

## Still Waiting?

Recent data suggests that we may be nearing the end of the main impacts of the Corona virus on the railway. Many TOCs are reporting that leisure travel is now above pre-Covid levels, even if commuting and business travel still lags.

But fresh problems have arisen for the rail industry in Britain. The Williams-Shapps review of industry structure does not look likely to make it onto the statute book until 2024, even if some preliminary measures (such as the separation of the industry lobbying arm of the RDG into “Rail Partners”) have been completed. Delays to the main programme are hindering further specific progress, e.g. on fares reform and strategic network developments. Good news on the railway is therefore currently dependent on the fulfilment of previous decisions, from the very large (e.g. HS2) to the relatively small (e.g. new stations).



*Class 350 at Perry Barr, a station rebuilt for this Summer's Commonwealth Games in Birmingham*

Those latter big decisions have been more complicated in recent months by spikes in energy prices and now significant changes in Government policies about ... almost everything. Although the fuel-efficient railway industry might be reasonably relaxed about increases in petrol prices for car-owning passengers, the recent increases in inflation are leading to an effective reduction in purchasing power – which prejudices the recovery in leisure travel, which is discretionary expenditure.

Uncertainty about public finances within a lower-tax-regime Government also makes it difficult for public-sector rail managers to know what budget they may or may not have, whilst discouraging private-sector participants from investing.

The Railway Consultancy has continued to be active through these difficult times, although our overseas business has been severely affected by the combination of Brexit and Covid. Domestically, we seem to have undertaken a lot of work which is either commercial-in-confidence and/or repeat business (so not worth writing about again!). However, with our colleagues at Transport Investigations Ltd, it is worth noting that we are undertaking Revenue at Risk surveys and analyses for multiple train companies.

Nevertheless, we are able to report on various other projects on the railway, and some of the research we are involved with, behind the scenes. Otherwise, like you, we watch with interest the balance between the numbers of passengers returning to the railway, and the Treasury's willingness to pay for train services in which to carry them!

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### SWR Station Travel Plans

The rail industry undertakes continuous improvement works, including major capital projects, to its infrastructure, stations, rolling stock and other elements of the rail journey experience. However, there are also many opportunities to make improvements to the journey experience when travelling to/from stations, helping rail to be more competitive for delivering door-to-door journeys. This is likely to become increasingly important given the growing use of rail by more occasional leisure travellers as demand recovers post-Covid, as these customers are likely to be less familiar with rail travel while also being more discretionary and more likely to have the option of car use than traditional commuter travellers. Fortunately, if these opportunities can be identified, many station access improvements are likely to be possible in shorter time-frames and with less expenditure than required for large-scale rail infrastructure projects.

South Western Railway therefore commissioned RCL to undertake a series of Station Travel Plans at 148 stations. These documents set out how access to and from stations by all access modes might be improved.



*Ensuring that bus stops are adjacent and have appropriate information can be particularly valuable where stations have hinterlands with leisure potential, as here at Axminster*

As part of this programme, we visited the 148 stations to undertake access audits, and combined these findings with desktop research, passenger surveys and stakeholder discussions, writing up the findings into comprehensive reports with recommendations for improving access. This included assessing such factors as the adequacy and state of approach paths and entrances, cycle routes and storage, the provision of car parking, nearby bus routes and bus stop provision, information and signage to/from local amenities and other transport facilities. We put all this into perspective with a consideration of recent demand levels and trends, and of local development opportunities, leading to detailed recommendations for all stations, both for SWR and for other stakeholders (Network Rail, local authorities etc.).



*Cycle racks can be a valuable and easy improvement at medium and smaller stations: this one is at Weybridge*

SWR is working with rail and external stakeholders to identify how these recommendations might be prioritised for delivery where funding is available. We are encouraged to note that many of these are of relatively low-cost and therefore implementable in the not-too-distant future.

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## Service Quality Audits

Many high-performing railways undertake monitoring of their service quality, in order to ensure that standards are maintained if not improved, and that problems are being addressed. The recently introduced National Rail Contract's (NRC's) required train operators to develop and operate such regimes, covering stations, trains and customer service.

South Western Railway (SWR) and TransPennine Express (TPE) both set up such systems towards the end of 2021 as was mandated by the DfT. These formally needed to be subject to an external review but, given the short time-frame in which systems had been developed, this also gave managers an opportunity to receive an independent assessment with suggestions for improvement. The Railway Consultancy Ltd (RCL) was invited to carry out this work.

The key elements of TOC service being monitored on an ongoing monthly basis were the cleanliness/state of maintenance of stations and trains, together with items of customer service (such as the speed of responding to Help Points). The DfT contract requires different faults to be addressed within different time-frames – which therefore necessitates management of the fault data and of staff responses to fixing any problems identified.

Both TOCs were using a market research company to organise the service quality inspections, and a technology provider to process the data. An App (Service Quality Register) had been developed to enable easy identification of the assets being audited, and easy assessment of their condition, including a facility to load photographs of any sub-standard items.

By interviewing those responsible at both companies and their suppliers, we received detailed explanations of how the systems were working in practice, including how failure rates for specific assets were aggregated into quality scores. We undertook some worked example calculations using a sample of data and confirmed that we were able to reproduce the scores calculated. We also accompanied SWR and TPE staff out at stations, comparing the situation on the ground with the most recent reports for that station, and evidence from the quality system of faults which had been addressed.



*This is exactly the sort of seat problem which needs to be attended to quickly, and for which a SQ system can help*



*Stalybridge, the TPE station validated for the SQ process*

Most pleasingly from our review, it became apparent that both the TOCs concerned were being able to use the SQ system as a positive stimulus for genuine improvements to be made, and were not merely considering it as a box-ticking exercise.

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## Testing of Passenger Counting System

Many modern trains come equipped with train loading systems, designed to provide information on the numbers of passengers on board for the planning of train services, catering provision, and associated finances. Such a system was mandated by the Department for Transport for the Class 800-802 InterCity Express fleet manufactured by Hitachi.

During 2021, Hitachi selected RCL to assist with work pertaining to the Passenger Counting System (PCS) due to our expertise with similar counting systems. These require a 'systems engineering' understanding not only of physical issues, but also of passenger behaviour and statistical processes.

Over a period of several months, we undertook a structured program of operational research Hitachi's London based depot. We started with some extremely simple tests (e.g. of one member of staff boarding), and gradually added more passengers/ doors and examined other processes, undertaking control experiments and repeating tests to ensure that we obtained and understood consistent results. We are grateful to Hitachi engineers for supporting us, for instance in 'bleeding off' data from train systems onto laptops.

We developed a detailed understanding of the system, and were able to assist Hitachi with their development programme.



*RCL staff at Newbury Racecourse*

In March 2022, we organised a special train with

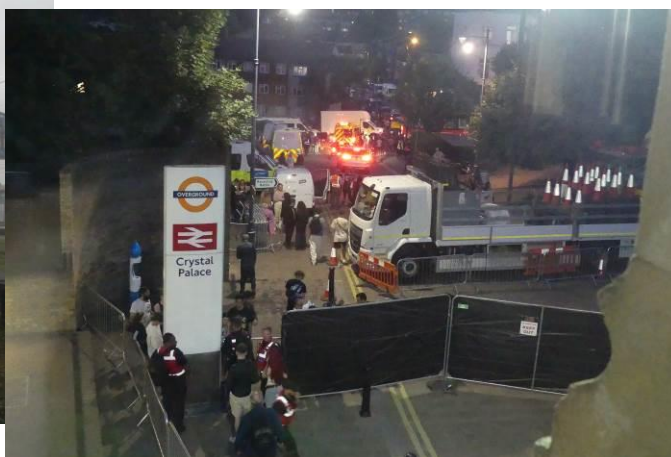
many colleagues aboard, to finalise our testing and validate hypotheses amongst larger groups. The train ran to Newbury Racecourse station, where we were able to test boarding & alighting in a realistic 'normal' passenger setting, but at the little-used excursion platform, thereby not disturbing more important passenger flows.

RCL recommended appropriate adjustments, and continued joint investigations between RCL and Hitachi have further developed the system. Despite being interrupted by a fatality on the line, we then supported validation runs to demonstrate the performance of the system and prove compliance to Hitachi's requirements.

*Because of the location of one of Hitachi's depots in London, we now like to claim that we have worked at the North Pole (!). This should be taken in the context that we have genuinely worked on all the continents of the world except Antarctica.*

## Crowd Management at Events

During the Summer, the Birmingham area hosted the Commonwealth Games as a series of major sporting events. The rail network was a key element of the transport solution, and this required careful planning at those stations (e.g. University, Birmingham International) expected to have large crowds. Because of the Railway Consultancy's location at Crystal Palace station, and the multiple events held here with which we are familiar, we were able to provide some friendly guidance to WMR to help ensure things went smoothly in the West Midlands (not least because they haven't always done so here!)



*View of post-event conditions from our offices at Crystal Palace station*

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### Station Stops

As many of our contacts may know, we have worked with the Transport Strategy Centre at Imperial College for many years, including on the collection, sharing and analysis of data about the movement of passengers during station stops. This is a key relationship to understand when compiling timetables, and has the advantage that the railway itself can affect the outcome.

Having undertaken over 220 surveys at various locations in Britain and around the world, to the same method, we have continued to compile a database. This includes not only the times taken for various elements of station stops (e.g. door opening, despatch, passenger alighting and boarding) but also the numbers of passengers involved. From this, we have recently been able to re-estimate the impact of 28 different (passenger flow, infrastructure, train design, timetable) factors on passenger movement rates. This paper has now been published as:

Harris, N G, de Simone, F & Condry, B (2022) "A Comprehensive Analysis of Boarding and Alighting Rates", Urban Rail Transit pp. 67-98, DOI 10.1007/s40864-021-00161-8.

With thanks to our friends at SWR, repeated observations at Clapham Junction enabled us to analyse the impact of Covid on passenger movement rates. A short report on that has been shared with RSSB: spoiler alert: it seems to show

that alighting rates have increased slightly, and boarding rates reduced slightly, both of which may be interpreted as showing passengers' greater disinclination to travel in congested situations.

Harris, N G, & Ehizele, J (2021) "The Impact of Covid on Passenger Boarding and Alighting Rates".

### Freight Costing

Our support for the development of FreightArranger, a railfreight aggregator, has been through the development of a database of domestic intermodal freight flows potentially amenable to rail, and in operational planning (to try to create train diagrams which use the expensive assets of a train of wagons efficiently). However, the knowledge learnt through the analysis of multiple scheme options has led us to challenge the orthodoxy of railfreight: long trains may minimise train driver numbers and train paths, but also reduce the number of potential customers. Good asset utilisation can also be achieved through the more intensive use of shorter trains e.g. by running more 'legs' for more customers within the same 24-hour period.

These and other findings have not only been shared with the recent GB Railways Transition Team freight consultation, but were presented at a recent conference at the University of Aston.

"The Economics and Practicalities of a Rail Resurgence", Harris, N G & Radcliffe, N, Logistics Research Network Conference, Aston University, Birmingham, 07/10/22.

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### Consultancy Contacts

The Railway Consultancy provides services across areas such as demand forecasting, operational planning, strategy and business development; for more details see our website [www.railwayconsultancy.com](http://www.railwayconsultancy.com).

*Nigel G Harris*

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N.B. We have transferred our registered office address to that of our accountants (see below).

### Publications

Still available from [www.anharris.co.uk](http://www.anharris.co.uk): "Designing and Maintaining the Urban Railway" and "An Introduction to Railway Operational Planning". An up-dated version of "Wheel: Rail Interface" is (still!) in preparation.

