**	**70,000**

Summary

3.23 The train operating companies and network rail employ almost 87,400 in a range of roles from drivers, crew and platform staff to maintenance and engineering staff. The supply chain supported by these companies is extensive and very wide ranging from companies which provide rail and rail system components to those which provide project management and professional and specialist services such as legal advice.

3.24 Given the varied tasks undertaken by the supply chain, some of which are permanent, whilst others are temporary, it is difficult to provide an estimate of the employment in the UK rail supply chain. As such, three estimates have been provided by The Association of Train Operating Companies), the Railway Industry Association and the recent High Speed Rail Command Paper, which range from 70,000 to over 102,000 employees in the supply chain. These allow high (almost 190,000 employees), central (over 177,000 employees) and low (around 157,000) estimates of total employment to be generated, which are useful given the varied employment circumstances.

3.25 The table below summarises estimates for direct and supply chain employment in the rail industry based on information provided by the Association of Train Operating Companies, The Railway Industry Association and the High Speed Rail Command Paper.

Category	High	Central	Low
Rail Industry - Total Direct and Supply Chain employment	**189,983**	**173,700**	**157,383**

Employment in Light Rail

Total Employment in Light Rail

3.26 In 2008/09, almost 190 million passenger journeys were made using the light rail and tram systems in Great Britain, generating £160 million in passenger revenue. Patronage has more than doubled over the past ten years and there are now over 390 stops / stations[9].

3.27 As with rail, employment in light rail covers the operation of service, building, supply and maintenance of rolling stock, and the provision and maintenance of rail infrastructure. The latter is wide reaching and includes the manufacture and installation of track, track fittings, signalling, electrification equipment and the building and maintenance of stops.

3.28 The most recent statistics published by the Department of Transport show that the nine light rail systems across the UK account for over 2,700 jobs – essentially the direct employment within the sector. These jobs include operational staff such as drivers, conductors, staff at stations, and operational management, maintenance and administrative staff. The table shows that the spread of employment across the country.

Employment in Light Rail Systems 2008/09	
System	**Direct Employment[1] Supply Chain Total**
Tyne and Wear Metro	672
Docklands Light Railway	440
Manchester Metrolink	362
Sheffield Supertram	276
Midland Metro	160
Croydon Tramlink	180
Nottingham NET	185
Blackpool Tramway	108
Glasgow Subway	361
Total	**2,744**
Source: Transport Bulletin, DfT, 2009	

3.29 This includes drivers, on-vehicle/platform staff, maintenance staff and administration staff. This figure will increase in 2012 as the Edinburgh tram system becomes operational (an anticipated additional 930 permanent new jobs, and over 1,000 construction related jobs).

Category	High	Central	Low
Light Rail – Direct Employment	**2,744**	**2,744**	**2,744**

Supply Chain Employment in Light Rail

3.30 The Light Rail Forum's members consist of over 50 private sector organisations that design, build, supply, support and operate the trams and light rail schemes in the UK and worldwide, highlighting the diversity and potentially large scale of the supply chain. There is, however, very limited information available on the extent of the light rail supply chain.

3.31 Consultations with Bombardier and Alstom suggest the majority of rolling stock manufacture takes place outside the UK with Bombardier's production capabilities located in Vienna and Alstom's principally located in France. It is therefore expected that from a production point of view the effects on UK employment will be very limited. Supply chain employment in light rail is therefore likely to be focused more on assembly rather than production.

[9] Transport Bulletin, DfT, 2009

3.32 The complexity of estimating supply chain employment is highlighted in the following example which focuses on employment in the UK light rail industry through Bombardier.

Light Rail Supply Chain Case Study - Bombardier
Bombardier currently has five full time office staff which manages its five UK contracts (Manchester, Docklands, Nottingham, Croydon and Blackpool) for which they have assembled the stock and / or provided stock maintenance services. In the case of Docklands, the stock was assembled by Bombardier and this included locally sourcing and installing final components such as glass and flooring. All of this employment is temporary during the assembly period and is therefore difficult to extrapolate to or include in overall employment numbers.
Taking the current Manchester contract to provide 48 vehicles as an example, there are six on-site staff: 1 project manager, 1 planner, 3 employees which assemble the parts and 1 employee which is responsible for all of the administration related tasks for the contract. The number of employees increases to 11 when including staff which work in the depot whilst the parts are delivered.
The employment impact is also increased when maintenance services are contracted. This is typically longer term employment and depends on the size of the system and the level of maintenance required, again making it difficult to extrapolate to or include in overall employment numbers.
The consultations also highlight the varied jobs roles involved in the supply chain and make reference to the specialist capabilities that are also sourced outside the customer's or the suppliers own teams. For example, by commissioning external consultancies and legal firms to support procurement activity.

3.33 The assessment of the supply chain operating to serve the light rail industry is an area where further research is required. This may involve engaging with the light rail companies to assess their breakdown of expenditure, or to obtain details of their key suppliers and follow this up with more in-depth research of the supply chain.

3.34 Given some data limitations, it is necessary to use an estimate in order to calculate a figure for the supply chain. The study to estimate the economic impacts of the Nottingham NET scheme provided estimates referenced multiplier effects of 1.05, 1.12 and 1.20 depending on whether there are high or low local supply linkages. Taking the higher figure of 1.20, reflecting that the study is focused on assessing the supply chain within the UK, suggests supply chain employment of around 550. An estimate is provided for higher and lower estimates.

Category	High	Central	Low
Light Rail – Supply Chain Employment	700	550	400

Summary

3.35 Employment within the light rail industry is much smaller than within the rail industry, reflecting its presence in nine towns or cities. The sector has grown significantly over the past decade, and with new schemes such as the Edinburgh tram imminent its employment potential is likely to rise. Employment within the supply chain is limited given that the majority of the manufacturing employment is likely to take place outside of the UK. Further research with light rail organisations would be useful to understand the supply chain in more depth. The direct employment in operating companies of 2,744, combined with the supply chain estimate of circa 500 suggests a total over over 3,000 employees in the UK.

Category	High	Central	Low
Light Rail Industry – Total Direct and Supply Chain Employment	3,444	3,294	3,144

Employment in Buses and Coaches

Total Employment in Buses and Coaches

3.36 In 2008/09 over 5.2bn passenger journeys were taken on local bus services – a figure which has largely increased year on year over the past ten years.

3.37 Employment in the bus sector captures those involved in the operation of buses as well as those involved in the manufacture and maintenance of buses, and the provision and maintenance of bus infrastructure. The latter includes improvements to infrastructure, for example through new traffic management measures to give buses priority, and the upgrading of bus shelters and information provision. Many shelters across the UK are now installed with lighting, seating and innovative information displays.

3.38 The latest transport statistics published by the Department of Transport indicate that in 2007/08 the bus and coach services accounted for 173,800 FTE jobs. This includes drivers, on-vehicle/platform staff, maintenance staff and administration staff. It is assumed that these statistics reflect employment in the four large national bus operating groups (First Group, Stagecoach, Arrive, Go-Ahead) and five regional groups (National Express, Transdev, Kinch Group, Veolia Group, East Yorkshire Motor Sports).

Employment in Bus and Coach Services (FTEs)	
Job Type	**2007/08**
Drivers & Crew	131,900
Maintenance	20,900
Other	21,000
Total	**173,800**
Source: Transport Statistics Great Britain, DfT 2009 (Also Transport Bulletin, DfT, 2009)	

3.39 The statistics are broken down by job type which shows that three quarters of these jobs are bus drivers or crew. The number of buses and coaches is also published which allows an estimate of drivers and crew and maintenance per bus to be estimated, as shown in the table below.

Employment per Bus/Coach			
Job Type	**FTEs**	**Vehicle stock**	**FTE per vehicle**
Drivers & Crew	131,900	80,400	1.6
Maintenance	20,900	80,400	0.26
Source: ekosgen 2010, based on statistics from Transport Statistics Great Britain, DfT, 2009			

3.40 The bus industry is largest of the sustainable transport sub-sectors in terms of direct employment, accounting for over 170,000 direct employees, and employment is spread across the country to an even greater extent than the rail industry.

Category	High	Central	Low
Bus and Coach Industry – Total Direct Employment	**173,800**	**173,800**	**173,800**

Supply Chain Employment in Buses and Coaches

3.41 The bus supply chain is extensive. This is reflected in First's description of their supply chain with the website stating that it includes vehicle manufacturers, engine component suppliers, fuel suppliers, waste management contractors, cleaning contractors and catering contractors. Understanding this supply chain in more detail however, specifically its quantification, is extremely difficult. Discussions with key operators have revealed that

typically whilst the industry is supportive of a study which highlights its job creating potential, this quantification of the supply chain can prove difficult given:

- The operators do not generally hold detailed information about the employment within the sector supported by their immediate supply chain;
- Expenditure by sub-category is not be held in the same format by each of the operators;
- Operators are reluctant to release detailed expenditure information by category due to the commercially sensitive information which it includes;
- Expenditure on the supply chain varies significantly each year with significant peaks and troughs resulting from, for example, a one off upgrade of fleet.

3.42 These difficulties have meant that to date, only limited information has been received with regards to the supply chain of the bus industry. The tables below provide examples of the extent of employment by a number of the key operators.

Bus Operator Case Study - Stagecoach

Stagecoach UK Bus Division operates some 7,000 buses and coaches throughout the UK with 18,000 staff. Outside national and local government public transport is one of the country's most labour intensive industries. A single bus operating from 7.00am to 7.00pm (72 hours per week) requires around 2.5 drivers and 0.5 engineers and cleaners. Investment in expanded or new bus services is therefore an effective job creation scheme.

Unfortunately rising car ownership, use and congestion, and other financial pressures on bus operators are tending to reduce services and employment. In recent years Stagecoach had been successful in increasing its passenger numbers and services, but the economic recession has stopped, and in places reversed, this growth.

In addition to creating jobs, the industry also provides its staff with skills. Below is a brief summary of current Stagecoach training schemes.

- **Current engineering apprentice numbers = 156 (mechanical, bodyshop and electrical);**
- **Current Staff Development Programme numbers = 8 (2 engineers, 2 commercial & 4 operations).**
- **Current graduate trainees = 12 (11 operations & 1 engineering).**
- **S/NVQ = 11,733 drivers have completed the level 2 qualifications, with another 1,596 in progress. Currently 60.1% of our drivers hold S/NVQ.**
- **CPC = 30,318 training courses completed. This includes 114 courses run for 3rd party organisations.**
- **Current driver annual turnover = 15.1%.**

Bus Operator Case Study – Go Ahead

As part of Go ahead's approach to corporate social responsibility, information is published on the company's website relating to their economic contribution.

Key headline findings are set out below for 2008/09, with the 2007/08 figures in brackets:

- **Total average number of employees = 27,100 (27,500)**
- **Total gross salaries and benefits paid to employees = £865.3m (806.6m)**
- **Spend on UK goods and services = £1,367.1m (£1,209.2m)**
- **Amount generated in sales = £2,346.1m (2,199.1m)**
- **Amount contributed in taxes to the UK Government = £258.5m (251.3m)**
- **Amount created in value added = £644m (£570m)**
- **Total community expenditure by type = £0.27m.**

Bus Operator Case Study – First Bus

First Bus has around 26,500 employees and 9,000 buses. In 2008/09 the company invested £77m in new vehicles to support passenger growth, reduce environmental impacts and develop partnership opportunities in operating companies in Aberdeen, Bradford, Bristol, Eastern Counties, Glasgow, Hampshire and Dorset, Leeds, Manchester, South Yorkshire and York. A total of £28m was also invested in new buses to support contract wins in London.

The bus division has also:

- **First is fitting more and more buses with GPS tracker units, which use satellite technology to communicate with land-based computers. The information is then sent to displays at bus stops and shelters, which enable bus users to see what time the next bus will be arriving.**
- **First is to deliver modern, high quality vehicles supported by bus priority measures and other infrastructure improvements in partnership with local authorities through quality partnerships.**
- **These partnerships provide a range of traffic management schemes from bus lanes to priority at junctions, park and ride schemes and bus activated traffic lights to give buses priority over car traffic. One of these partnerships is the guided busway.**

Bus Operator Case Study – Bus Manufacturers

Alexander Dennis is Britain's biggest bus manufacturer, employing around 2,000 people at facilities in the UK, continental Asia and North America. In the UK, the principal manufacturing centres are Guilford (chassis), Falkirk and Scarborough (body). The company also has customer support operations which employ 300 people – HR department at Falkirk.

3.43 In order to provide an estimate for overall employment supported through the bus supply chain, the expenditure figures published by Go-Ahead are used as a benchmark for the other operating companies. The table below provides an estimate for the number of jobs supported in the supply chain by Go-Ahead.

Supply Chain Employment Estimates for the Bus and Coach Industry

Job Type	2007/08	2008/09	Average
Total Go-Ahead Employees	27,500	27,100	27,300
Company Expenditure on UK Goods and Services	£1,367.1m	£1,209.2m	£1,288.2m
Approximate GVA arising from company Expenditure on UK Goods and Services	£648.3m	£573.4m	£610.8m
Estimate for employment Supported by Expenditure on Goods and Services	13,768	12,178	12,973
Ratio of employment to supply chain employment	0.50	0.45	0.48

Source: http://corporateresponsibility.go-ahead.com/default.asp?pageid=23 and ONS (uses average GVA per fte as £47,087)

Note: GVA has been estimated as 47.42% of Expenditure, using BIS rail supply chain figures as a benchmark

3.44 Using the supply chain ratio of 0.48, calculated on the basis of GVA of £47,087 per FTE, the table below estimates that supply chain employment within the UK bus industry equates to 82,587.

Employment in Bus and Coach Services (FTEs)	
Category	**Total**
Total employment in Bus and Coach Services	173,800
Average Ratio of employment to supply chain employment	0.50
Total Bus & Coach Supply Chain Employment Estimate	82,587
Source: Transport Statistics Great Britain, DfT 2009 (Also Transport Bulletin, DfT, 2009), www.go-ahead.com and ONS	

3.45 A key feature of the supply chain within the bus industry however is the likely peaks and troughs in expenditure depending on the need to make major one off expenditures, for example on a new bus fleet or bus station. Consequently an estimate for a high and low figure is also provided below.

Category	High	Central	Low
Bus and Coach Industry – Total Supply Chain Employment	**110,000**	**82,587**	**50,000**

Summary

3.46 The bus and coach industry is a major employer within the sustainable transport sector, with over 170,000 people employed mainly by the major operating companies as drivers, maintenance, management or administrative staff. Information on the supply chain of bus operators have traditionally been difficult to quantify and detailed work with operating companies to understand in more detail their expenditure patterns and the location of their main suppliers would provide greater certainty regarding supply chain figures. However estimates have been provided on the total direct and supply chain employment which may be supported by the bus industry as set out below.

Category	High	Central	Low
Bus and Coach Industry – Total Direct and Supply Chain Employment	**283,800**	**256,387**	**223,800**

Employment in Cycling

Total Employment in Cycling

3.47 Employment in the cycling industry is largely generated through the provision and maintenance of cycling infrastructure by the public sector, and the manufacture, sale and maintenance of bicycles. There are also cases where there may be private investment in cycle infrastructure, for example, employers, retailers, leisure services and transport services investing in cycling parking, storage, security and possibly cycle ways, although this is difficult to quantify[10].

3.48 Previous research has shown that there is no precise total employment figure for the sector. The Bicycle Association has previously estimated that around 20,000 people are employed in the UK cycle industry with the majority in retail and distribution businesses. The Association of Cycle Traders has recently carried out a survey of their 900 members, which included employment related questions. The key findings are summarised below[11]:

- 37.5% employ 1-2 people; 33.5% employ 3-4 people; 7% employ 9 or more;
- 60% staff are cytech qualified;
- 42% of the shops have 1 person which works solely in the workshop;
- 26% have 2 or more people in the workshop;
- 22% just have one person which does everything – it is common for staff in the cycle shops to multitask between maintenance and sales;
- The industry has a high staff turnover – although staff usually move from one shop to another;
- The turnover is linked to competition over wages – the average salary of a bike mechanic is £14,000; and
- There are a few big organisations with multiple branches for example, Halfords, Evans, Edinburgh Bicycle Cooperative, Leisure Lakes, Cycle Surgery (part of Snow and Rock).

3.49 The Association estimate that there are around 2,000 bicycle shops in the country, with the vast majority offering maintenance services as well as selling bicycles.

Category	High	Central	Low
Cycling Industry – Total Direct Employment	20,000	20,000	20,000

Supply Chain Employment in Cycling

3.50 In terms of the supply chain which supports the shops, the Association report that the majority of bicycles are manufactured abroad, this is confirmed through analysis of the Standard Industrial Classification Codes which show that only 843 people were employed in the manufacture of bicycles in Great Britain in 2008. The most relevant supply chain activity is therefore distribution, which includes large companies such as Madison and Fisher, which have quite large call centre operations in Great Britain.

3.51 It is much more difficult to quantify employment in the provision and maintenance of cycling infrastructure, with the reasons being very similar to those for road construction and maintenance:

- There are a lot of organisations, particularly those which provide technical capabilities, which work on the periphery of transport;

[10] *Less Traffic, More Jobs: The Direct Employment Impacts of Developing a Sustainable Transport System in the UK, Friends of the Earth Ltd, 1997*

[11] Obtained through a telephone consultation in March 2010

- The majority of maintenance work is commissioned by Local Authorities making it difficult for employment to be tracked centrally;
- Many of the jobs, particularly related to the construction of cycle paths, are temporary and therefore difficult to track on an annual basis; and
- Similarly, those which are involved in the construction of cycle paths are also likely to work on other contacts for example road construction or non-transport related construction.

3.52 Sustrans are involved in the maintenance of greenways and have significant obligations in the North West from the early work of constructing greenways mostly on derelict rail formations. All of the area managers have maintenance duties within their workload, which provide an indication of the cost of and employment supported by specific greenway schemes in both rural and urban areas. These are outlined in the table below

Examples of the Employment Generated by the Maintenance of Cycleways				
Route	**Route Details**	**Wardens/Labourers**	**Annual Routine Maintenance Expenditure**	**Notes**
The Cumbria Network	30km, mostly rural	1 FT Warden	£110k, £3,700/km/year Of which £1,000/km/year on wages	Includes central support and area managers time
Liverpool Loop Line	16km, dense urban residential	2 FT Wardens, 1 PT Labourer	£110k, £6,900/km/year Of which £2,500/km/year on wages	Includes central support, but excludes area manager's time
Manchester Fallowfield Path	12km, urban through residential, open space	1 FT Warden, 1 PT Labourer	£60k, £5,000/km/year Of which £1,600/km/year on wages	Includes central support, but excludes area manager's time
Chester Greenway	15km, small town urban, and open countryside	1 PT Warden, 1PT Labourer	£60k, £4,000/km/year Of which £1,200/km/year on wages	Includes central support, but excludes area manager's time (estimate of area managers time: £700/km/year)
Derby Area Greenways (maintained by team in Crewe office)	27km, mix of urban fringe	1 Warden, 1 Labourer	£90k, £3,300/km/year Of which £1,700km/year on wages	Includes central support, but excludes area manager's time (estimate of area managers time: £200/km/year)
Note: these routine costs do not take into account any more major works, such as long lengths of resurfacing, bridge works or bank slips, fencing, more extensive landscaping etc				

3.53 The total length of the UK cycle network, managed by Sustrans, is estimated to be 16,000 km. Taking account of the above examples, it could be estimated that 8.5 jobs are supported per 100 km route. Using this information, the UK Cycle Network can be estimated to support 1,360 jobs.

3.54 In addition to the UK Cycle Network, provision must be made for the employment generated through local authority expenditure on the maintenance of cycleways within local authority areas but outside of the UK Cycle Network. Expenditure on cycleways is allocated through the Local Transport Plan Process. The expenditure allocated to cycling schemes

varies substantially. An analysis of a sample of Local Transport Plans covering 20 rural and urban authorities showed that an average of £210,000 per year is spent by local authorities on cycling infrastructure across the UK. Using the same assumptions as set out in the supply chain analysis for the bus and coach industry (GVA as 47.42% of expenditure and average GVA per fte of £47,087), this would equate to approximately 2.11 fte jobs supported in each local authority in the UK through additional expenditure on the cycleways. This equates to 802 FTE jobs across the 380 local authorities.

3.55 The table below provides estimates for employment within the cycling supply chain sector taking into account figures for the manufacturing of bicycles, the maintenance of the National Cycling Network and additional local authority expenditure through the Local Transport Plan process.

Category	High	Central	Low
Cycling Industry – Total Supply Chain Employment	3,500	3,005	2,500

Summary

3.56 The employment potential of the cycling sector has become increasingly important over recent years following the construction of the National Cycling Network and increasing provision of cycling infrastructure across the UK. Employment results from the manufacture, sale and maintenance of bicycles and the provision and maintenance of cycling infrastructure. The table below shows that total direct and supply chain employment within the sector is estimated to be between 22,500 and 23,500 jobs.

Category	High	Central	Low
Cycling Industry – Total Direct and Supply Chain Employment	23,500	23,005	22,500

Employment in Walking

3.57 The introduction of high quality public realm to the UK's towns and cities is increasingly been seen as vital to creating attractive and safe environments that people want to live and work in. A number of major UK towns and cities, notably Sheffield, Birmingham and Liverpool have used major public realm improvements as a catalyst for the wider regeneration and urban renaissance of the urban core. These schemes have been used to address issues set out within the landmark Towards and Urban Renaissance[12] report which set out a vision of sustainable regeneration of our towns and cities through making them compact, multi-centred, live/work, socially mixed, well designed, connected, and environmentally sustainable.

3.58 The delivery of these town and city centre schemes creates employment opportunities, both in the maintenance and construction phases. For example, in Sheffield there is a City Centre management team whose responsibilities include managing public and maintaining the city centre's public space, providing a safe environment for local people and businesses and delivering a city centre events programme. Local authorities also make wider investments in paths and walkways across their boundaries. Again these create employment opportunities in construction and maintenance phases.

3.59 For both of the above examples, there are also likely to be employment generated through the supply chain. This would include the manufacture of paving materials, lighting and street furniture as well as the repair and maintenance of public realm. It is however difficult to accurately attribute total employment to such interventions. A particular issue is the differentiation of public realm as a destination and public realm as a form of sustainable transport through better connecting people and places.

3.60 In summary, whilst employment associated with walking is likely to be generated through the construction and maintenance of paved areas and footpaths, it is likely to be modest. It is, however, likely to increase as sustainability policies become realised, although out of town business parks and suburbanisation will impact on the likelihood of people walking to work. Given the difficulties in estimating impact and the low numbers likely to be involved, for the purpose of this report, the employment impacts of this sub-sector have been excluded from the overall analysis of employment in the sustainable transport sector.

[12] *Towards an Urban Renaissance* published in 1999 by the Urban Task Force, marked a major shift in thinking and practice in urban policy.

Conclusions

3.61 This chapter has attempted to pull together estimates for the overall direct employment and immediate supply chain employment within the sustainable transport sector. Significant primary research, especially with supply chain companies to understand in greater detail the employment impacts of the sustainable transport sector would be beneficial in clarifying the figures.

3.62 It is however clear that the sector is a major employment generator, with hundreds of thousands of people employed by either the bus or rail industry in particular and a similar number of employees dependent on the sector through supply chain employment. Given the nature of the sector, employment benefits arise across the country, although further work would need to be undertaken to break down the direct and supply chain employment by region.

3.63 The table below provides the high, central and low estimates for employment within the sector.

Overall Employment in the Sustainable Transport Sector			
Category	**High**	**Central**	**Low**
Rail Industry – Total Direct Employment	87,394	83,700	80,000
Rail Industry – Total Supply Chain Employment	102,600	90,000	70,000
Light Rail Industry – Total Direct Employment	2,744	2,744	2,744
Light Rail Industry – Total Supply Chain Employment	700	550	400
Bus & Coach Industry – Total Direct Employment	173,800	173,800	173,800
Bus & Coach Industry – Total Supply Chain Employment	110,000	82,587	50,000
Cycling Industry – Total Direct Employment	20,000	20,000	20,000
Cycling Industry – Total Supply Chain Employment	3,500	3,005	2,500
Overall Sector – Total Direct Employment	283,938	280,244	276,544
Overall Sector – Total Supply Chain Employment	216,800	176,142	122,900
Overall Sector – Total Employment	**500,738**	**456,386**	**399,444**

3.64 It is likely that more detailed research would see these estimates increase, although the excercise would require a high degree of cooperation from transport operators and primary research with the supply chain.

4 Conclusions

4.1 This research begins to provide evidence that the sustainable transport sector is a major employer in the UK. Such evidence can sit alongside existing research on the wider benefits of the sector to further highlight its importance to the UK economy. Evidence from previous studies suggests that the employment impact of rail and bus services is considerable and that increasing public transport journeys at the expense of car journeys would result in additional employment. The review of previous research also provides useful examples where direct job benefits have resulted or could result from investment in walking, cycling and public transport schemes and initiatives.

4.2 The extent to which relevant information - particularly relating to supply chain employment - is available varies greatly by sub-sector, with information relating to the rail sector clearly being the most advanced. Nevertheless, preliminary estimates for overall employment in the sector have been made. Using the central range, this suggests the sustainable transport industry provides over 450,000 jobs (this would increase to just over 500,000 if the high estimates were used).

Total Employment in Sustainable Transport Sector			
Mode	**Direct**	**Supply Chain**	**Total**
Bus / coach	173,800	82,587	256,387
Train	83,700	90,000	173,700
Cycling	20,000	3,005	23,005
Light Rail	2,744	550	3,284
Total	**280,244**	**176,142**	**456,386**

4.3 As anticipated given their share of passenger numbers, the train and bus / coach sector account for the vast majority of employment within the sector. A key factor which has become apparent across all modes is the diversity of the jobs in each of the sub-sectors which all offer a wide variety of transport and non-transport related roles. In addition, given the nature of the sector, employment is spread across the UK.