Station Travel Plans:
Data Analysis Report

ATOC
Association of Train Operating Companies

Passengerfocus
putting passengers first

RSSB

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This publication can be accessed via the Station Travel Plans website www.stationtravelplans.com

Introduction

What is a travel plan?

A travel plan is an initiative that falls in the category of "smarter transport choices" and includes workplace and school travel plans, personalised or individualized travel planning, public transport information and marketing, teleworking, teleconferencing and home shopping.

A travel plan is defined by the government as follows:

"A strategy for managing the travel generated by your organization, with the aim of reducing its environmental impact… [typically involving] support for walking, cycling, public transport and car sharing."

(Department for Transport)

Local Authorities frequently require a travel plan to be produced by businesses as part of a planning application for a larger or expanded site. Essentially, in return for granting planning permission, companies must commit to managing car travel to the site to avoid increased traffic congestion.

The other main application of travel plans is in schools and the public sector – the government is providing grant funding to help all primary schools develop a travel plan by 2010, and many council offices and hospitals already have them in place.

Why station travel plans?

Travel plans can help ease capacity problems at station car parks. Increasing demand for rail travel has led to an increase in demand for parking at stations and car parking is a major issue with passengers. Car parking provision fared poorly in the National Passenger Survey undertaken by Passenger Focus, achieving a 44% satisfaction score in Autumn 2009.

Train Operation Companies (ATOCs) and Network Rail are constantly looking to increase car parking capacity. However in many cases it is simply impossible to create enough parking places to meet demand. Further, in some cases Local Authorities refuse planning permission for a bigger car park: Stations are traffic generators and many Local Authorities are keen to reduce congestion and environmental issues associated with car travel to stations.

How could a station travel plan work?

A station travel plan would essentially do two things: make better use of existing car park space and promote alternative modes of travel to the station. Possible elements include providing better cycling provision, improving pedestrian and bus access, and promoting greener modes of travel. These are simply initial suggestions - every station has different issues, and the decisions about which measures to introduced must be taken locally and collaboratively. It is key to have joint working between TOCs, Network Rail and, crucially, Local Authorities.

About the pilot programme

The Railways White Paper 2007 proposed that the rail industry work with local authorities and other stakeholders to pilot station travel plans. Following the White Paper's publication, Association of Train Operating Companies (ATOC) invited TOCs, Local Authorities, Passenger Transport Executives (PTEs), Network Rail to propose stations to include in the pilot programme. ATOC has also convened a multi-stakeholder National Steering Group, Chaired by David Mapp, Commercial Director, to select the pilots and agree a workplan.

Over 70 applications were received, of which 24 pilots were selected, corresponding to 31 stations. A variety of station sizes and types were selected, across England and Wales. For a list of pilots and details on the plans they are developing please see www.stationtravelplans.com

Introduction to the data analysis report

The National Station Travel Plan Steering Group agreed four key objectives for the pilot programme. These are:

- evidence of modal shift from car travel to sustainable modes for travel to / from the stations as a result of the station travel plan;
- more rail passengers using station as a result of the station travel plan;
- CO2 emissions from passenger travel to / from station reduced as a result of the station travel plan; and
- improved customer satisfaction with end to end journeys as a result of the station travel plan.

The Steering Group then agreed to commission consultants to carry out research to set baseline figures for the pilot stations, against which to measures progress. Following a competitive tender, Steer Davies Gleave (SDG) were selected to carry out this research, the results of which are presented in this report.

The additional goal of the research was to develop a "research toolkit" for stakeholders who were considering developing a Station Travel Plan of their own, separate form the pilot programme. This toolkit is published separately on the www.stationtravelplans.com website. The toolkit and the research project were jointly commissioned by RSSB, ATOC and Passenger Focus, all of whom also made important contributions to the development of the toolkit.

RSSB, Passenger Focus and ATOC hope you find this guidance useful, and hope that it helps the promotion and further development Station Travel Plans across the rail network.

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1.2 Success of the programme is to be measured against four criteria:

- evidence of modal shift from car travel to sustainable modes for travel to / from the stations as a result of the station travel plan;
- more rail passengers using station as a result of the station travel plan;
- CO2 emissions from passenger travel to / from station reduced as a result of the station travel plan; and
- improved customer satisfaction with end to end journeys as a result of the station travel plan.

1.3 This latter criterion has been refined to focus on that portion of the journey over which a station travel plan could impact; namely access to the station.

1.4 During October and November 2008 travel surveys were conducted with passengers at the 31 stations participating in the pilot programme to collect information on how passengers currently travel to / from rail stations and identify opportunities to better manage access.

1.5 This report outlines how data collected through the passenger surveys will be used to calculate baseline data for each participating station against which success of the national pilot programme can be measured over time. It also provides baseline results for the 31 stations against each of the four criteria.

1.6 Face-to-face interviews were the primary data collection method. As a general rule, face-to-face surveys provide better quality data compared to other methods. The trained interviewer can ensure the questionnaire is completed as intended and can take steps to maximise the response rate. Measures can also be put in place to ensure those surveyed are representative of all passengers using the station.

1.7 Postcard (short self completion) and online surveys were used to top up or supplement the face-to-face surveys.

1.8 The face-to-face surveys were conducted to plan and the specified minimum sample size secured at each pilot station as shown below at table 1.1. Whilst not needed to calculate baseline data, responses to the additional online and postcard surveys may be used to inform development of station travel plans.

Leeds station

1.9 Passengers at Leeds station, one of the 31 pilot stations, were surveyed in October as part of a major Origin and Destination (OD) study and this data has been used to calculate baseline values for this pilot. No additional travel plan interviews were conducted at Leeds station, though responses to the national pilot programme online survey were invited.

TABLE 1.1 SURVEY RESPONSE RATES

	Face to face				Postcard	Online	OD survey
Station	Minimum sample size	Achieved sample	Achieved strike rate	Interview shifts	Responses received	Responses received	Responses received
Accrington	85	95	48	1wd 1we	2	21	
Ashford	250	272	45	4wd 2we	2	42	
Bristol Parkway	250	255	51	3wd 2we	10	105	
Chandlers Ford	76	83	42	1wd 1we	1	9	
Chapeltown	68	76	38	1wd 1we	26	9	
Colchester	500	548	46	8wd 4we	31	94	
Darlington	250	277	55	3wd 2we	11	168	
Derby	250	274	55	3wd 2we	24	97	
Digby and Sowton	78	87	44	1wd 1we	8	11	
Durham	250	277	50	2.5wd 3we	3	486	
Eastleigh	250	263	53	3wd 2we	85	85	
Hatfield	250	273	55	3wd 2we	85	85	
Hazel Grove	137	172	43	3wd 1we	85	85	
Hebden Bridge	144	157	52	2wd 1we	85	85	
King's Norton	157	171	57	2wd 1we	85	85	
Leamington Spa	250	248	50	3wd 2we	8	45	
Leeds	n/a	n/a		n/a	n/a	2265	4344
Leighton Buzzard	250	277	46	4wd 2we	11	40	
Loughborough	250	276	46	4wd 2we	0	346	
Middlesbrough	250	277	55	3wd 2we	10	35	

	Face to face				Postcard	Online	OD survey
Station	**Minimum sample size**	**Achieved sample**	**Achieved strike rate**	**Interview shifts**	**Responses received**	**Responses received**	**Responses received**
Milton Keynes	450	498	50	6wd 4we	0	92	
Romsey	142	167	48	2.5wd 1we	12	21	
Shotton	60	67	34	1wd 1we	2	8	
Southend Central	250	270	54	3wd 2we	9	246	
Southend Victoria	400	446	41	7wd 4we	11	12	
St. Albans City	250	274	39	5wd 2we	22	32	
St. Albans Abbey	79	87	44	1wd 1we	1	8	
St. Denys	80	94	37.60	1.5wd 1we	2	8	
Stoke-on-Trent	250	273	54.60	3wd 2we	7	69	
Thornaby	152	216	54	3wd 1we	1	21	
Truro	250	249	50	3wd 2we	15	65	
TOTAL NUMBER OF RESPONSES		6999			272	4597	

2 Analysis for baseline data

2.1 Results for each of the four success criteria along with demographic data have been calculated for each station in the pilot programme and benchmarked against the results for the programme as a whole. This chapter sets out the analysis process.

Modal shift

2.2 Comparing mode share in one survey period to another enables one to draw conclusions regarding modal shift particularly when considered alongside results from benchmark stations. Additional research is required to understand the reasons for any observed change and the role played by the station travel plan.

2.3 Mode share has been calculated for each pilot station based on the respondent's stated main mode of travel to/from the station, where main mode was defined as the mode used for the greatest distance of the journey as determined by the respondent. For the alternative Leeds survey respondents were asked to specify one travel mode for the trip to / from the station.

2.4 To avoid ambiguities of terms such as 'usual' and 'typical' (which are open to interpretation) respondents were asked about travel on the day of interview.

2.5 Using main mode as an estimate for mode share does not overburden the respondent (and impact upon response rates) by asking about every journey leg.

2.6 This method however does not provide a complete 'picture' of mode share and may not pick up minor changes over time. Increases in walk or cycle legs of longer multi-mode journeys, for example, may not be recorded, though an increase in the use of sustainable modes for even a portion of a journey to /from the station may demonstrate success of the travel plan.

Volume of rail passengers

2.7 Passenger usage statistics published annually by the Office of Rail Regulation (ORR) have been used as an estimated measure of the volume of rail passengers entering and exiting at each station. The most recent dataset available 2006/7 has been reported.

2.8 Existing passenger usage data has been used as a cost effective measure of passenger volumes, as the data required had to meet the following criteria:

- consistency in collection methods across all stations in the pilot programme
- the data is regularly updated; available year on year
- any changes in the data collection and calculation method can be tracked and the necessary adjustments made to pre or post programme figures.

2.9 The ORR passenger usage data set is produced using ticket sales data from LENNON. A report accompanies each data set and broadly explains the calculation method and any changes in these procedures year on year.

Carbon dioxide emissions

2.10 Carbon dioxide (CO2) emissions for each station are calculated from mode of travel and distance travelled between the station and local origin / destination. Average emissions for each mode have been used, as detailed below. These take into account the traffic conditions under which journeys may be made, engines, fuels and other variables.

2.11 Whilst relatively few respondents provided full postcode data, significantly more supplied partial postcode data. Origin (for respondents waiting for a train) or destination (for passengers exiting the station) was thus calculated using the middle point of the postcode district (e.g. SE4 3) as the averaged origin / destination.

2.12 Of those respondents that supplied a suitable complete or partial postcode, journey distance between the station and the origin / destination postcode was calculated to produce an average distance travelled for each mode.

2.13 Average carbon dioxide emissions per kilometre figures (see below) were then applied to produce emissions per average journey by mode. To calculate an annual CO2 emissions figure for the station, results were weighted by the mode share for the station and adjusted to the ORR annual passenger volume data.

TABLE 2.1 EMISSION VALUES

Travel Mode	Kilograms of CO2 per passenger kilometre
Walk	None
Cycle	None
Car – drove alone	0.2075
Park and ride	0.1483
Car share	0.1038
Car drop off / pick up	0.2075
Rail	0.0540
Taxi	0.2635
Motorcycle	0.1067
Bus / Coach /Tram	0.0891

Calculating emissions values

2.14 Emission figures for all modes except rail are sourced from the Department for Transport (DfT) and AEA Energy & Environment, 2007. Data on rail emission per passenger kilometre have been supplied by the Association of Train Operating Companies (ATOC). The text below describes the rationale provided by AEA and DfT for their calculations.

Car travel (drove alone)

2.15 Factors are estimated average values for the UK car fleet in 2005 travelling on average trips in the UK.

2.16 They are calculated based on data from the Society of Motor Manufacturers and Traders Ltd on new car CO2 emissions from 1997 to 2005 combined with factors from the Transport Research Laboratory as functions of average speed of vehicle derived from test data under real world testing cycles and an uplift of 15% agreed with DfT to take into account further real-world driving effects on emissions relative to test-cycle based data.

2.17 Real world effects not covered in regular test cycles include use of accessories (air con, lights, heaters, etc), vehicle payload (only driver +25kg is considered in tests, no passengers or further luggage), poor maintenance (tyre under inflation, maladjusted tracking, etc), gradients (tests effectively assume a level road), weather, harsher driving style, etc.

Park and ride

2.18 Park and ride journeys are generally comprised of a bus and private vehicle leg. CO2 emissions per kilometre of a park and ride journey are assumed to be comprised of 50% emissions from bus travel and the remaining 50% from car (drove alone) travel.

Car share

2.19 In calculating emissions generated by car sharers it has been assumed that all passengers commenced / concluded the journey at the same origin / destination and that on average two people travel in the shared car. CO2 emissions generated by carsharers are thus assumed to be half that for those that drove alone.

Car pick up / drop off

2.20 CO2 emissions generated by car pick up / drop off journeys are equal to those generated by drive alone journeys.

2.21 It is assumed that 50% of all drop-off / pick-up journeys are made as part of a longer journey. For these journeys, half of the CO2 emissions produced during the drive between the station and origin / destination are attributed to the rail passenger.

2.22 The remaining 50% of journeys, it is assumed, are made solely for the purpose of ferrying the passenger to the station. The driver (non passenger) would, for example, return to the origin once the drop off is made. These pick-up/drop-off journeys are thus return trips. Twice the distance is travelled.

Taxis

2.23 CO2 emissions generated by taxis are calculated using same source data as for private vehicles, outlined above.

Emissions factors for motorcycles

2.24 Motorcycle emissions figures are based on calculations of average emissions data by size category, based data reproduced from ACEM (European Motorcycle Manufacturers Association) and from the European Commission's Joint Research Centre.

Bus

2.25 Bus factors are based on average CO2/km emissions for all bus class and journey data as reported in the UK Greenhouse Gas Inventory. An average load factor of 9.2 passengers per bus vehicle has been used based on total bus vehicle km and passenger km data from Transport Statistics Great Britain.

Customer satisfaction

2.26 This criterion focuses on access to the station. Respondents were asked to rate on a scale of one to five their satisfaction with the ease of travelling to and from the station.

2.27 The metric used for comparison is the percentage of respondents who are Very or Quite Satisfied with the ease of travelling to the station (1 or 2 on the scale of 1 to 5). This 'top two box' approach is again consistent with the National Passenger Survey.

2.28 For Leeds station, results from the Passenger Focus National Passenger Surveys (Spring 2008) have been used. This bi-annual survey measures customer satisfaction with the end-to-end journey including the satisfaction with the station environment, customer service and the train leg of the journey. The customer satisfaction value for Leeds is thus not directly comparable with customer satisfaction values calculated for other stations in the pilot programme.

3 Baseline survey results overview

3.1 In this chapter we provide a brief overview of the results from the baseline survey, focussing on the four evaluation criteria. Full results can be found in the Appendix.

Modal shift

3.2 The mode shares for all the pilot stations are shown in Figure 3.1, whilst a summary is provided in Figure 3.2 which shows the range of values for each mode. Overall, walk was used by 45% of respondents, car dropped-off ("kiss and ride") by 17%, bus 13%. Nine percent of survey respondents drove alone to / from the station. However, the shares vary very substantially between the stations. Walk mode share varied from 14% (at Stoke-on-Trent) to around 80% at Digby & Sowton and Leeds.

3.3 Single occupancy car travel was relatively high (over 10%) at: Hazel Grove, Bristol Parkway, St Albans City, Ashford, Digby and Sowton, Chandlers Ford, Leighton Buzzard, Hatfield, and Durham Kings Norton.

FIGURE 3.1 MODE SHARES

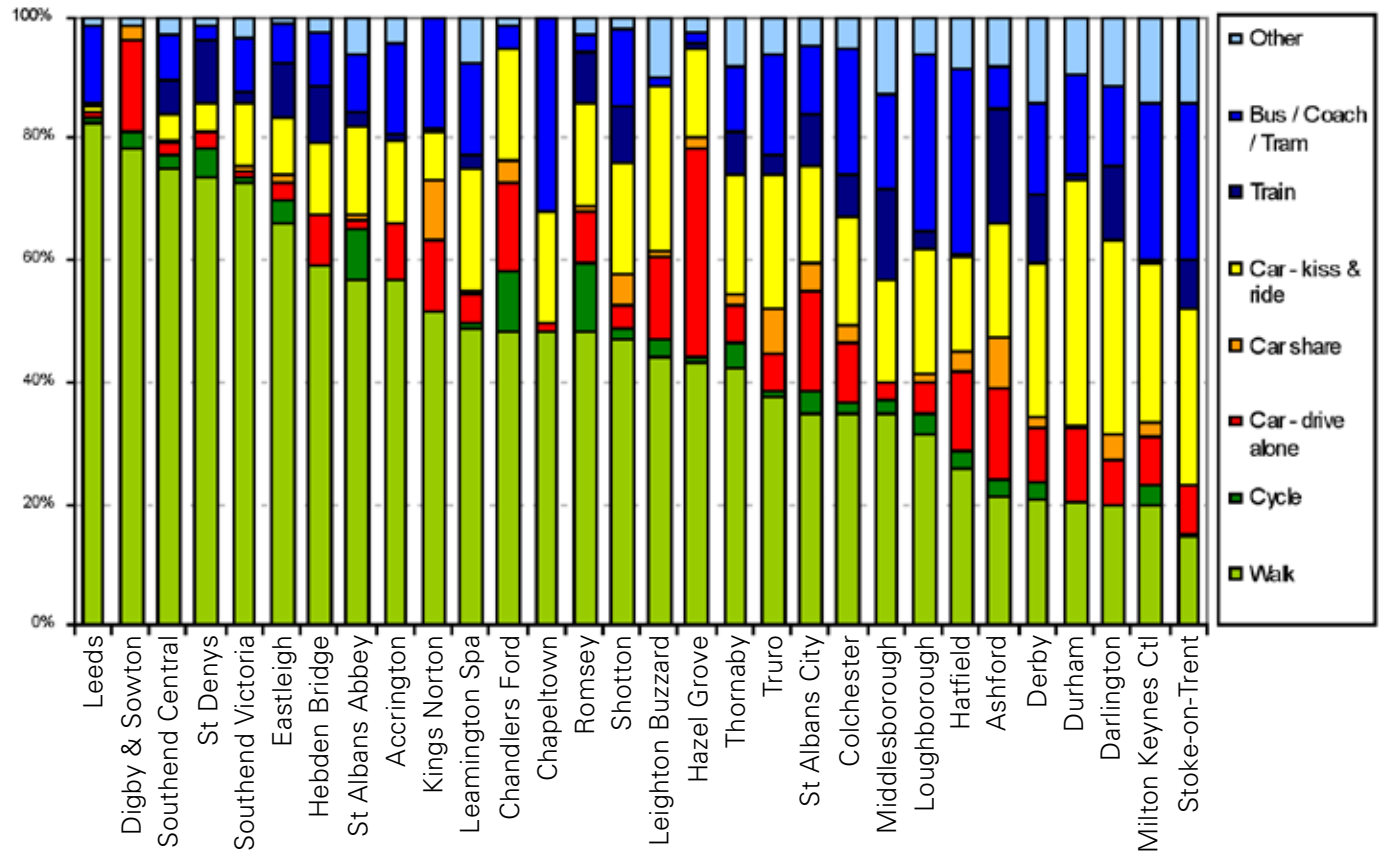
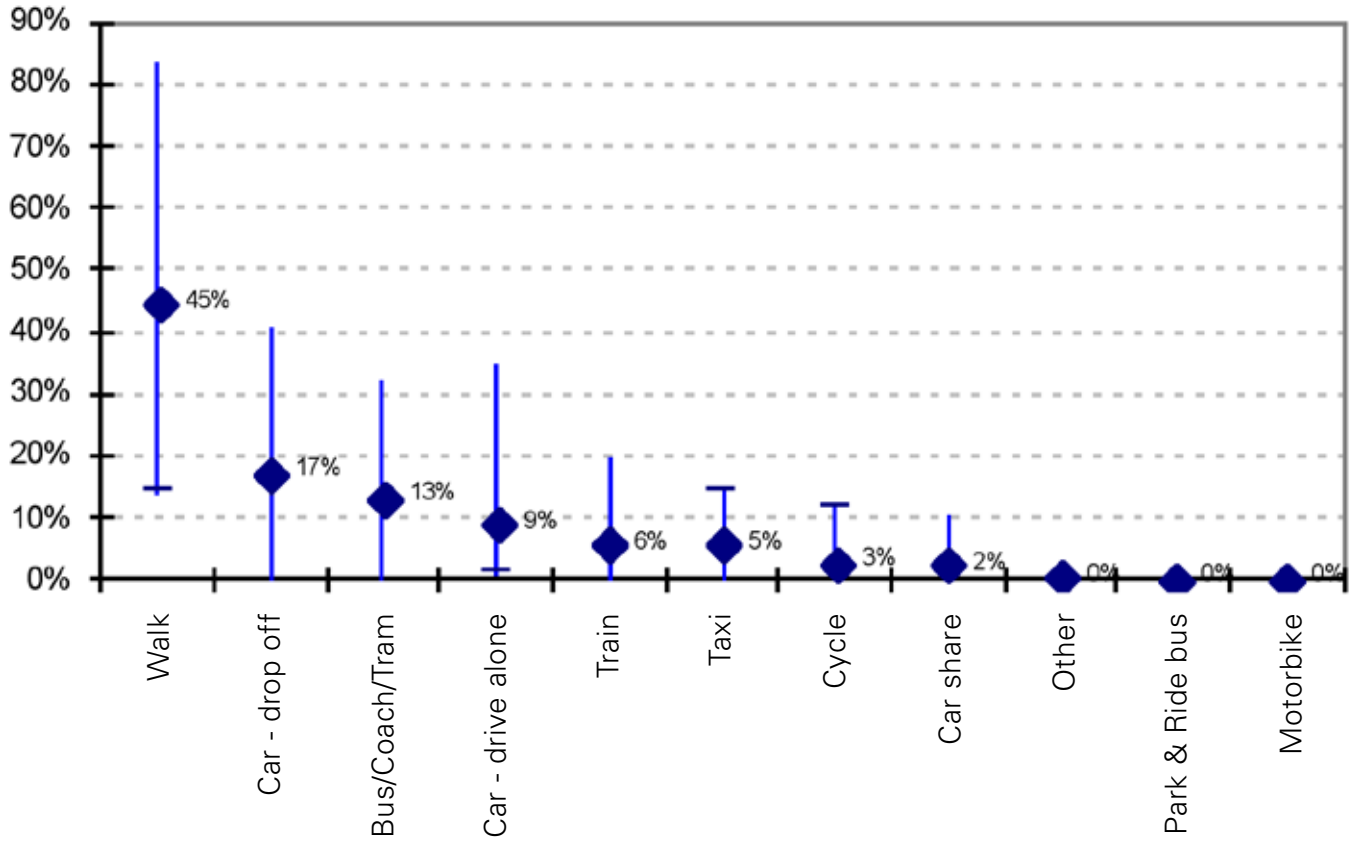


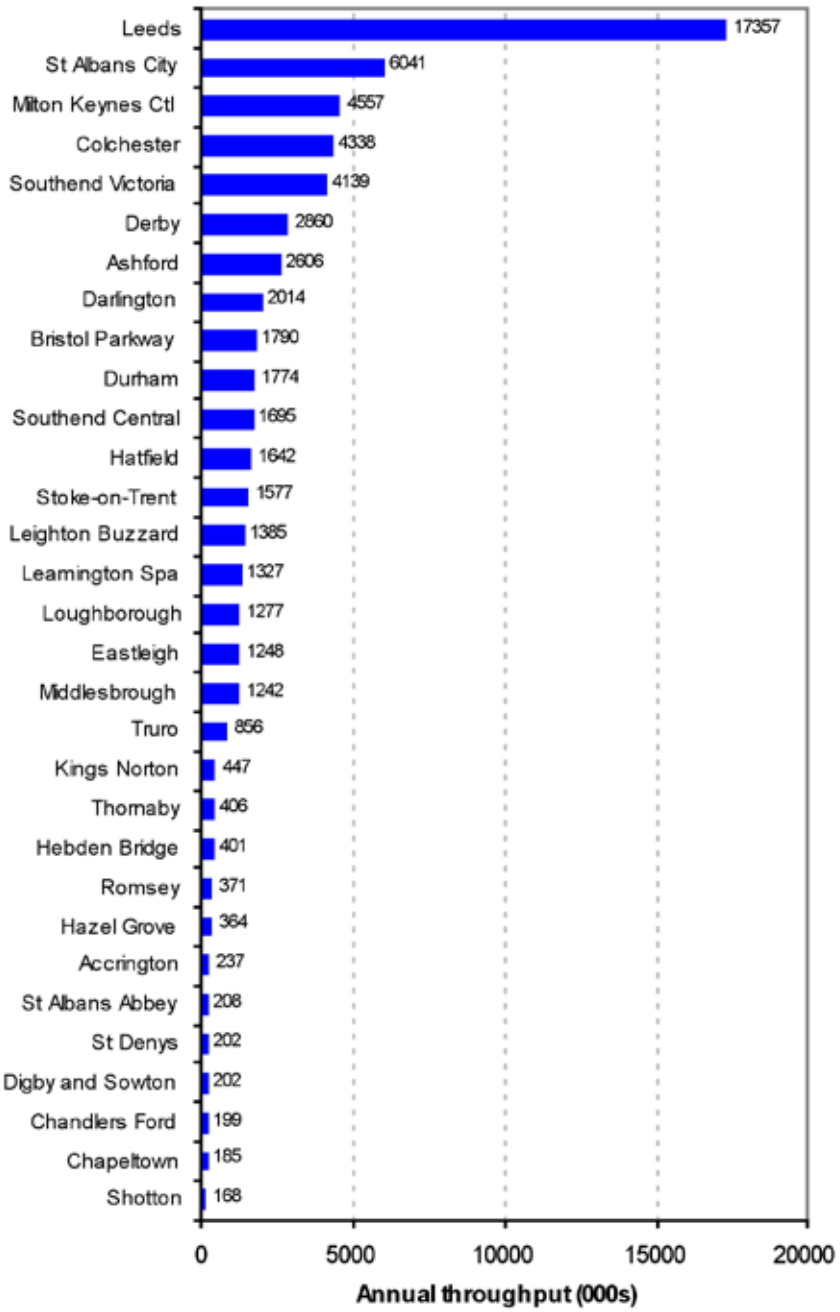
FIGURE 3.2 MODE SHARE RANGES AND MEANS



Volume of rail passengers

3.4 The ORR data on passenger volumes at the pilot stations is illustrated in Figure 3.3. Leeds is by far the busiest station, with an annual throughput of over 17million. In contrast, Shotton, Chapeltown, Chandlers Ford, Digby and Sowton, St Denys, St Albans Abbey, and Accrington all have fewer than 250,000 passengers a year, or around 240 to 320 passengers boarding during an average day.

FIGURE 3.3 PASSENGER VOLUMES

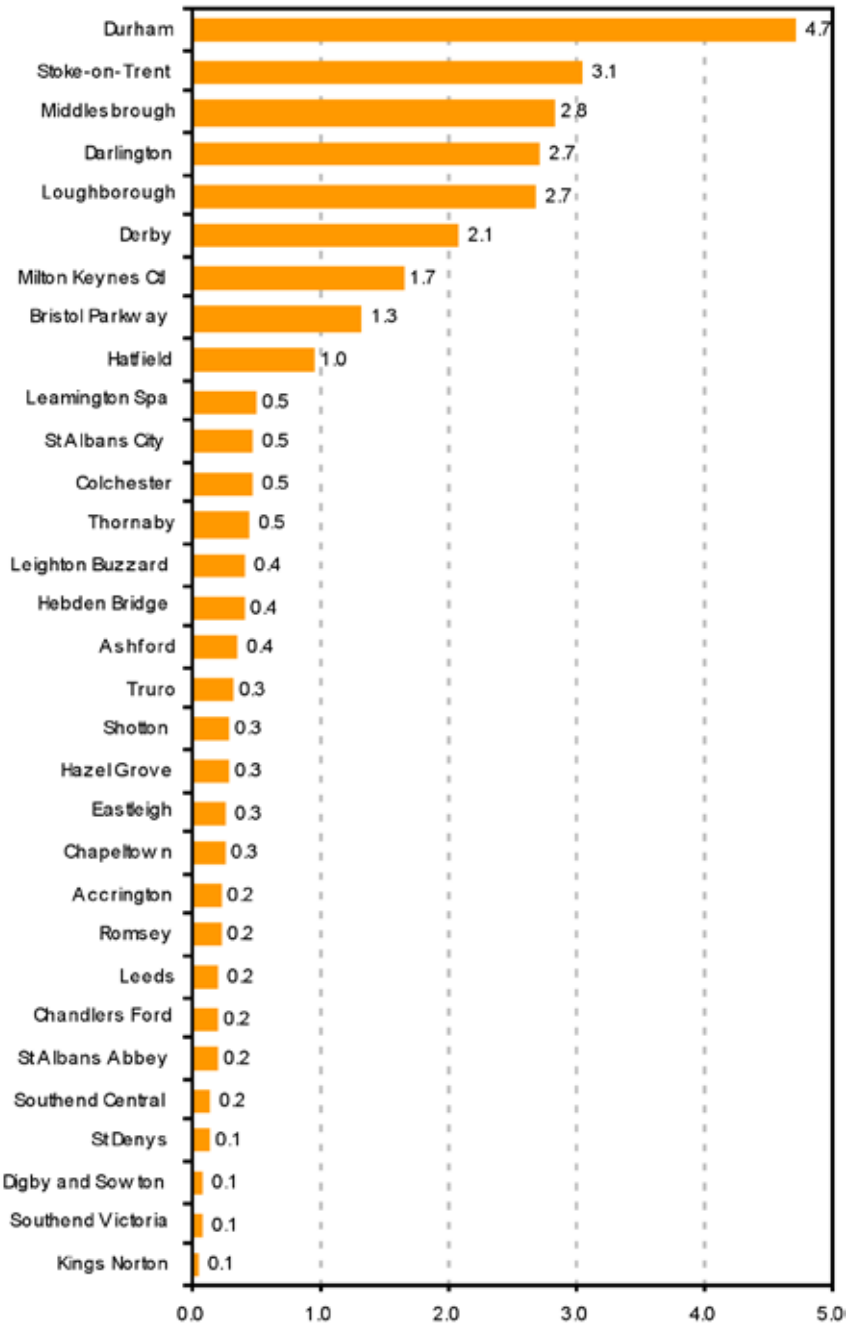


Carbon dioxide emissions

3.5 The estimated average carbon emissions per passenger per annum are shown in Figure

3.4. These emissions are the product of two key factors: mode share (see Figure 3.1) and distance travelled. Where insufficient survey data on distance was available, average distance factors for the type of station were used. Durham has the highest emissions rating, due to a combination of relatively high car mode share and longer journeys to station.

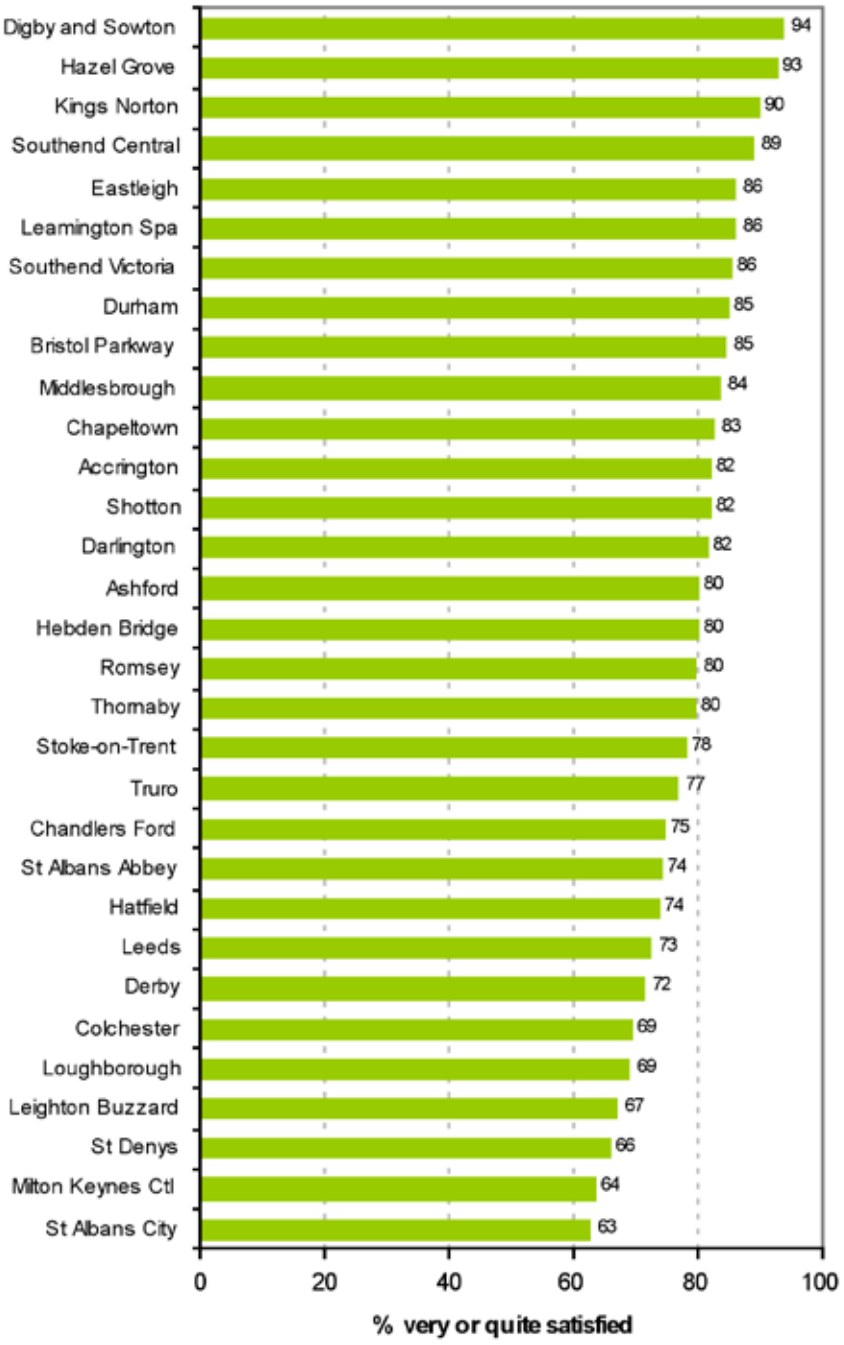
FIGURE 3.4 CO2 EMISSIONS



Customer satisfaction

3.6 The comparative levels of customer satisfaction with the ease of travelling to / from the station are shown in Figure 3.5. There is quite considerable variation between individual stations with very high levels of satisfaction at Digby and Sowton, Southend Central, Kings Norton and Hazel Grove, but quite low levels (below 70%) at St Albans City, Milton Keynes Central, St Denys, Leighton Buzzard, Loughborough and Colchester.

FIGURE 3.5 CUSTOMER SATISFACTION

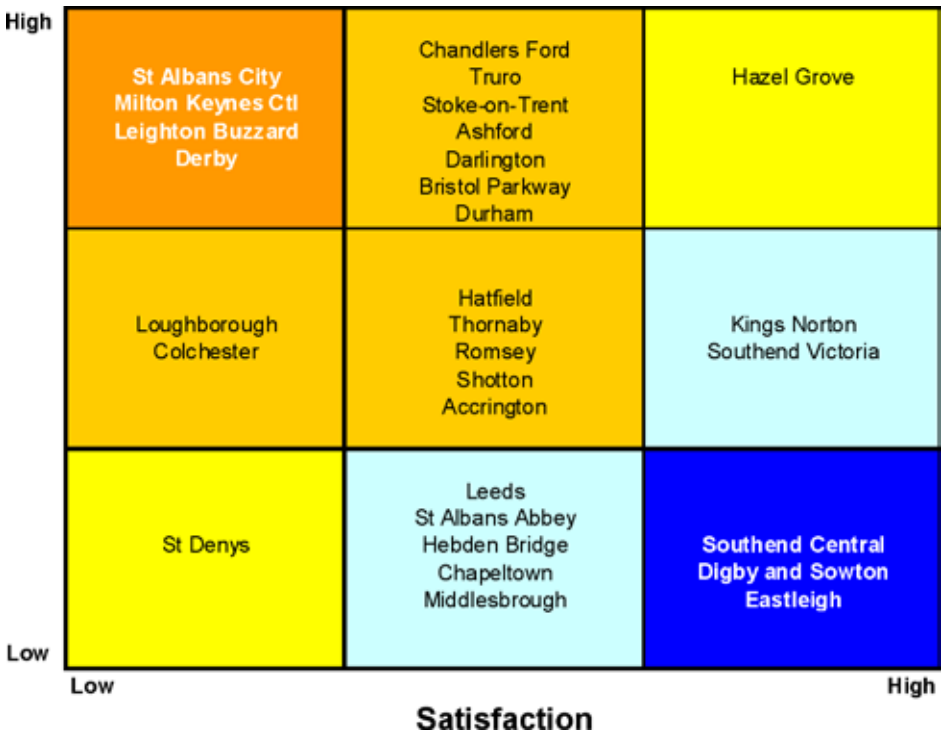


Potential for car use reduction

3.7 Reducing car use for travel to a station is likely to be easiest where car is currently used to a greater extent, and probably also where satisfaction with the ease of getting to the station is lower (since this implies there is a motivation for change). Based on these assumptions, it is possible to classify the pilot stations in terms of their potential for car use reduction (see Figure 3.6).

3.8 So, for example, at St Albans City, Milton Keynes, Leighton Buzzard and Derby the car access mode shares are above average and satisfaction with getting to the station is low. Conversely, at Southend Central, Digby & Sowton and Eastleigh car share is low and satisfaction high, potentially leaving comparatively little room for change.

FIGURE 3.6 POTENTIAL FOR CAR USE REDUCTION



3.9 Of course factors other than customer satisfaction and current car mode share could impact upon the potential for car use reduction such as the availability of local bus services and the number of current and potential passengers residing within walking and cycling distance of the station.

4 Recommendations

4.1 This final chapter considers some of the lessons learnt from having undertaken the baseline survey (even before any post-implementation surveys have been conducted). These cover three areas: what has been learnt about how surveys such as those undertaken can help with the station travel planning process itself; what additional insights might be extracted from the baseline survey data by undertaken further analysis; what significant data gaps remain which would require new primary research to answer.

Station Travel Planning

Applications of basic passenger survey data to planning station travel plans

4.2 The core survey data can be very useful for developing a station travel plan, since it provides a solid evidence base for some of the key characteristics of station users. Specifically, it includes information on where users live, how they get to the station and the time at which they travel, thereby providing an indication of the potential demand for each access mode.

4.3 Developing a station travel plan from core data requires that one make assumptions concerning the distances station users are prepared to walk or cycle: for example up to 3km walk and up to 5km cycle. There is the option to collect evidence to improve the accuracy of such assumptions through additional analysis of the baseline survey data – see section below).

Station selection for station travel plans

4.4 The baseline survey work has highlighted a number of factors which influence the potential for switching to more sustainable modes and which could be used as criteria for selecting stations for travel planning interventions. The criteria used should be tailored to the specific aims of the station travel plan, and in this context the following criteria are suggested. Note that these criteria would work in combination, so that if the aim was to encourage mode shift from car to walk/cycle, both the identified criteria would apply.

TABLE 4.1 STATION SELECTION FOR STATION TRAVEL PLANS

Station travel plan objective	Possible criteria / indicator
Increase walking & cycling to station	High proportion of passengers living within 3 and 5km* of the station
Increase in bus use	High proportion of passengers living between 3 and 10km* of the station
Reduction in car use	High / Low proportion of passengers using park & ride and kiss & ride facilities
Increase in station use	Low passenger satisfaction with ease of accessing the station
All	Station footfall

* Note that these thresholds are subject to further analysis on access distances and access modes.

4.5 In practical terms, applying these criteria would require a two-stage process: an initial "sifting" using existing data on station usage, station car parking and station catchment areas; then passenger research along the lines of the station travel plan baseline survey.

4.6 Once the pilot station travel plans have been evaluated further evidence will become available and these criteria can be refined, and their importance identified (i.e. what difference does it make applying a station travel plan at a station which fulfils the criteria compared with one that doesn't).

Further analysis of baseline survey data

4.7 The station travel plan baseline survey could usefully be analysed to capture evidence on three (related) topics:

- the access mode shares by distance from station;
- trip rates by distance from station; and
- station usage by TravelStyle segment.

4.8 The access mode share information would be useful for establishing how much walking, cycling and bus use might reasonably be expected at a station, and where to promote these alternatives.

4.9 The trip rate by distance analysis would be helpful for adding to the body of evidence we have on station catchment areas: that is, how far away a station can reasonably "reach" to attract users. The evidence we have on this is dominated by stations in the London commuter belt so the station travel plan baseline survey would add to this and help to understand more about other locations.

4.10 With these two additional areas of analysis, it would be possible to undertake the "sifting" process for selecting good candidates for station travel plans identified at item 4.5.

Gaps and further research

4.11 Two noticeable gaps in the available evidence have been identified during the course of this study. A small research program to address these gaps is recommended.

The carbon impacts of "kiss & ride"

4.12 In calculating CO2 impacts an assumption had to be made concerning the proportion of the trips were generated by the rail traveller (for example, a partner specifically taking someone to the station, dropping them off then returning home, then later on doing the same in reverse), compared with the proportion of trips where the rail traveller is piggy-backing on a trip being made by someone else (such as a partner dropping the rail traveller off on their way to work). This makes quite a big difference since the CO2 impact of the latter is only 25% of the former (4 one-way trips versus 50% of 2 one-way trips equivalent to 1 one-way trip).

4.13 To collect the required evidence, a survey of kiss & ride passengers would need to be undertaken and additional details of the travel of both the rail traveller and driver obtained.

Impact of under-supply of car parking

4.14 The issue here is that there is little evidence on what happens when car parking becomes difficult, or conversely, what happens when car parking is increased. There are quite a number of potential effects, and the balance of these has implications for rail travel and CO2 impacts. Possible effects are that station users:

- use another station, possibly driving further and generating more CO2;
- travel to the station using a more sustainable mode;
- get a lift to the station, potentially generating more CO2;
- do not use the train but travel by car instead, generating more CO2; and / or
- do not make the journey at all, generating less CO2 but possibly with negative economic or social consequences.

4.15 To research these effects means either conducting a residents survey within the catchment area of a station with under-capacity of car parking (identified by car park occupancy rates), or researching passengers at a station where car parking has recently been expanded. Since the mix of the possible responses is likely to be context specific (is there an alternative station nearby? what alternatives to car are available?) a number of different stations would ideally be researched.

APPENDIX
BASELINE DATA

A1: Main Mode

Station	Walk	Cycle	Car - drive alone	Park & ride [1]	Car share	Car - drop off	Train	Taxi	Motorbike	Bus / Coach / Tram	Other	Total other	Total car	Total
Accrington	56.8%	0.0%	9.5%	0.0%	0.0%	13.7%	1.1%	4.2%	0.0%	14.7%	0.0%	4.2%	23.2%	100.0%
Ashford	21.3%	2.8%	15.3%	0.0%	8.3%	18.5%	19.0%	7.4%	0.0%	6.9%	0.5%	16.2%	33.8%	100.0%
Bristol Parkway	14.2%	2.4%	19.0%	0.0%	3.8%	20.9%	16.6%	10.0%	0.0%	12.8%	0.5%	14.2%	39.8%	100.0%
Chandlers Ford	48.8%	9.8%	14.6%	0.0%	3.7%	18.3%	0.0%	0.0%	0.0%	3.7%	1.2%	4.9%	32.9%	100.0%
Chapeltown	48.7%	0.0%	1.3%	0.0%	0.0%	18.4%	0.0%	0.0%	0.0%	31.6%	0.0%	0.0%	19.7%	100.0%
Colchester	35.0%	2.1%	9.6%	0.7%	3.1%	17.4%	7.3%	4.5%	0.5%	19.7%	0.2%	8.9%	27.0%	100.0%
Darlington	20.1%	0.0%	7.4%	0.0%	4.4%	31.9%	11.8%	10.9%	0.0%	13.1%	0.4%	15.7%	39.3%	100.0%
Derby	21.1%	2.5%	9.0%	0.0%	2.0%	25.1%	11.1%	14.1%	0.0%	15.1%	0.0%	16.1%	34.2%	100.0%
Digby and Sowton	78.8%	2.5%	15.0%	0.0%	2.5%	0.0%	0.0%	1.3%	0.0%	0.0%	0.0%	3.8%	15.0%	100.0%
Durham	20.3%	0.4%	12.0%	0.7%	0.4%	40.2%	1.1%	9.1%	0.0%	15.6%	0.4%	10.5%	52.2%	100.0%
Eastleigh	66.3%	4.1%	2.5%	0.8%	1.6%	9.1%	9.1%	0.4%	0.0%	5.8%	0.4%	3.3%	11.5%	100.0%
Hatfield	26.1%	2.7%	13.3%	0.0%	3.4%	15.5%	0.4%	8.0%	0.0%	30.3%	0.4%	11.7%	28.8%	100.0%
Hazel Grove	43.6%	0.6%	34.3%	0.0%	1.7%	14.5%	1.2%	2.3%	0.0%	1.7%	0.0%	4.1%	48.8%	100.0%
Hebden Bridge	59.3%	0.0%	8.3%	0.0%	0.0%	11.7%	9.7%	2.1%	0.0%	9.0%	0.0%	2.1%	20.0%	100.0%
Kings Norton	51.8%	0.0%	11.8%	0.0%	10.0%	7.6%	0.6%	0.0%	0.0%	18.2%	0.0%	10.0%	19.4%	100.0%
Leamington Spa	48.9%	0.9%	4.9%	0.0%	0.4%	20.0%	2.7%	7.1%	0.0%	14.7%	0.4%	8.0%	24.9%	100.0%
Leighton Buzzard	44.2%	2.8%	13.7%	0.0%	1.2%	26.9%	0.0%	8.4%	0.8%	1.6%	0.4%	10.8%	40.6%	100.0%
Loughborough	31.8%	3.4%	4.9%	0.0%	1.5%	20.6%	2.6%	5.6%	0.0%	29.2%	0.4%	7.5%	25.5%	100.0%
Middlesbrough	34.8%	2.4%	2.8%	0.0%	0.0%	16.8%	15.2%	12.0%	0.0%	15.6%	0.4%	12.4%	19.6%	100.0%
Milton Keynes Ctl	20.1%	3.3%	8.0%	0.0%	2.2%	26.1%	0.5%	14.0%	0.0%	25.8%	0.0%	16.2%	34.1%	100.0%
Romsey	48.4%	11.5%	8.3%	0.0%	1.3%	16.6%	8.3%	1.3%	0.0%	3.2%	1.3%	3.8%	24.8%	100.0%
Shotton	47.3%	1.8%	3.6%	0.0%	5.5%	18.2%	9.1%	1.8%	0.0%	12.7%	0.0%	7.3%	21.8%	100.0%
Southend Central	75.4%	2.3%	1.6%	0.0%	0.8%	3.9%	5.9%	2.3%	0.0%	7.4%	0.4%	3.5%	5.5%	100.0%
Southend Victoria	72.9%	0.9%	0.9%	0.0%	0.9%	10.3%	2.2%	2.9%	0.0%	8.7%	0.2%	4.0%	11.2%	100.0%
St Albans City	35.2%	3.4%	16.4%	0.0%	4.7%	16.1%	8.4%	4.4%	0.0%	11.1%	0.3%	9.4%	32.6%	100.0%
St Albans Abbey	57.1%	8.3%	1.2%	1.2%	1.2%	14.3%	2.4%	6.0%	0.0%	8.3%	0.0%	8.3%	15.5%	100.0%
St Denys	73.8%	5.0%	2.5%	0.0%	0.0%	5.0%	10.0%	1.3%	0.0%	2.5%	0.0%	1.3%	7.5%	100.0%
Stoke-on-Trent	14.7%	0.8%	7.6%	0.0%	0.4%	29.0%	8.0%	13.9%	0.0%	25.6%	0.0%	14.3%	36.6%	100.0%
Thornaby	42.5%	4.0%	6.3%	0.6%	1.7%	19.5%	7.5%	8.0%	0.0%	9.8%	0.0%	10.3%	25.9%	100.0%
Truro	37.7%	0.9%	6.3%	0.0%	7.6%	22.0%	3.1%	5.4%	0.0%	16.6%	0.4%	13.5%	28.3%	100.0%
Leeds [2]	82.9%	0.7%	1.0%	0.0%	0.0%	1.2%	0.1%	1.4%	0.0%	12.7%	0.0%	1.4%	2.2%	100.0%
median	44.2%	2.4%	8.0%	0.0%	1.6%	17.4%	3.1%	4.5%	0.0%	12.7%	0.2%			
min	14.2%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
max	82.9%	11.5%	34.3%	1.2%	10.0%	40.2%	19.0%	14.1%	0.8%	31.6%	1.3%			
mean	44.5%	2.7%	8.8%	0.1%	2.4%	17.1%	5.6%	5.5%	0.0%	13.0%	0.3%			

[1] car then dedicated park and ride bus

[2] Data for Leeds station is taken from an origin and destination surveys conducted on behalf of Leed City Council in October 2008.

A2: Passenger Satisfaction

Station	1 - Very Satisfied	2 - Satisfied	3 - Neither	4 - Dissatisfied	5 - Very Dissatisfied	Total	% satisfied
Accrington	61.1%	21.1%	14.7%	2.1%	1.1%	100.0%	82.1%
Ashford	25.6%	54.6%	10.3%	8.1%	1.5%	100.0%	80.2%
Bristol Parkway	44.4%	40.5%	12.7%	1.6%	0.8%	100.0%	84.9%
Chandlers Ford	32.5%	42.2%	19.3%	6.0%	0.0%	100.0%	74.7%
Chapeltown	36.8%	46.1%	11.8%	5.3%	0.0%	100.0%	82.9%
Colchester	31.4%	38.1%	20.6%	7.0%	2.9%	100.0%	69.5%
Darlington	31.4%	50.2%	11.9%	5.4%	1.1%	100.0%	81.6%
Derby	29.9%	41.6%	17.5%	8.8%	2.2%	100.0%	71.5%
Digby and Sowton	66.7%	27.6%	4.6%	1.1%	0.0%	100.0%	94.3%
Durham	61.8%	23.3%	9.8%	3.6%	1.5%	100.0%	85.1%
Eastleigh	55.9%	30.4%	9.9%	3.0%	0.8%	100.0%	86.3%
Hatfield	47.9%	25.9%	11.0%	6.8%	8.4%	100.0%	73.8%
Hazel Grove	77.3%	15.7%	4.1%	1.7%	1.2%	100.0%	93.0%
Hebden Bridge	54.5%	25.6%	10.3%	7.7%	1.9%	100.0%	80.1%
Kings Norton	67.6%	22.4%	5.9%	1.8%	2.4%	100.0%	90.0%
Leamington Spa	59.7%	26.6%	8.9%	2.8%	2.0%	100.0%	86.3%
Leighton Buzzard	50.6%	16.6%	19.2%	10.3%	3.3%	100.0%	67.2%
Loughborough	32.4%	36.8%	22.8%	6.3%	1.8%	100.0%	69.1%
Middlesbrough	60.2%	23.7%	9.9%	4.0%	2.2%	100.0%	83.9%
Milton Keynes Ctl	37.2%	26.5%	20.4%	10.9%	5.1%	100.0%	63.6%
Romsey	45.0%	34.9%	11.8%	5.3%	3.0%	100.0%	79.9%
Shotton	62.7%	19.4%	4.5%	6.0%	7.5%	100.0%	82.1%
Southend Central	53.1%	36.3%	8.8%	1.9%	0.0%	100.0%	89.3%
Southend Victoria	57.2%	28.4%	10.4%	2.9%	1.1%	100.0%	85.6%
St Albans City	29.5%	33.4%	21.9%	12.6%	2.6%	100.0%	62.9%
St Albans Abbey	26.7%	47.7%	18.6%	5.8%	1.2%	100.0%	74.4%
St Denys	27.7%	38.3%	23.4%	8.5%	2.1%	100.0%	66.0%
Stoke-on-Trent	45.6%	32.7%	13.2%	5.1%	3.3%	100.0%	78.3%
Thornaby	54.2%	25.5%	15.3%	3.2%	1.9%	100.0%	79.6%
Truro	39.5%	37.5%	15.3%	4.8%	2.8%	100.0%	77.0%
Leeds [1]	24.7%	48.0%	14.2%	13.1%	0.0%	100.0%	72.7%
median	45.6%	32.7%	11.9%	5.3%	1.9%		80.1%
min	24.7%	15.7%	4.1%	1.1%	0.0%		62.9%
max	77.3%	54.6%	23.4%	13.1%	8.4%		94.3%
mean	46.2%	32.8%	13.3%	5.6%	2.1%		79.0%

A3: Passenger Numbers

Station	Survey - commuting [1]	Survey - other	Survey - total	ORR - seasons	ORR - other	ORR - total
Accrington	43	52	95	22,778	213,890	236,668
Ashford	108	165	273	1,243,306	1,362,759	2,606,065
Bristol Parkway	51	203	254	341,476	1,448,372	1,789,848
Chandlers Ford	26	57	83	52,746	145,842	198,588
Chapeltown	37	39	76	26,862	158,149	185,011
Colchester	250	298	548	2,367,416	1,970,510	4,337,926
Darlington	65	212	277	235,102	1,778,414	2,013,516
Derby	73	201	274	406,260	2,453,862	2,860,122
Digby and Sowton	33	54	87	57,968	143,986	201,954
Durham	51	227	278	234,496	1,539,775	1,774,271
Eastleigh	83	180	263	446,340	801,749	1,248,089
Hatfield	96	169	265	539,650	1,102,441	1,642,091
Hazel Grove	91	81	172	84,346	279,171	363,517
Hebden Bridge	66	91	157	39,572	361,313	400,885
Kings Norton	98	73	171	11,284	436,177	447,461
Leamington Spa	54	194	248	176,734	1,150,029	1,326,763
Leighton Buzzard	81	191	272	818,602	566,253	1,384,855
Loughborough	82	194	276	239,700	1,036,811	1,276,511
Middlesbrough	102	175	277	158,664	1,083,390	1,242,054
Milton Keynes Ctl	168	329	497	1,615,887	2,941,322	4,557,209
Romsey	61	108	169	100,558	270,628	371,186
Shotton	18	49	67	14,306	154,011	168,317
Southend Central	99	170	269	484,480	1,210,178	1,694,658
Southend Victoria	193	255	448	2,834,568	1,304,576	4,139,144
St Albans City	117	190	307	3,130,000	2,911,426	6,041,426
St Albans Abbey	39	47	86	50,492	157,154	207,646
St Denys	50	44	94	70,306	131,948	202,254
Stoke-on-Trent	73	199	272	137,514	1,439,979	1,577,493
Thornaby	98	118	216	80,620	325,739	406,359
Truro	70	179	249	55,544	800,930	856,474
Leeds	3,400	1,436	4,836	2,491,268	14,865,464	17,356,732
median	73	175	263	176,734	1,036,811	1,276,511
min	18	39	67	11,284	131,948	168,317
max	3,400	1,436	4,836	3,130,000	14,865,464	17,356,732
mean	190	193	382	598,995	1,436,976	2,035,971

[1] Commuting incldues journeys to and from both employment and education

A4: CO2 Emissions

Station	Passengers	Station CO_2 kg per year	Passenger CO_2 kg per year	Car mode share
Accrington	236,668	55,036	0.2	23.2%
Ashford	2,606,065	941,927	0.4	33.8%
Bristol Parkway	1,789,848	2,396,626	1.3	39.8%
Chandlers Ford	198,588	39,232	0.2	32.9%
Chapeltown	185,011	48,849	0.3	19.7%
Colchester	4,337,926	2,102,668	0.5	27.0%
Darlington	2,013,516	5,499,612	2.7	39.3%
Derby	2,860,122	5,967,787	2.1	34.2%
Digby and Sowton	201,954	18,972	0.1	15.0%
Durham	1,774,271	8,398,005	4.7	52.2%
Eastleigh	1,248,089	335,966	0.3	11.5%
Hatfield	1,642,091	1,569,359	1.0	28.8%
Hazel Grove	363,517	103,828	0.3	48.8%
Hebden Bridge	400,885	162,867	0.4	20.0%
Kings Norton	447,461	29,075	0.1	19.4%
Leamington Spa	1,326,763	655,368	0.5	24.9%
Leighton Buzzard	1,384,855	597,517	0.4	40.6%
Loughborough	1,276,511	3,436,184	2.7	25.5%
Middlesbrough	1,242,054	3,520,584	2.8	19.6%
Milton Keynes Ctl	4,557,209	7,551,192	1.7	34.1%
Romsey	371,186	83,013	0.2	24.8%
Shotton	168,317	48,257	0.3	21.8%
Southend Central	1,694,658	266,358	0.2	5.5%
Southend Victoria	4,139,144	374,274	0.1	11.2%
St Albans City	6,041,426	2,972,676	0.5	32.6%
St Albans Abbey	207,646	40,713	0.2	15.5%
St Denys	202,254	28,910	0.1	7.5%
Stoke-on-Trent	1,577,493	4,835,971	3.1	36.6%
Thornaby	406,359	183,678	0.5	25.9%
Truro	856,474	278,165	0.3	28.3%
Leeds	17,356,732	3,754,963	0.2	2.2%
median	1,276,511	374,274	0.36	25.5%
min	168,317	18,972	0.06	2.2%
max	17,356,732	8,398,005	4.73	52.2%
mean	2,035,971	1,816,053	0.91	25.9%