

More but Smaller Railfreight?

Since September 2017, the Railway Consultancy has been an active member of the F3 project, designed to attract more freight onto the British rail network. F3 refers to fast, frequent fulfilment, and is a project part-funded by Innovate UK (an arm of the Department of Business) and supported by the Department of Transport. The main partner is TruckTrain Industries (erstwhile promoters of multiple-unit freight trains), with other members of the group including transport logistics/economist Andrew Palmer, and Newcastle University.

Whilst railfreight has done well in recent years, its focus has traditionally been on bulk goods, to which it has added maritime containers. A few of the larger supermarkets have sponsored domestic container traffic, but rail currently has virtually none of the internal logistics market. F3 aims to change that, but this involves challenging the status quo across all potential journey stages. Collection from/delivery to final customers must be undertaken more efficiently than has hitherto been the case, whilst terminal operation must be at the upper end of current practice.

A quite different type of train operation, however, will have to be developed. It is envisaged that shorter trains will run at higher speeds. This simultaneously enables them to run more easily between passenger trains but also thereby to provide both faster journey times (attracting more customers) and higher levels of asset utilisation (and hence profitability).

RCL's roles in this project have been based on our core skills of demand planning, operational planning and the link between the two. Data on British domestic logistics flows provided by Andrew Palmer was adjusted to find those movements which had the best fit to rail geography. Operational planning has included identifying terminal locations (which need not be conventional

railfreight terminals), efficient train working between them, and then detailed train timings.



Loading pallets at Long Marston

During May, we helped to organise a set of operational research-type activities at the Long Marston rail site in Oxfordshire. Here, a series of timed experiments were undertaken, to ascertain the realistic timings of transfers of containers and pallets between rail wagons and road trailers (and vice versa) in a pseudo-rail terminal environment. Equipment used included two sizes of fork-lift trucks, and truck-borne Containerlift lifting gear.

As well as 'free-flow' tests, we also undertook timings of sites marked out using traffic cones to represent a number of specific but site-constrained locations we have in mind. An important conclusion from this work was that the details of site layout were less constrictive than we had feared, but that the generic timings of transfers of containers and pallets were greater than previously-understood, if one took into account a full cycle of a container being taken off a trailer, loaded onto a train, and the truck then reloaded with a different container from the train.

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Project News: National

NR availability in CP6

As monopolies, railway infrastructure companies such as Britain's Network Rail (NR) need effective regulation, in order to ensure that they are maintaining the network at an appropriate work rate and cost, and enabling train companies to use it. In Britain, the relevant regulator is ORR, managing Network Rail through 5-year-long Control Periods, the next of which (CP6) starts in April 2019. Their preparatory work for that started in 2017, considering NR's provision of access to the network i.e. whether their programme of route closures for maintenance was an appropriate balance between the needs of maintenance and traffic. This requires a good understanding of the ways in which train operators try to plan and operate commercial traffic, and acceptance that the final measure(s) decided upon need to be sufficiently simple/clear to generate the right behaviours by NR staff.

ORR therefore invited a consortium of SNC-Lavalin and the Railway Consultancy to assist with the thinking of a range of performance indicators, some of which had been suggested by Network Rail. A range of factors are

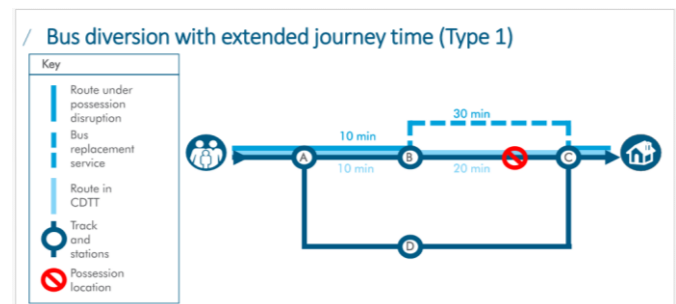
obviously relevant to this balance of access v maintenance - for instance, how much advance notice is given, and how much work actually occurs during the engineering possessions taken (but how do you measure that?). However, neither of these say much explicitly about the direct impacts on customers, whether passenger or freight.

SNCL and RCL therefore worked our way through a number of possible metrics, including those relating to the number of train-slots affected by engineering works, how many traffic-hours of substitute buses were required to maintain service, or whether just an extension of the existing Schedule 4 system for disruption payments would be adequate. Specific experience considered from elsewhere included London Underground's "Lost Customer Hours" metric.

In order to ensure that the proposed metrics would be applicable in practice, our analysis was based on the identification of six different types of possession disruption e.g.



Is the network available enough during possessions, such as this one to build a new platform at Redhill?



Recommendations were made to ORR for potential metrics, and these are now being assessed on their suitability for CP6.

More but Smaller Freight? (contd.)

Current work is focussing on the planning of a test train due to run in September, after which it should be possible to understand the economic, as well as physical, practicality of such operations. If the trial goes to plan, it may lead to the roll-out of commercial services and a significant increase in the potential for rail freight, which was the whole purpose of Government support for the project in the first place.

Cross-loading containers at Long Marston using a Containerlift vehicle (on right)



Project News: International

Overnight stock review Norske Tog

Around the world, overnight rail services are not doing well. A combination of low-cost airlines, faster day-time trains and the lower-than-average utilisation/ higher-than-average cost of overnight trains are all exerting pressure. However, there remain some niche markets (for instance, capital cities to distant smaller towns) in which overnight rail services provide an invaluable option for passengers.

Taking into account the age of existing overnight rolling stock in Norway, Norske Tog (Norway's train leasing company) asked the Railway Consultancy to report on some interesting rolling stock currently operating in Queensland, Australia. Unlike most overnight services, the "Spirit of Queensland" is operated by new multiple-unit trains which incorporate a number of unusual features, including RailBeds: reclining seats organised in 2+ 1 formation which fold down into fully-flat beds.



Spirit of Queensland before departure from Townsville



Double bay of RailBeds in their daytime position

We set out to undertake a critical review, and did indeed find a number of unsatisfactory features during our 18-hour practical test. However, not all of these need to be translated into an equivalent concept in a European context.



RailBed in its sleeping mode (without the bedding!)

Some issues are easily-overcome: for instance, regarding the security of personal belongings, the trains have overhead luggage compartments - but these are not lockable! Other issues are not relevant to Europe: for example, the "Spirit of Queensland" provides proper at-seat dining services because the full journey between Cairns and Brisbane takes 24 hours - but most (if not all) European sleeper services are for a period not longer than 10 hours, for which this feature (and its associated cost) would be unnecessary.

Similarly, the staff requirement to change RailBeds from one mode to another en route in Queensland (thereby temporarily disturbing passengers) need not apply in Europe, where such changes could be made after morning sleeper arrival, enabling the train to carry seated passengers during a day-time run, before staff at the terminal then changed the seats back into beds in the early evenings. Other detailed engineering/operational issues (for instance, about seat mechanisms) were raised by maintenance staff (who kindly volunteered their time) at Bowen Hills depot in Brisbane.



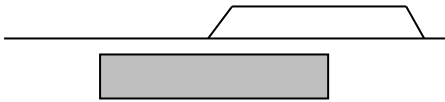
QR staff demonstrate the hinge in the seat mechanism

This information was then all fed back to Norske Tog, to add to their knowledge of market alternatives.

Abbey Line Upgrade?

For several decades, train service levels on the Watford Jc - St Albans Abbey line have been regarded as unsatisfactory. Trains usually run at a 45-minute interval, reflecting what is possible on this single-track branch line. Nevertheless, given general growth in rail traffic, supported by local users' group Abfly and a Community Rail Partnership, this problem is becoming more acute. A study in 2009 into converting the line into a tram, and extending it at each end of the route, suggested that this would be sufficiently expensive as not to be good value for money.

However, in order to ensure that some progress might indeed be made, Abfly commissioned the Railway Consultancy to undertake a feasibility study into the provision of a passing loop along the line, which would enable an increase in train service frequency. The first part of this crowd-funded study has concentrated on physical engineering possibilities, and has largely been undertaken by colleagues at Cadenza consulting. This has showed that it would be possible to construct a passing loop for around £10m, provided that signalling works were minimised. One particular layout option that appears promising is the 'Penryn' solution of having two train berths along the same (long) platform, likely to be at Bricket Wood; such an option removes the necessity of providing footbridge access to a new platform on the other side of the line.



Would this type of arrangement work on the Abbey line?

Funding is now being assembled for the second phase of the study, which is designed to re-assess expected patronage, in the light of demand expected, not only from existing customers, but also from those likely to arise from significant development currently underway around stations along the line (notably directly adjacent to Watford Junction station).

Revenue at Risk Developments

With our survey partners at Transport Investigations, we continue to undertake revenue at risk surveys for our train operating partners, enabling them to ensure that they are collecting the revenues due to them. To help this process, Principal Consultant Richard Talbot has been developing an iOS and Android app to record survey data, customised to each operator's requirements. This enables automatic downloading of survey records into databases for quicker and easier analysis, making the whole process cost-effective.

Consultancy Comment

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.

We have recently joined the MOSAIC consortium of SME railway consultancies, in order to widen the range of services we and colleagues can provide.

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Publications

Both still available from www.anharris.co.uk:
“Designing and Maintaining the Urban Railway” and “An Introduction to Railway Operational Planning”.

