

Executive summary

Introduction

The Network Route Utilisation Strategy (Network RUS) considers planning issues which require a network-wide perspective. It consists of four separate workstreams in addition to the Network RUS: Stations. Two of these (Electrification, and Scenarios and Long Distance Forecasts) have already been established. The Passenger Rolling Stock strategy has been consulted upon and a final document is being developed for publication. The final workstream (Alternative Solutions to Delivering Passenger Demand Efficiently) commenced in September 2010, with a view to publishing a draft for consultation later in the current financial year.

The RUS is developed in conjunction with a range of stakeholders who also have a network-wide perspective. It is overseen by a Stakeholder Management Group consisting of representatives from:

- Association of Train Operating Companies (ATOC)
- Department for Transport (DfT)
- Freight Operating Companies (FOCs)
- Freight Transport Association (FTA)
- London TravelWatch
- Office of Rail Regulation (ORR) – in the capacity of observer
- Passenger Focus
- Passenger Transport Executive Group (PTEG)
- Rail Freight Group (RFG)
- Rolling Stock Companies (ROSCOs)
- Transport for London (TfL)
- Transport Scotland (TS)
- Welsh Government (WG).

A sub-set of these organisations is represented on the Stations Working Group for the RUS, in order to supply more detailed input and expertise for the document.

Scope and purpose

All of the geographically-based RUSs (see www.networkrail.co.uk) have identified that there will be significant growth in passenger demand across Great Britain, albeit with regional variations. For the most part, these RUSs have investigated options for dealing with this growth as it affects on-track capacity – for example by recommending longer or more frequent trains. A few of them have also highlighted the effect of growth on the capability of stations to accommodate increased passenger numbers.

It is clear that many stations across the network already suffer from varying degrees of passenger congestion. However, it needs to be emphasised that such congestion is not solely a function of absolute numbers of passengers. Small stations with comparatively fewer numbers of rail travellers can experience just as much congestion, if not more so, as the major stations in large conurbations. Congestion is caused by a constraint on the free flow of people through a system, and it is therefore important to consider the system as a whole rather than individual elements of it in isolation. Solving the problem at one point in the system may do no more than push the problem further downstream.

Why is tackling congestion important? There are several reasons, including:

- there comes a point where volumes of people cause a safety and security concern, and passenger comfort and satisfaction can be compromised
- congested platforms and concourses can make it more difficult for people who have a variety of impairments to access and enjoy rail travel
- congestion at stations can risk choking off the demand for rail travel, because it adds to the overall journey time and thus makes rail less competitive
- for many people it is an unpleasant experience which they would prefer to avoid, again potentially choking off demand
- there is an economic and social cost to the nation if time is wasted as a result of congestion.

This RUS therefore examines congestion in and around stations to identify where the problem already exists, and where it is likely to manifest itself in the future.

It then considers a range of possible solutions, or a toolkit of interventions, which may be deployed to relieve congestion. The toolkit includes a hierarchy of possible solutions, ranging from those with little or no capital cost, to those which may require more significant interventions. In all cases, the value-for-money of any proposed solution should be taken into account.

However, the RUS does not seek to recommend or impose specific solutions for individual stations, because each location has its own unique set of specific characteristics. Nor does it consider how the rail industry should be structured to deliver these improvements. The RUS focuses instead on the potential means to address congestion at stations. It is far more appropriate that bespoke solutions are found and developed at local level, involving all stakeholders in the process, but making use of some or all of the interventions suggested by this RUS.

Defining the baseline

The RUS commences by analysing exactly who uses the stations on the network and for what purpose. Apart from rail travellers, typical users might include:

- those meeting people off trains
- those bidding farewell to passengers
- those seeking information about rail services
- railway staff
- other public transport staff
- taxi-drivers
- employees of retail or catering outlets
- customers of retail or catering outlets
- contractors providing goods or services to the station
- emergency services
- railway enthusiasts.

Sadly, (but it is pleasing to report decreasingly so with the spread of CCTV and other security measures¹), some stations can attract people participating in antisocial behaviour or gathering without any purpose related to the rail network or the station and its facilities.

The station environment can be divided into three distinct zones:

The Access Zone – this is the area of (and surrounding) the station where departing rail travellers arrive at the station, or where people who have just arrived by train commence the next leg of their journey.

The Facilities Zone – this is the area of the station (typically, but not exclusively, the concourse or booking hall) where users gather information, make purchases, or otherwise avail themselves of the facilities on offer. In many stations the Facilities Zone may also include a waiting area.

The Platform Zone – in this area, users alight from trains, wait for and board trains, or interchange between trains.

At many stations there may be overlaps between the three zones. For example, the facilities zone may actually be on the platform in many cases.

The various categories of users described above will not necessarily need to use all of the zones whilst undertaking their activities at the station, but may nevertheless contribute to the total footfall and potentially come into conflict with other users.

The RUS then considers how to assess the numbers of the different types of users at stations. For passengers, the main source of data is that based on ticket sales, supplemented by a range of passenger-counting surveys. Each data source has certain strengths and weaknesses which are discussed further in **Chapter 3**. What is clear, however, is that these data sources do not provide a complete, comprehensive and up-to-date picture of exactly how many passengers are at a station at any given time of day, day of the week, or time of the year.

The industry does not routinely or systematically count the numbers of non-travellers at its stations. Counts tend to be done on a one-off basis, often because a significant redevelopment is planned to take place. In such circumstances, data on all station users are collected and input into both static and dynamic models of passenger movements in order to predict how certain changes to the physical space in the station will impact on the flow of people around the building. Only a small number of stations have had such models constructed, so again, therefore, there is a gap in the information available.

As mentioned above, there is not a direct correlation between the number of station users and the level of congestion observed. So merely analysing which stations have the greatest number of users will not of itself highlight where crowding is a particular difficulty.

1 See the British Transport Police Statistical Bulletin 2009/10

Executive summary

Therefore to understand where congestion at stations is deemed to be an issue, the RUS drew on two main data sources. First, it compiled a list of stations which several of the geographically-based RUSs had cited as already having, or likely in the future to have, significant congestion. Secondly, our industry partners were asked to nominate their own stations at which they considered congestion to be a current or future problem.

The next question to consider was the definition of congestion, as it is apparent that there are regional variations in what people consider to be a congested station. It seems, for example, that rail users in London and the South East are more tolerant of levels of crowding than those elsewhere in the country.

A measure of the degrees of pedestrian congestion has been used, known as Fruin Levels of Service (named after its inventor). It seeks to ascribe one of six 'levels of service' to crowding situations depending on space per passenger and rates of flow. These 'levels of service' range from free and unconstrained movement through to almost complete standstill.

Each TOC was then asked to complete a simple questionnaire in order to identify what 'levels of service' were encountered at their nominated stations (both peak and off-peak) and in what area of the station this congestion occurred.

In total, some 118 stations across the network were nominated as having issues with passenger congestion. However, it is clear from the questionnaire responses that there is considerable variance within the sample, with some of the stations having no discernible congestion at all.

Drivers of change

In its 2007 White Paper 'Delivering a Sustainable Railway', the previous UK Government set out its vision for the future of the railway in England and Wales. It sought a railway which over the following 30 years:

- will handle double today's level of freight and passenger traffic
- will be even safer, more reliable and more efficient than now
- will be able to cater for a more diverse, affluent and demanding population
- will have reduced its own carbon footprint and improved its broader environmental performance.

Ministers in Scotland published 'Scotland's National Transport Strategy' in 2006, which had the following strategic objectives covering the subsequent 20 years:

- improving journey times and connections
- reducing emissions
- improving quality, accessibility and affordability.

A theme for both Governments during the current Control Period (CP4, 2009-14) has been increases in capacity, as laid down in their respective High Level Output Statements. In England, this also included specific station improvement schemes such as at Reading and Birmingham New Street.



As stated earlier, going forward to CP5 and beyond, all the geographic RUSs have indicated that passenger growth will continue, albeit at different rates across regions and market sectors.

All of these macro-level factors will result in increased passenger numbers at stations across the network. However it is not only macro-level factors which influence the numbers of people using stations, and levels of congestion. Changes to train service patterns, local housing or employment developments, modernisation of stations, installation of automatic ticket gates – all of these local factors, and more besides, are potential causes of increased congestion.

The rail industry is seeking to accommodate growth in a cost effective manner. Since the publication of the Draft for Consultation, the 'Rail Value for Money Study' led by Sir Roy McNulty, has published its findings. The Government is now considering its response to the recommendations and developing a White Paper. The RUS is consistent with the key elements of the McNulty review as its recommendations seeks to promote solutions to manage demand rather than incur capital expenditure unless it is absolutely necessary. The RUS recognises that the rail industry as a whole has a substantial challenge to reduce the cost of running the railway while catering for growth and maintaining quality.

Gaps and options

Two different categories of gap were identified: information gaps, and congestion gaps ie locations where congestion is, or will become, a critical issue unless interventions are made.

The RUS considers how the industry might gain a better understanding of the actual numbers of people using its stations. Clearly, to obtain comprehensive and meaningful data on station usage at all 2,520 stations would be an expensive exercise, and in many cases the cost of obtaining the data would far outweigh any value to which such information could usefully be put. However, and especially at the larger stations, such information will be helpful in:

- ensuring that congestion levels remain within safety tolerances
- improving customer experience by easing congestion
- identifying congestion hot spots
- providing evidence to support the setting of station rents
- identifying trends over time

- predicting what levels of growth will cause the station progressively to 'fail'
- supporting investment decisions.

One mechanism for collecting this data would be through the concept of Station Master Planning, whereby stakeholders aim to achieve a clearly articulated and agreed vision for the station concerned, describing what the station is now and what it needs to be in the future. Such an approach would require a clear understanding of the capacity and demand for rail (and other modes) at or near to the station.

A further initiative would be to extend the scope of Station Travel Plans beyond the present 24 pilot stations (together with those on the Southern franchise). The RSSB is currently reviewing the outcome of these 24 pilot stations. Station Travel Plans articulate a strategy for managing the demand for travel to and from a station, with the aim of reducing its environmental impact; typically this would involve support for walking, cycling, public transport and car-sharing. For the process to be effective, it is necessary to collect accurate and up-to-date information on station usage.

Automatic counting systems can be used to count individuals moving through open spaces, and Network Rail is currently considering the potential for this technology. Such systems would enable a far more comprehensive picture of station usage to be obtained, with the ability to monitor and measure daily, weekly and seasonal peaks. The information can also be used as input into both static and dynamic modelling tools without the need for labour-intensive and error-prone manual counts.

On-train counting systems already exist, but with varying degrees of sophistication. Ideally all rolling stock would be fitted with equipment which could count alighters, boarders, and those on the train automatically, thereby providing useful information about both train and station usage.

From the assessment of crowding levels at the stations nominated by stakeholders, it was possible to apply background growth rates in order to predict what levels of crowding would occur in 2019 and 2031 if no interventions were made.

Supported by a set of case studies, the RUS then presents a generic toolkit of interventions which could be considered as a means of relieving congestion. These range from 'soft' options such as encouraging more use of print-at-home ticketing, or relocating information points, to the more expensive options involving provision of additional physical space. The options are presented in order of degree of intervention for each type of gap.

Consultation process and responses

The consultation period commenced with the publication of the Draft RUS for Consultation on 6 May 2011 and ran for a period of 60 days until 8 July 2011. A wide range of responses was received from interested parties ranging from Train Operating Companies, to a property developer and individual station users. This reflects some of the diverse array of interests in stations on the network. The responses received recognised the importance of congestion at stations as a potential barrier to growth.

The overall response to the RUS was positive. Support was expressed for the key gaps that have been identified in terms of the congested stations and information on station usage. Respondents welcomed the partnership approach using tools such as station travel plans. A number of respondents gave further useful information about specific stations such as Chelmsford, Cardiff Central and Cardiff Queen Street.

The formal consultation responses that have been received are published on Network Rail's website www.networkrail.co.uk and **Chapter 6** summarises the key themes along with actions taken as a result of the consultation.

Strategy and next steps

The RUS recommends interventions at specific stations in the medium term (Control Period 5 2014-2019). However, the list of stations considered by the RUS is not intended to be exhaustive. For those stations that have not been included, a process is proposed which will enable the situation to be re-assessed in the light of changing circumstances.

This proposed process builds upon the toolkit which has been developed to provide guidance to those considering potential means to address congestion at stations. It is also intended that the process will provide a focus for the collection of information on station usage.

Many of the stations that were nominated as congested by TOCs and stakeholders already have committed schemes in hand, or planned, which will resolve the issue. For example, the Thameslink Programme and Crossrail will address congestion at Farringdon, and IEP, TfL investment and Crossrail will address congestion at London Paddington. The RUS therefore only makes recommendations for investigating interventions at stations which have no committed plans to tackle congestion. As a result stations like London King's Cross, Reading and Birmingham New Street do not appear in the recommendations.

At a total of 11 stations, therefore, it is recommended that interventions are investigated to understand and address crowding by the end of Control Period 5 (CP5) in 2019. The stations are as follows:

- Basingstoke
- Bristol Parkway
- Clapham Junction
- Liverpool Lime Street
- London Charing Cross
- London Fenchurch Street
- London Victoria
- Preston
- Surbiton
- Watford Junction
- Wimbledon.

It is important to note that the scale of intervention to be considered at these stations may vary considerably. 'Softer' measures (measures that need little or no capital expenditure) from the toolkit may be appropriate at some locations.

During the consultation process a number of the recommendations for specific stations were changed in the light of further information received. This has resulted in the inclusion of Watford Junction in the list of those stations recommended for intervention in CP5, and the moving of Liverpool Central to the 'continued development' category. Current works at Earlsfield are likely to address the congestion problems and as a result the station has been removed from the recommendations.

There are a number of stations with long term plans which would address existing congestion issues but which may not be fully committed or developed. The RUS recommends the continued development of existing plans at the following 12 stations:

- Barking
- Bristol Temple Meads
- Chelmsford
- Derby
- Finsbury Park
- Glasgow Queen Street (High Level)
- Leeds
- Liverpool Central
- London Euston
- Manchester Piccadilly (west side platforms)
- Manchester Victoria
- Tottenham Hale.

At eight stations, there is some uncertainty whether current improvement plans will fully address congestion issues in the future, and it is therefore recommended that the situation at these locations be kept under review. They are:

- Birmingham Snow Hill
- Bromley South
- Herne Hill
- Lewisham
- London St Pancras International (Midland Main Line areas)
- London Waterloo East
- Orpington
- Seven Sisters.

The RUS recommends that the need for interventions in the medium to long term should be kept under review for a further 23 stations. The recommendation for these stations is that any future planning work should include investigation of the congestion at these stations in greater detail and appraise options for addressing the congestion gaps. As with the list of stations above, the RUS only makes recommendations for investigating interventions at stations which have no current plans to tackle congestion. So, for example, where the impact of major schemes such as Crossrail, or the Thameslink Programme, are likely to affect congestion, these stations have not been included. It is also important to note that 'softer' measures from the toolkit in **Chapter 5** to address station congestion may be appropriate at some of these locations. The stations are as follows:

- Balham
- Birmingham Moor Street
- Bradford Forster Square
- Bradford Interchange
- Cardiff Central
- Cardiff Queen Street
- Coventry
- Glasgow Central (Low Level)
- Guiseley
- Halifax
- Huddersfield
- Lichfield City
- Lincoln Central
- Liverpool James Street

- London Marylebone
- Nuneaton
- Princes Risborough
- Salford Central
- Shipley
- Solihull
- Tamworth
- Walsall
- Woking.

The RUS emphasises that these lists of stations are the current picture of congestion. However, circumstances might mean that the priority for addressing congestion may change over time. Factors at some stations will increase congestion, whereas others may see a decline. In order for recommendations to remain relevant a process has been suggested in **Chapter 7** to review congestion in future years.

The RUS makes no recommendation about who should undertake or fund the congestion relief works required at these stations, nor about what specific works are needed. However it is recommended that a combination of measures described in the toolkit in the Gaps and Options chapter will prove helpful in formulating plans.

Similarly, where lack of car parking capacity has been highlighted as an issue, the RUS recommends the adoption of Station Travel Plans, and acknowledges that there exists a wide range of policy choices for generating parking capacity which are determined by local circumstances. It is, therefore, appropriate that local solutions are developed and applied as befits the local environment.

Next steps

This RUS will become established 60 days after publication unless the Office of Rail Regulation (ORR) issues a notice of objection in this period. The recommendations of the RUS will be kept under review and (if it is merited) revisited in the future. The RUS has sought to outline a process by which the recommendations of the strategy can be taken forward by the industry. It provides a flexible approach which will be appropriate irrespective of any changes in responsibility for stations within the industry.