INFORMED SOURCES e-Preview November 2017

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There's a varied batch of reports in Informed Sources this month, including an old favourite and some updates of current topics

Traffic Management – technology before process?
Steventon Bridge electrification conundrum
Ridership – latest stats confirm decline
PRM-TSI compliance update
Electrification – Network Rail tries again

A strange press release arrived in my in-box at the end of September. It announced that Mott MacDonald has been appointed by Network Rail to support the implementation of the Hitachi Tranista traffic management system for Thameslink.

Motts will 'advise on the necessary changes to operational roles, processes and decision making to support the introduction of the new technology, as well as operator workload prediction'.

Why is this strange? Well, Thameslink is due to start running 24 Siemens Class 700 Electric Multiple Units an hour through the Central Core in little over a year's time. It has been obvious to many people that the real challenge will not be signalling the trains through the tunnels, but getting them to arrive at London Bridge and St Pancras from multiple routes at the right time and in the right sequence.

In July 2015 Hitachi was awarded a £24 million contract to provide its Tranista Traffic Management (TM) system for the approaches to the central core. A year later, Atkins, was brought in to support Hitachi with the design and configuration of Thameslink's computer nerve centre at Three Bridges.

So why, a year later, does Network Rail need to call in Motts to advise on how to integrate the Tranista system within existing operational centres and its impact on staff and accommodation, including physical desk design? It's particularly puzzling because at the South Wales Control Centre (SWCC) in Cardiff Network Rail, Arriva Trains Wales and Thales have already done what looks to me like a pretty good job of working out how to use 'Isolated' Traffic Management, or Operations Decision Support Tools (ODST) as they call it, in the real world of control and signalling.

Three Bridges will be much busier, of course. Even so, a day at SWCC would certainly benefit Thameslink, but only partially. At Three Bridges, in addition to ODTS at West Hampstead and Kings Cross boxes, Tranista is due to provide 'Interfaced' TM for the workstations controlling the Thameslink approach routes from the south. As its name implies Interfaced. TM has an interface with the existing control centre work stations.

Thus it seems likely that Motts' main task will be sorting out Tranista's interface with the Siemens Controlguide Westcad workstations at Three Bridges and analysing workload sharing between operators.
Having previously come round to the concept of Isolated as a way into TM, I'm now not so sure.

As an aid to fringe boxes to a main line with Integrated TM ODST is an obvious benefit. But as the primary Traffic Management tool it is a bit like using a Ferrari for the school run. Anyone who has sat beside a signaller in a modern control centre will know that they are busy people, particularly handling communications. This was why ARS was an essential feature of the original IECC.

With Resonate's pioneering 'Integrated' TM for the Great Western Main Line the immediate aim is to provide more tools for the signallers and controllers at Thames Valley Signalling Centre (TVSCC) who are already familiar with Resonate's Scalable workstations and facilities. This is a genuine 'integration' rather than a 'bolt on' as at SWCC, Three Bridges and Romford ROC.

Transport Secretary Chris Grayling claims that Trans-Pennine will be the first digital Intercity main line. Er, not if Resonate's Luminate project at TVSC goes to plan.

Bridge delay imposes penalty
In the March 2016 column, following a long session with the Great Western Electrification Project (GWEP) team, I included a table of the 'Hendy Dates' for the commissioning of the various Route Sections. The footnote for RS5 Didcot-Wootton Basset said 'Solution for Steventon High Street Bridge needed'.

In a letter to stakeholders on 11 September, Network Rail confirmed that the demolition and reconstruction of Steventon Bridge will not be possible in time for the start of electric services in December 2018. This bridge, just outside Didcot, is adjacent to a level crossing which means that the overhead contact wire has to go up to its maximum height to clear traffic over the crossing and then fall rapidly to go under the bridge.

Wire gradient at such height changes is determined by the speed of the train. The rule of thumb is that the steepest gradient is five times the speed in mile/h.

For 125 mile/h the steepest gradient is thus 1:625. But the proximity of bridge and crossing imposes a gradient of 1:270.

So working backwards and rounding up you get a maximum speed of 60 mile/h. Applying the standards for the braking distance to speed restrictions, plus the time for a train to accelerate back up to line speed would cost around 2 min.

Given that electrification plus the new Hitachi Class 800 bi-mode multiple units is being claimed to save 'approximately' 15 min between London and Cardiff, a loss of two minutes, while not critical, will make a difference.

According to Network Rail, a 'temporary solution' is to be put in place pending reconstruction of the bridge. But I was also told 'Concurrently, we are exploring the IEP Train's Traction Power Change-Over capabilities and whether a change to diesel power east of Didcot Station could be utilised to reduce the number of trains impacted by the speed restriction to electric traction'.
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So yet again the infrastructure engineers are dumping their problems on the traction engineers to solve. In all fairness I should add that when I put this theory to Network Rail Chief Executive Mark Carne the other day he dismissed it as 'ridiculous'.

Work is still under way on the Automatic Power Change Over (APCO) system for the Great Western Class 800 fleet using messages from the standard Eurobalise, which is part of the European Train Control System. This facility is already being used for the Class 390 Tilt Authorisation and Speed Supervision (TASS) system on the West Coast Main Line.

As the acronym implies, TASS tells the Pendolino when it can tilt, and at what speed, and then monitors that the speed is not exceeded. APCO would alert the Class 800 to an upcoming change from electric to diesel traction, or vice versa, triggering the train's automatic switch-over. Until APCO is commissioned changes between traction are being initiated manually.

So the theory is that a balise some distance ahead of the bridge/crossing would instruct the Class 800, or both units running in multiple, to start up the engines, switch to diesel traction and lower the pantograph. Some distance after the bridge/crossing another balise would initiate the reverse process.

Latest figures confirm ridership decline

As I have discovered to my cost, some people get very antsy is you suggest that passenger ridership is slowing. Last month's analysis of the ridership growth data published in DfT's High Level Output Specification (HLOS) for England & Wales was no excretion.

To recapitulate, DfT's peak demand forecasts for London Termini and the Regional cities showed average total growth over the five years of Control Period 6 of 3%. That's total, not per annum.

On 5 October the Office of Rail & Road published the ridership statistics for the first Quarter (April-June) of the current financial year (2017-18). These showed year-on-year falls of between 5.3% and 8.8% for the 'big three' London & South East commuter operators, Govia Thameslink Railway, South West Trains and Southeastern. London Overground was up by just over 1%.

Extraneous factors, such as the Gospel Oak-Barking (non) electrification blockade and the on-going industrial dispute at Southern may well have distorted the GTR performance. However, these are still substantial falls.

I have also pulled together ORR's quarterly ridership figures for London TOCs over the last year. Obviously there are seasonal and other factors in play, but it does seem to provide further support for DfT's assumption of a flat period ahead.

Anyway this is going to make bidding for the Southeastern replacement franchise particularly interesting. If you can't bid on the basis of revenue growth, new trains are going to be even more attractive in the quality based evaluation. Bye-bye Networkers.

PRM-TSI compliance latest

Wouldn't you know it? No sooner had I sent off last month's column to the Editor than my next routine trawl of the DfT web site found an updated version of the table of trains being refurbished to be compliant with the accessibility regulations which become mandatory from 1 January 2020. It now includes just over 3000 vehicles.

I think it safe to say that anything with a diesel engine underneath with emissions grandfather rights is safe from the gas torch. Certainly a lot of steel sheet is being used up on Class 150 corrosion repairs, even if the nominal book life has been reached.

But the EMU table rewards some study, not least to see what isn't there. When you get the magazine you may care to compare delivery dates for new train fleets against ex-BR EMUs not in the list.

For example Abellio and its Japanese chums have announced the suppliers of the new trains for the replacement West Midlands franchise. So Bombardier has until midnight on 31 December 2019 to deliver the 36 three-car Aventra EMUs which will replace the Cross City Class 323 fleet.

As for those in the DfT list, at one extreme we have the Class 315s, which are surely for the chop unless the Cardiff Valleys electrification is really hard up, and at the other, the Networkers, where compliance work is on-going..

Network Rail adopts single OHLE specification

Ian Walmsley and I are double-teaming on electrification in the November issue. He is looking at cost saving possibilities from the contractors, while I describe Network Rail's new policy. This is the 'Master Series' which has replaced both the Series 1 used on the Great Western and the Series 2 on the Northern Triangle and other schemes.

Master Series is described as predominantly an updated and 'corrected' Series 2 base, enhanced and improved with 'components, technologies and philosophies' from Series 1. In my motorcycling youth the term was a 'bitsa'.

Master Series provides a single set of components, assemblies, technical specifications, general assembly drawings and foundations that can be allocated for either 100 mile/h or 125 mile/h running. There is provision for a 140 mile/h specification in future.

Use of the Master Series is now mandated for all new electrification schemes and applies to current projects which have yet to complete Network Rail's GRIP stage 3 (Option selection).

Alstom's new CLever OHLE cantilever is compatible with the Master Series, as, presumably, is the Bonomi cantilever equipment being fitted on the Gospel Oak-Barking electrification. Siemens has its SICAT LX catenary, currently being installed in Denmark.

What's interesting about the DSB programme is that OHLE design has followed the BR approach, focusing on simplicity and affordability. Obviously it is very difficult to compare costs across different railways and times, but the DSB programme is on a par with ECML single track km costs inflated to modern prices.

Meanwhile Master System OHLE has been specified for the current Bedford-Kettering/Corby electrification scheme.

October began with a meeting, over a coffee, with my old chum Jon Veitch who is now Talgo's man in the UK. As is now almost standard policy for new entrants to the UK rolling stock market, the intention is to build a factory to manufacture new orders. CAF, which has just added Abellio's contract for new DMUs for the West Midlands to its UK order book, is already building a plant in Newport – tactically located for Transport for Wales orders.

The following week Virgin held its latest railway press dinner. It is noticeable that as they have got to know us, the Virgin team have become more relaxed and open. This is such a mutually beneficial function, that I don't know why the other franchise owning groups haven't copied it. Siemens has similar regular lunches for the technical press, which no one else seems to copy – unless they don't tell me.

These events are not cosy functions. Hard questions are asked and PRs can, initially, get dirty looks from their bosses who may not be used to such informed and direct questioning. But is pays off in the long term. Network Rail has similar regular sessions with Mark Carne and his team.

Before the dinner Virgin offered a go on the new Azuma simulator, with the only takers being me and Tony Miles. For me Azuma highlighted the step up in 'switchology' and data entry compared with the Class 91 simulator. Fascinating as always, but Tony and I both managed to crash the display software at the same location.

Honorary Vice-President of Railfuture is not exactly an onerous role. My main contribution is to sit on the judging panel for the annual awards, which gives me a useful insight into the grass roots railway.

This year, the VPs were asked to go out and visit an entry on the ground. As Hadley Wood is just down the line I popped over to meet the local group organiser who showed me round the station. This was a real eye-opener and may well provide material for this column.

This coming week, Tuesday sees a parliamentary reception hosted by Stephen Hammond MP on behalf of the Railway Industry Association which is really putting itself about when it comes to political lobbying. Special Guest is Transport Secretary Chris Grayling.

Thursday is the judging for the Railfuture awards. This is a convivial occasion, although the judging is taken very seriously. It will be interesting to hear how the other VPs got on with their visits.

November has some interesting visits. Hitachi's Ashford Depot is celebrating its 10th birthday. The following week the IMechE railway Division has a conference on 'Capacity vs Performance'.

And the final week of November is all rolling stock. Following the success of Waterfront's first conference on Rolling stock procurement they have made it an annual event. It brings together a unique combination of interests – from manufactures to investors - and I am looking forward to getting the collective overview of the current mass extinctions.

Finally, on Friday it's the Golden Spanners awards when the rolling stock depot engineers, plus manufacturers and owners, come to town to stock up their trophy cabinets.

This year even more spanners will be awarded, as I have updated the categories to reflect the new generation of trains now coming into service. In addition to the traditional ex-BR fleets and Intercity, the post privatisation fleets are now divided into 1st and 2nd Generation. The change-over point is 2010.

This year the 2nd generation awards are limited to EMUs, but when CAF and Stadler start delivering their DMUs, the Spanners will be ready.

Roger