



# Overcrowding: a passenger perspective

November 2006

## **Overcrowding: a passenger perspective**

### **Aim of this paper**

Overcrowding is one of the priority issues highlighted in Passenger Focus's Corporate Plan. This paper takes a brief look at the issue from a passenger perspective. It draws together some of the existing sources of information on crowding and looks at the impact on passengers – with the emphasis being on presenting overcrowding from a passenger viewpoint.

The aim of the paper is to help inform Passenger Focus's ongoing work on crowding. This includes input to franchise renegotiations and Network Rail's Route Utilisation Strategies (RUS). On a more strategic level it is also aimed at initiating a debate on Passenger Focus's input into the High Level Output Specifications (HLOS) being developed by the Department for Transport (DfT) and the Scottish Executive; and DfT's White Paper on railway strategy - both due July 2007.

### **Introduction**

Britain's railways have experienced considerable growth in passenger numbers over the past decade. In 2005-06 there were 43.2 billion passenger kilometres travelled – an increase of 44% from 1995/96<sup>1</sup>. The total number of passenger journeys for 2005/6 was almost 1.1 billion.

A study by the Association of Train Operating Companies (ATOC) concludes that growth rates for Britain's railways are the highest of any country in Europe.<sup>2</sup>

Growth has been strongest on London and South East commuter routes (57% growth since 1994/5) followed by regional services (52%) and long distance services (33%)<sup>3</sup>.

The scale of growth has been such that the rail network is approaching the limits of its capacity in an increasing number of places – especially around the approaches to London. This will be exacerbated by projections of continued growth over the next ten years: Network Rail forecast growth in passenger miles of around 30% overall (25-30% growth in London and South East services, 50% for long distance and 25-30% for inter-urban services).

While such growth is welcome and reflects the strength of rail as a transport mode it is not without consequences for passengers - chief amongst these being the impact on present and future levels of overcrowding, both on trains and at stations.

### **Defining overcrowding**

There is no simple definition of overcrowding. Unlike buses there is no maximum number of passengers that can be carried on a train - the upper limit being defined by passengers' willingness (and ability) to physically squeeze into a carriage.

This is to a large extent a consequence of a flexible, 'turn-up-and-go' ticketing system. Moreover, as many stations are not staffed and many trains are driver-only operated, there is no real means of preventing people from boarding. Hence, unless there is a move to compulsory reservations –

something that is likely to prove unpopular with passengers – it is extremely difficult to prevent overcrowding.

There is, however, a general obligation in franchise contracts to avoid 'excessive' overcrowding – although there is no real definition of what constitutes excessive. In addition the driver or guard of a train can also refuse to operate a train if they feel it has become dangerously overcrowded.

## The scale of overcrowding

### Present

#### a) *London and South East*

There are specific crowding targets for peak commuter services in the London and South East area. The target – known as Passengers in Excess of Capacity (PIXC) – is administered by the Department for Transport (DfT) and only applies to weekday commuter trains arriving in London between 07.00 and 09.59 and those departing between 16.00 and 18.59.

Capacity is deemed to be the number of standard class seats on the train for journeys of more than 20 minutes; for journeys of 20 minutes or less, an allowance for standing room is also made. The allowance for standing varies with the type of rolling stock but, for modern sliding door stock, is typically approximately 35% of the number of seats.

The PIXC measure for a Train Operating Company (TOC) as a whole is derived from the number of passengers travelling in excess of capacity on all services divided by the total number of people travelling, expressed as a percentage. PIXC counts are carried out once a year, on a typical weekday during the autumn. Passenger Focus has a number of concerns at the adequacy and accuracy of this measure.

The DfT has set limits on the level of acceptable PIXC at 4.5% on one peak (morning or afternoon) and 3% across both peaks. Penalties are not applied by the DfT to TOCs for exceeding the PIXC thresholds. However, the franchise agreement between DfT and each TOC requires the TOC to plan its services such that instances of trains operating with passengers in excess of capacity are kept to a minimum.

**Table 1** lists PIXC figures for 2004 and 2005. It shows that crowding is clearly more of a problem in the morning rush-hour than the evening – with half the train operating companies (TOCs) breaching the 4.5% limit in the morning as opposed to only one in the evening.

**Table 2** shows the actual percentage of passengers standing on London commuter services.

Based on counts made in 2004, Network Rail estimate that approximately 70,000 passengers travelling into London had to stand between 07.00-09.59 in the morning – some 15% of the total numbers travelling; and approximately 30,000 in the evening (8% of the total)<sup>4</sup>. Closer analysis of the morning peak reveals an even starker picture. Of the 70,000 standing some 50,000 did so between 08.00 and 09.00, with the remaining 20,000 between 07.00-08.00 or 09.00-10.00. Fifty thousand equates to some 20% of the total passenger numbers travelling into London in the peak.

### *b) Long distance services*

There is no public measure of crowding on long distance services which makes it difficult to assess problem areas. There does seem, though, to be a particular issue where long distance services also serve traditional commuter routes. For example, the Great Western Route Utilisation Strategy (RUS) found load factors in excess of 100% (i.e. more people than seats) on long distance services into London between 08.00 and 09.00.

Virgin are also quoted as saying that 20% of Virgin CrossCountry services are overcrowded at some point in their journey – especially on Friday and Sundays<sup>5</sup>.

### *c) Regional/Inter-urban services*

Again there is a shortage of publicly available statistics. Some regional services are, however, covered by crowding standards imposed by Passenger Transport Executives, but these may not cover the whole of the TOC operating area.

Instances of overcrowding tend to be more localised, particularly on services running into major cities during the 08.00-09.00 peak. There are also examples of crowding on weekend and summer services. Passenger Focus's research<sup>6</sup> as part of its submission on the East Midlands franchise found the following examples:

- Leicester to Lincoln: 185 passengers aboard a train with 148 seats
- Peterborough to Doncaster: 116 passengers aboard a train with 75 seats
- morning peak train departing from Dronfield towards Sheffield: consistently overcrowded
- overcrowding on any part of the Liverpool to Norwich route at any time of the day

There are also instances of seasonal overcrowding, particularly on holiday routes in the summer.

## **The Future**

It is difficult to make precise predictions of crowding in the future. However, given forecast growth rates and assuming the same base level of capacity Network Rail predict that all London and South East TOCs would breach current PIXC standing targets by 2014<sup>7</sup>. Numbers standing in the morning peak would increase from approximately 70,000 in 2004 to 130,000 in 2014; and from 29,000 to 67,000 in the evening peak.

The South West Mainline RUS consultation<sup>8</sup> showed precisely what this might mean for passengers when it warned of passengers to London having to stand from as far out as Southampton Central, Witley, Eastleigh and Andover by 2016.

Likewise Network Rail predicts an increase in crowding on long distance services and of localised instances of crowding on regional services. For example, the Scotland Route Utilisation Strategy predicts that seven routes in Scotland will have more people travelling than there are seats available throughout the high-peak hour by 2016<sup>9</sup>.

## **Passenger perceptions of overcrowding**

### *a) Passenger Satisfaction*

Passenger Focus produces the National Passenger Survey (NPS). This measures passenger satisfaction against a range of train and station based criteria, one of which is 'sufficient space for all passengers to sit/stand'.

Results from the Spring 2006 survey show that, nationally, 62% rated the space to sit/stand as satisfactory or good, 15% as neither/nor and 24% as dissatisfied or poor.

Closer examination reveals a difference by region and journey type. It comes as no great surprise to learn that commuters in London and South East express the lowest levels of satisfaction. See **Table 3** for more details.

#### *Passenger priorities*

Research commissioned by the SRA in 2005 asked passengers to rank the relative importance of improving a range of on train and station service attributes. The results - see **Table 4** for details – ranked sufficient room to sit/stand as sixth most important attribute (out of a total of 30). For London and South East passengers, however, it was fourth most important.

This was a national survey and there will, of course, be regional variations. Passenger Focus's research<sup>10</sup> on the Cross Country franchise showed that passengers ranked 'getting a seat' as the second most important aspect of their journey, beaten only by 'arriving on time at your destination'. For leisure passengers only, getting a seat was ranked the highest priority.

### **The impact of overcrowding on passengers and business**

Overcrowding has a real (or potential) impact on the quality of service experienced by passengers as well as consequences for business.

#### *Performance*

Passengers taking longer to board and alight crowded trains can actually cause delays to services. Indeed there is a risk that increased levels of crowding could reverse current improvements in overall performance levels.

Equally, trains having to wait longer at stations may result in scheduled journey times having to be lengthened.

#### *Safety*

The Health and Safety Executive (HSE) found that 'there is no evidence to suggest that overcrowding per se is a safety issue.'<sup>11</sup> This concentrated on injuries as an effect of overcrowding in the event of a crash. In comparing the injuries that were likely to be sustained, using information from previous rail crashes (e.g. Clapham Junction), it was concluded that both seated and standing passengers were likely to be injured to an equal degree of severity in a crash at high speed. The report conceded that the more passengers on a train, the more people would be injured in the event of a crash but maintained that the proportion of seated and standing passengers injured would be the same.

Passenger Focus believes that too little weight has been given to health and safety issues on overcrowded trains other than injury in the event of a crash. Thankfully, crashes on the rail network are very rare. Nevertheless, people are injured as a result of overcrowding on trains; in hot conditions, discomfort can escalate into fainting; and stress levels do go up in crowded carriages, which may result in unsafe behaviour. Passenger Focus made this point when giving evidence to the House of Commons Transport Committee investigation, 'Overcrowding in Public Transport'<sup>12</sup>.

We were pleased, therefore, when the Rail Safety and Standards Board (RSSB) agreed to undertake specific research looking into the health and safety effects resulting from crowding on trains and at stations. The research looked at all those situations in which crowding could lead directly to injury, or make an accident worse. The first phase of work is complete<sup>13</sup>. Subsequent phases of work will seek to quantify the risk associated with these hazards, so that the industry can identify the priority areas for action, where affordable improvements can give the most benefit.

### *Employment*

The House of Commons Transport Committee report on overcrowding<sup>14</sup> concluded:

*"Failure to provide an efficient public transport system means that employers are faced with staff who are tired, stressed and uncomfortable on arrival at the workplace. Lateness at work, loss of productivity, sickness absence, missed and rescheduled meetings and lost business due to public transport overcrowding and delays all impose real and significant costs."*

A report from Oxford Economic Forecasting found that cost of public transport delays to the City of London "is conservatively estimated to be about £230 million a year".<sup>15</sup>

There is also concern that transport difficulties have an impact on the recruitment and retention of staff.

## **Options to address overcrowding**

There are a number of options but, in economic terms, most boil down to either increasing supply or reducing demand.

### *Capacity*

There are a number of ways of increasing capacity in the short-medium term. Train Companies can, for instance, re-configure rolling stock to provide more seats or more standing capacity – the latter often being at the expense of seats. They can also look to add more carriages and run more trains. Passenger Focus naturally favours the provision of additional capacity but acknowledges the importance of taking into account the needs of those passengers standing when looking at train design.

However, the nature of the railway means that there is a finite limit to the number of trains (and hence, passengers) that can run at any one time so at some point additional capacity can only be provided by upgrading the infrastructure (e.g. new signal technology, track work or longer station platforms) in order to allow more, or longer trains, to run. In some cases it may even involve a new line.

There is clearly no single solution. Passenger Focus welcomes, therefore, the route based approach adopted by Network Rail through the Route Utilisation Programme whereby specific needs and options are identified on a route by route basis.

Clearly cost is an issue when considering such investment. However, there is also a need to look at the existing regulatory regimes (e.g. incentive regimes for both Network Rail and TOCs) to ensure that these maximise possibilities for investment.

It is equally important that decisions on infrastructure are taken alongside decisions on rolling stock – the cost and availability of rolling stock being major components of any debate on capacity.

### *Demand*

‘Demand side’ economic theories can also be used to reduce overcrowding through the use of price. The complex ticketing structure is partly designed to encourage people to travel outside the busy periods but there is also the option, as used by British Rail, to decrease overall demand by increasing peak fares – so called ‘pricing-off’ demand.

## **Conclusions**

Passenger Focus believes that addressing overcrowding is one of the key challenges facing the rail industry in the coming years. Unless there is a concerted effort to address the issue it is clear it will increasingly constrain the ability of the network to deliver a service that meets the needs of passengers.

Passenger Focus remains firmly opposed to the principle of pricing-off demand. NPS results show that passengers already have a poor opinion of value for money: only 41% being satisfied and 37% being dissatisfied. Further research<sup>16</sup> by Passenger Focus confirms the overall level of dissatisfaction. There is also evidence<sup>17</sup> that the cost of rail fares is one of the reasons that prevents people using trains more. Simply putting up fares will exacerbate these issues.

Passenger Focus does not, however, oppose using incentives to help spread demand outside peak hours – the key point being to offer discounts to passengers who travel outside peak hours rather than penalise those who travel in the peak. Passenger Focus research<sup>18</sup> indicates that passengers might be willing to travel outside the high-peak hour (i.e. 08.00-09.00) through the use of so called ‘early-bird/late-bird’ schemes that offer a discount/saving (in the region of 25%) on the cost of peak fares.

Passenger Focus believes that, ultimately, crowding pressures will only be addressed through long-term investment in the railways. The Department for Transport and the Scottish Executive’s High Level Output Specifications will set the broad framework for what they want to invest in and what they want to achieve for years to come. Passenger Focus aims to influence these to ensure passenger priorities are actively considered.

In addition we believe that there is a clear need for a single, uniform approach to monitoring overcrowding. There are no uniform requirements and, where standards do exist, they are fundamentally flawed – a view shared by the House of Commons Transport Committee.<sup>19</sup>

**Passenger Focus**

**November 2006**

## Appendix 1

**Table 1: Passengers in excess of capacity (PIXC)**

| Train Operating Company | Peak (AM) 2005 PIXC % | Peak (AM) 2004 PIXC % | Peak (PM) 2005 PIXC % | Peak (PM) 2004 PIXC % | Overall 2005 PIXC % | Overall 2004 PIXC % |
|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------|---------------------|
| Chiltern                | 1.9                   | 1.6                   | 0.0                   | 0.0                   | 1.0                 | 0.9                 |
| Southern                | 4.0                   | 7.8                   | 2.0                   | 1.8                   | 3.1                 | 5.2                 |
| South Eastern           | 2.4                   | 2.4                   | 0.8                   | 0.4                   | 1.7                 | 1.5                 |
| One                     | 4.6                   | 2.3                   | 0.9                   | 2.4                   | 2.9                 | 2.3                 |
| C2C                     | 0.8                   | 2.2                   | 0.1                   | 1.1                   | 0.5                 | 1.7                 |
| Silverlink              | 5.0                   | 4.7                   | 5.8                   | 1.3                   | 5.4                 | 3.1                 |
| South West Trains       | 6.2                   | 6.8                   | 1.4                   | 1.1                   | 4.1                 | 4.4                 |
| FGW Link                | 5.6                   | 2.5                   | 2.3                   | 1.5                   | 4.2                 | 2.1                 |
| Thameslink              | 5.6                   | 2.4                   | 2.2                   | 2.7                   | 4.1                 | 2.6                 |
| WAGN                    | 2.8                   | 2.2                   | 3.0                   | 3.3                   | 2.9                 | 2.7                 |
|                         |                       |                       |                       |                       |                     |                     |
| Total                   | 4.0                   | 4.1                   | 1.6                   | 1.5                   | 2.9                 | 2.9                 |

Source: Office of Rail Regulation - National Rail Trends Yearbook 2005-06

**Table 2: Morning peak period crowding**

| Train Operating Company | Number of passengers (000s) | % passengers standing |
|-------------------------|-----------------------------|-----------------------|
| C2C                     | 27                          | 16%                   |
| Chiltern                | 10                          | 2%                    |
| FGW Link                | 11                          | 8%                    |
| ONE                     | 78                          | 12%                   |
| Silverlink County       | 12                          | 9%                    |
| South Eastern Trains    | 120                         | 14%                   |
| Southern                | 75                          | 23%                   |
| South West Trains       | 82                          | 17%                   |
| Thameslink              | 27                          | 14%                   |
| WAGN                    | 25                          | 12%                   |
| Total                   | 467                         | 15%                   |

Source: Network Rail Initial Strategic Business Plan

**Table 3: National Passenger Survey (NPS) satisfaction ratings on 'sufficient room for all passengers to sit/stand' – Spring 2006**

|                       | % rating satisfied / good | % rating dissatisfied / poor |
|-----------------------|---------------------------|------------------------------|
| <b>Sector</b>         |                           |                              |
| National              | 62                        | 24                           |
| London and South East | 58                        | 27                           |
| Regional services     | 69                        | 18                           |
| Long Distance         | 72                        | 15                           |
|                       |                           |                              |
| <b>Journey type</b>   |                           |                              |
| Commuters             | 47                        | 37                           |
| Business passengers   | 67                        | 17                           |
| Leisure travellers    | 76                        | 10                           |

Source: National Passenger Survey - Spring 2006

**Table 4: Passenger priorities for improvement – May 2005**

| Passenger Priorities - Factors (based on NPS criteria)                | ALL  | Long Distance | Regional | London and South East | Commuters | Business | Leisure |
|---|------|---------------|----------|-----------------------|-----------|----------|---------|
|   | rank | rank          | rank     | rank                  | rank      | rank     | rank    |
| Punctuality/ reliability (i.e. the train arriving/ departing on time) | 1    | 1             | 1        | 1                     | 1         | 1        | 1       |
| The value for money for the price of your ticket                      | 2    | 2             | 2        | 2                     | 2         | 2        | 2       |
| The frequency of the trains on that route                             | 3    | 3             | 3        | 3                     | 3         | 3        | 6       |
| Provision of information about train times/ platforms                 | 4    | 4             | 4        | 5                     | 4         | 5        | 4       |
| Connections with other forms of public transport                      | 5    | 6             | 5        | 8                     | 7         | 4        | 3       |
| Sufficient room for all the passengers to sit/stand                   | 6    | 5             | 9        | 4                     | 6         | 6        | 10      |
| The availability of staff at the station                              | 7    | 9             | 6        | 11                    | 9         | 10       | 5       |
| Ticket buying facilities  | 8    | 14            | 8        | 6                     | 5         | 9        | 8       |
| Up keep and repair of the train                                       | 9    | 7             | 11       | 9                     | 12        | 8        | 12      |
| The upkeep/ repair of the station buildings/ platforms                | 10   | 15            | 7        | 14                    | 10        | 15       | 7       |
| Cleanliness of the station  | 11   | 12            | 10       | 15                    | 11        | 12       | 9       |
| The length of time the journey was scheduled to take (speed)          | 12   | 8             | 15       | 10                    | 8         | 7        | 16      |
| The attitudes and helpfulness of the staff at the station             | 13   | 11            | 13       | 12                    | 15        | 11       | 11      |
| Your personal security whilst on board the train                      | 14   | 18            | 16       | 7                     | 16        | 16       | 13      |
| The facilities and services at the station                            | 15   | 10            | 12       | 16                    | 13        | 17       | 14      |
| Your personal security whilst using that station                      | 16   | 13            | 14       | 13                    | 14        | 14       | 15      |
| How train company dealt with any delays to the train                  | 17   | 20            | 17       | 18                    | 17        | 19       | 23      |
| Connections with other train services                                 | 18   | 16            | 19       | 19                    | 19        | 13       | 17      |
| The overall station environment                                       | 19   | 24            | 18       | 22                    | 18        | 25       | 20      |
| The cleanliness of the inside of the train                            | 20   | 23            | 21       | 20                    | 22        | 20       | 18      |
| The comfort of the seating area                                       | 21   | 17            | 22       | 21                    | 21        | 18       | 21      |
| The provision of information during the journey                       | 22   | 22            | 23       | 17                    | 20        | 22       | 22      |
| The helpfulness and attitude of staff on train                        | 23   | 21            | 20       | 23                    | 23        | 23       | 19      |
| How any request for information was handled at the station            | 24   | 25            | 24       | 24                    | 24        | 24       | 24      |
| The toilet facilities on the train                                    | 25   | 19            | 25       | 25                    | 25        | 21       | 25      |
| The space for luggage   | 26   | 26            | 27       | 28                    | 28        | 27       | 26      |
| Facilities for car parking  | 27   | 27            | 26       | 29                    | 26        | 26       | 28      |
| The availability of the staff on the train                            | 28   | 28            | 28       | 27                    | 27        | 28       | 29      |
| The ease of being able to get on and off the train                    | 29   | 29            | 29       | 26                    | 29        | 29       | 27      |
| The cleanliness of the outside of the train                           | 30   | 30            | 30       | 30                    | 30        | 30       | 30      |

Source: Prioritisation of required improvements. Paired preference survey. SRA. May 2005.

## Appendix 2 - Footnotes

- 
- <sup>1</sup> National Rail Trends yearbook 05-06. Office of Rail Regulation.
- <sup>2</sup> Ten-year European Rail Growth Trends. ATOC. July 2005
- <sup>3</sup> Network Rail Initial Strategic Business Plan . June 2006
- <sup>4</sup> Ibid
- <sup>5</sup> Passenger Focus. Response to the Department for Transport's Proposals for the Cross Country Franchise. September 2006
- <sup>6</sup> Passenger Focus. Response to the Department for Transport's Proposals for the East Midlands Franchise. September 2006
- <sup>7</sup> Network Rail Initial Strategic Business Plan . June 2006
- <sup>8</sup> Network Rail. South West MainLine Route Utilisation Strategy – draft for consultation. 2005
- <sup>9</sup> Network Rail. Scotland Route Utilisation Strategy- draft for consultation. Table 25
- <sup>10</sup> Passenger Focus. Response to the Department for Transport's Proposals for the Cross Country Franchise. September 2006
- <sup>11</sup> Implications of Overcrowding on Railways, HSE Contract Research Report 225. 1999
- <sup>12</sup> House of Commons Transport Committee. Overcrowding on public transport. Seventh report of the Session 2002-03
- <sup>13</sup> RSSB. Health and Safety effects of Crowding
- <sup>14</sup> House of Commons Transport Committee. Overcrowding on public transport. Seventh report of the Session 2002-03
- <sup>15</sup> Oxford Economic Forecasting. The Economic Effects of Transport Delays on the City of London. July 2003
- <sup>16</sup> Passenger Focus. Passenger Requirements of Rail Fares. July 2006
- <sup>17</sup> DfT. Public experiences of and attitudes towards rail travel. September 2006
- <sup>18</sup> Passenger Focus. Encouraging edge of morning peak travel' . October 2006
- <sup>19</sup> House of Commons Transport Committee. Overcrowding on public transport. Seventh report of the Session 2002-03.



© 2006 Passenger Focus

Freepost WA1521  
Warrington  
WA4 6GP

08453 022 022  
[www.passengerfocus.org.uk](http://www.passengerfocus.org.uk)  
[info@passengerfocus.org.uk](mailto:info@passengerfocus.org.uk)

Passenger Focus is the operating  
name of the Rail Passengers Council