

Improving Rail Services in the South

The perception of rail travel in South Hampshire is that journey times are too long, and that some train services are infrequent and unreliable. This brief paper summarises current problems and looks at the changes needed to encourage more people to use rail.

Challenges

Railway routes in the South are essentially twin-track lines with stations at approximately 5-mile intervals. It is simply not possible to run frequent non-stop “InterCity” services alongside all-station stopping trains, never mind accommodating freight and engineering trains.

Elsewhere in Britain such as on the Great Western Main Line, lesser-used intermediate stations were closed back in the 1960s in order to run express InterCity services. This was not done on the “Southern Railway” because of the importance of the intermediate stations in generating significant revenue streams. It’s now too late: wholesale station closures could not be countenanced in today’s climate.

Railway operations in the South, honed over several decades, are the best-possible compromise between the conflicting requirements of fast and slow services. The “fast” trains are in reality only “semi-fast” in that they stop at principal stations.

On some routes the semi-fast stopping pattern is consistent throughout the day while on others successive trains may alternate between differing “skip-stop” schedules. This latter option does have the drawback that journeys between pairs of stations such as Haslemere-Godalming become problematic. There is currently some concern that the service pattern on the main line via Guildford is less than ideal, and adjustments should be made at the next timetable recast.

The typical “fast” journey time between Waterloo and Portsmouth Harbour is currently 1h32 for a journey of 74 miles – a not very impressive average speed of 49mph. The equivalent figures for Waterloo-Southampton are: 1h15 for journey of 79 miles, an average speed of 63mph.

Radical Solutions

It is entirely possible to accommodate fast and slow trains by continually investing large sums in railway infrastructure, as is generally the case in many parts of mainland Europe. However, Britain’s railways suffer from chronic under-investment, and this is particularly true for railways in the South.

In an ideal world, an optimum mix of fast and slow services on busy routes could be achieved in a number of ways:

- Upgrade to a four-track railway (difficult where urban development impinges on both sides).
- Construct new high-speed lines: in urban areas, these would need to be predominantly in tunnel (obviously very expensive).

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- Develop an urban metro, which may include on-street running (possibly tram-train operation), thereby enabling some intermediate stations on pre-existing routes to close.

We recognise that major interventions of this nature are unlikely to proceed in times of financial constraint, although it should be noted that railway improvement schemes often cost a fraction of equivalent road improvements (is £1.8bn for Stonehenge road tunnel good value-for-money?).

Some limited interventions are, however, possible. For example short stretches of three- or four-track railway could be built by adding “dynamic passing loops”, several miles in length. These would allow fast trains to overtake stopping services on the move.

On West Coastway, it is thought that dynamic passing loops are possible between Havant and Chichester as well as further east. There are also suggestions that minor stations such as Warblington and Nutbourne could be closed, but we are very suspicious of bus alternatives because experience tells us that people affected simply avoid public transport altogether.

Example of a Mega-Scheme: Itchen Tunnel

This would entail: (1) Building a twin-track tunnel from the east of Woolston to just west of So'ton Central with underground stations at Woolston, St Mary's and So'ton Civic Centre, the latter with escalator connection to So'ton Central. (2) Converting the Woolston-Bitterne-St Denys line to tramway with additional stops, a dive-under across the main line then street running through city.

This would shave 10 mins off Portsmouth/Havant-Southampton journeys, eliminate flat junction at St Denys, relieve congestion at So'ton Central & tunnel, support new housing on riverside, etc. etc.

Such a scheme could well have a promising business case, but would Government funding ever be forthcoming? - A conundrum for the politicians!

Anyone visiting city regions in Europe may indeed be envious at the level of investment in transport infrastructure. But they should also express pride in the fact that we in the UK are able to operate high-frequency, mixed-traffic services to multiple destinations on Victorian railway infrastructure with exemplary levels of safety at comparatively low cost to taxpayers.

Current Railway Planning

Network Rail has embarked upon a series of Continuous Strategic Modular Planning (CMSP) studies which will identify interventions, costs, and what improvements could be expected. Relevant studies in the South are...

- Solent CMSP, covering routes to the west of Portsmouth, published in May 2020, see <https://www.networkrail.co.uk/wp-content/uploads/2020/07/Solent-Connectivity-Continuous-Modular-Strategic-Planning.pdf>
- West Sussex CMSP, covering the West Coastway between Portsmouth and Brighton, published Spring 2020, see <https://www.networkrail.co.uk/wp-content/uploads/2020/07/West-Sussex-Connectivity-Modular-Strategic-Study.pdf>

The CMSP documents provide a comprehensive assessment of the various infrastructure upgrades that can be implemented at reasonable cost, many of which have been talked about for decades. Improvements in frequency and journey time are shown for each intervention, and there are interesting comparisons with city-to-city journeys elsewhere in Britain so we can see how routes in the South currently compare (quite poorly, as it happens).

The recommended interventions are nowhere near those needed to achieve the “optimum mix” we cite above, but they do go some way towards making changes that would bring about a significant modal shift to rail.

In CMSPs, the guiding principle seems to be incremental, affordable steps leading to measurable uplifts in journey time, frequency and resilience. It remains for stakeholders (Railfuture, local authorities and others) to assess the various schemes against their own goals: greater use of rail, improved access to employment, better city-to-city connectivity or whatever. It is imperative, therefore, that we all respond robustly at the “consultation” stage of each CMSP.

Finally, the other important workstream we should mention here is that of the *Transport for the South East Outer Orbital Area Study Forum*, looking at transport along the south coast corridor from the New Forest to Thanet. The Forum, established in the latter part of 2020, includes representatives from the rail industry, local authorities and Railfuture.

It's not just Journey Time

As stated above, NR's CMSP study documents recognise that to attract more passengers, rail services need to be fast, frequent and reliable. Modest journey time improvements on their own are not enough. What use is a faster service if you still have to hang around ages for the next train? Transport Focus surveys bear this out: passengers generally report reasonable satisfaction with journey times and they dislike service disruption most of all.

We would like to add “comfort level” to the list of journey attributes. Who wants to be squeezed onto Class 450 units with 3+2 seating for a Portsmouth-Waterloo journey of 1h32?

New Stations

In general, we support schemes to build new stations that have been suggested over the years, although we recognise that additional station calls potentially add to the journey time for those travelling longer distances.

However, it's not always the case that a new station will result in longer journey times. Consider the station proposed for Farlington...

Farlington Park and Ride

A new station here would enable the closure of Bedhampton, a minor halt built to serve a separate village which has long since been subsumed into Havant. Land released at Bedhampton for housing could partly fund Farlington station. Good interchange with other modes at Farlington could mean that many travellers would find their door-to-door journey times are actually reduced. Furthermore, if the Farlington platforms were sited on loops off the main line, there would be the potential for greater operational flexibility (although “loop” facilities would be better located at Havant).

Additional Tracks at Principal Stations

Network Rail's Solent CMSP recommends converting the centre (dead-end) platform at Fareham station into a through platform. Although expensive, this project does offer greater operational flexibility. If, for example, an Eastleigh-bound train is held awaiting a path through Fareham tunnel, a following train for Southampton via Netley could pass through the station unhindered.

What the extra through platform at Fareham would not provide is the facility for non-stop trains to routinely overtake slow services. This is because the slow would have to sit in the platform and wait 2-3 mins for the fast to catch up and pass through, then a further 2-3 mins for the fast to clear the next signal section. The slow would become very slow indeed! Overtaking in this way is only practicable at major stations such as Guildford, where passengers from the slow can cross the platform onto a faster service.

However, “operational flexibility” is in itself a worthwhile objective. It means that the service can recover more easily at times of perturbation, and it encourages timetable planners to be a little more ambitious in their efforts to squeeze more services onto a given route. A late-running service or a faulty unit from either direction could be terminated without blocking other trains, and subsequently proceed forwards or be turned back as required.

Other “through” stations in the South that could well do with additional platforms include: Southampton and Havant, then perhaps Petersfield and Chichester. If there is insufficient space for a “platform” road, through track without a platform can still be a useful asset (esp. for freights at Southampton).

Signal Sections

A known problem with some routes, for example Fareham-St Denys, is that signal sections are too long – a hangover from when cost-cutting and service reductions were the order of the day. The result is that trains in each direction are too spaced out, reducing the scope for frequency enhancements. The situation can most easily be resolved when signalling equipment is life-expired and needs replacement; retrospective alterations are very expensive.

But that is all about to change with the advent of the “Digital Railway”. In this, lineside signalling is swept away and replaced by control centre-to-cab communication – rather like air traffic control for the railways. Once that has been universally rolled out, headways can be reduced to as little as a train every 2 min. We should also see improvements to journey time and reliability once the control of train movement becomes responsive to circumstances along the route and across time.

Modern Train Design

The introduction of more modern Electrical Multiple Units (EMUs) can speed-up journeys in a number of ways.

The new Class 701 Arterio trains being introduced for SWR’s outer suburban services have faster acceleration, thereby reducing the impact of multiple station calls on overall journey times. These units also feature quicker door opening/closing and wider doorways, all of which have the potential to shave several seconds off dwell times at stations. We could call for Class 701 units to be used on shorter-distance services in the South, although it has to be said that the current EMU fleets operating in the Solent area will not be life-expired for another 10 years or so.

A known problem with the Portsmouth Direct line between Godalming and Havant is that it was built on the cheap with excessive curves and gradients. It’s possible that tilting trains (as running on the West Coast Main Line) could be used in the future to enable line speeds to be increased. Interestingly, Spanish trainbuilder *Talgo*, famed for their passive tilt design, is in the process of setting up UK manufacturing facilities – perhaps we could invite them down to take a look!

Southern Electric

It is a common misconception that express services cannot run on the third-rail DC electrified network. In fact 90mph top speeds are commonplace and speeds in excess of 100mph are possible.

However, on some routes, power supply upgrades have not kept pace with increases in rail traffic with the result that speed or train lengths become compromised. Sadly, as things stand, if bi/tri-mode trains were proposed for CrossCountry services or freight haulage, there would not be sufficient electric power in our area for them to run.

Riding Sunbeams

An encouraging recent development is the supply of traction current fed directly from solar panels. This is particularly applicable to railways in the South since the output from solar farms is essentially “DC” and does not therefore require rectification. See <https://www.ridingsunbeams.org/>

Speed Restrictions

A symptom of under-investment in railway infrastructure, all too common in the South, is the imposition of speed restrictions at locations along a route where perhaps the trackbed has become unstable or there are excessive near-miss incidents at a level crossing.

A case in point is Buriton tunnel south of Petersfield which has long had a speed restriction of 45mph. The problem is insufficient clearance to accommodate the “dynamic envelope” of certain types of trains when passing at speed. There needs to be a thorough study into whether the restriction is still needed for current electric units, and if so what structural modifications are needed inside the tunnel to solve the problem. There may be a short-term fix, such as speed limit signs which are illuminated only when the signalling system predicts that two trains will cross within the tunnel.

On routes where there has been a resolve to get all speed restrictions removed, quite startling improvements in journey time have been achieved.

The South treated unfairly?

Analysis by the Southern Policy Centre in 2018 reveals how the burden of paying for the UK rail system falls unfairly on passengers in central southern England. Their research found that passengers are paying 16.6p per mile *more* than the cost of running the service, while those in northern England, Scotland and Wales are receiving subsidies of up to 40p per mile.

We need to shout for a greater proportion of UK rail investment for the South!

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