

# The Untold Story: Rail Planning Through a Pandemic

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One of few the bright spots through the COVID-19 pandemic has been the widespread appreciation for the efforts of others. Whether it is frontline medical staff, the ingenuity of scientists, or simply homeworking parents acting as auxiliary home teachers, there has been a heart-warming openness to recognising others sharing the struggle through these unprecedented circumstances.

But while the transport sector hasn't been entirely overlooked in this respect, among all the praise there remains a group whose efforts haven't been widely recognised – until now.

The UK's rail planners have spent the past year struggling through almost unimaginably difficult challenges. Often buried beneath mountains of work, it has been easy to forget they are even still there. On the rare occasions you hear from them it is likely to be in the form of a brief email sent at close to midnight, or a short call during which the extent of the pressure they face becomes apparent.

For many planners, weekends and holidays have become distant memories as they strive to keep our rail

networks running, enabling key workers to carry out crucial duties, and facilitating the ever more important local leisure and tourism sector.

This article is intended to salute their endeavours, place their present challenges within a wider context of increasing disruption and change, and consider how we can collectively help them to continue their essential work.

## **Rail Planners Unveiled**

Rail planners' jobs are undeniably incredibly complex. Responsible for organising all passenger and freight services, they must deliver efficient, conflict-free timetables that maintain the smooth running of trains – all optimally resourced with vehicles and crew.

It also, of course, falls to them to re-plan routes in the event of any kind of disruption or changing passenger travel patterns – either planned in advance, or in the form of incidents occurring on the day.

When an incident does occur, it tends to be 'all hands on deck' as they rapidly find alternative ways to ensure passengers reach their destinations as quickly and conveniently as possible. To illustrate, let's consider the fairly common example of a blockage on the line.

## **Scenario: Managing a Blockage**

Blockages on the line, either planned or unplanned, are frequent occurrences. The scale of the challenge can be directed by the anticipated duration of the blockage – i.e., a short incident measured in hours, a weekend disruption, or a long-term blockage affecting services seven days per week.

Even prearranged blockages, such as those required for engineering work, present significant challenges. The process here naturally varies between operating companies, but typically the following factors would need to be considered:

1. Length of blockage and stations affected (mileage and time)
2. Can services be diverted round the blockage?
3. Will services need to be started/terminated either side of the blockage? (Some issues will require a combination of diversions and terminating/starting services either side of the blockage – which further adds to the complexity.)
4. Consideration of traction type (electric, diesel and Bi mode) and also drivers' route and traction knowledge
5. Is a bus service required to serve intermediate stations?

Once all factors have been considered decisions made, planners can then amend Train, Vehicle and Crew diagrams as required, and these changes can then be published to downstream systems. Additionally, this

planning will involve ensuring that vehicles are routed back to the correct location, ready to resume normal service in the required timeframe.

Finally, it is worth noting that bus services may also have to be arranged. Sometimes these will be entered into the train planning system for publishing purposes, and to ensure connections can be made into and out of the modified train service.

As if the above scenario weren't complex enough, now let's consider the same situation within a wider context of near-constant change. Even prior to COVID-19, rail planning was becoming increasingly challenging. [As is neatly visualised in this animation](#), for years the UK has undergone near-constant churn of disruption and change, including infrastructure and vehicle upgrades as well as electrification – all of which place planners under increasing pressure.

## **Enter COVID-19**

If planning was already challenging and increasingly complex then COVID-19, of course, changed everything.

As we all know, from March 2020 rail demand largely disappeared overnight. Since then, ridership has partially recovered – only to reduce again with subsequent lockdowns. The one constant, however, is the absence of predictability.

Meanwhile, with the morning and evening weekday rush hour gone – at least for now – rail planners have had to cope with something not seen for decades: tourism-driven weekend peaks.

## **Constantly shifting landscape**

Meanwhile, the constantly shifting landscape has left some operators running 10 or more short term timetables at a single time – compared with two per year in normal circumstances.

Anecdotally we know of one operator where short term plans were cancelled and re-written as little as an hour before being put into operation, and another that has managed some 20 million plan changes in the past 12 months. Twenty million.

None of the above changes were anything other than essential. Operators have been undertaking critical work to keep people moving, responding almost instantly to a near incalculable number of variables – including, of course, continually shifting government guidelines in response.

On that note, planners have been left attempting to interpret often unclear or incomplete guidelines. For example, how to cater for Scotland's recent announcement of a “phased return to school” – from which it is almost impossible to define the requirements for a plan aligned to actual travel requirements.

To some extent this is understandable and inevitable, because keeping up with a rapidly developing pandemic has tested all of us. Nevertheless, let us take a moment to appreciate the efforts of the rail planners who have found themselves in the middle of a uniquely challenging crisis.

## **Cost management crisis - and funding support problems**

At the same time, it is worth considering two final challenges. Firstly, it is no exaggeration to state that present difficulties have of course taken place alongside the most intense scrutiny on cost management. Shorn of ridership revenues, operators have been understandably desperate to minimise costs to deliver the optimal number of services to meet (socially distanced) demand.

Meanwhile, Government subsidies have ensured that trains are able to keep running, but they do present the second challenge. Such funding tends to come with strings attached, as Governments stepping in to fund ailing rail operators understandably feel entitled to information relating to their support.

The problem here is that such information inevitably comes from the planners, creating yet more pressure on a precious, already stretched resource. Perhaps, therefore, this is an area where 'optimisers' and algorithm engines can help - which leads us on to the role of technology in addressing this situation.

## **Empowering Planning Through Technology**

Clearly the present situation cannot continue - and yet in some respects it will, because COVID-19 will not disappear overnight. It is unlikely that any return to normality will be linear: we could well see localised outbreaks and regional lockdowns impacting demand and established travel patterns.

Additionally, the long-term effects of COVID-19 remain unclear. Anticipated changing working patterns and a shift towards domestic holidays - at least in the medium term - will undoubtedly affect the predictability of demand. [As Sir Peter Hendy recently commented in an interview with one of my colleagues from Trapeze Group](#), it is actually possible that some of this will have a positive impact, in terms of levelling off working day rush hour peaks. However, all of this again falls on planners to manage - and we know that unpredictability is difficult to manage.

## **Disruption is here to stay**

What we can be fairly sure of, though, is that disruption will remain a fact of life for rail planners. Whether we face future public health emergencies or the increasing impacts of climate change - landslips and flooding seeming most likely - planners will need to continue to navigate a world that is far more challenging, demanding, and less predictable than ever before.

If we cannot change the circumstances that our rail planners are working in, we can at least enhance the processes to help manage them, as it is crucial that we do all we can to help planners continue their essential work.

## **Planning technology solutions**

To keep pace with the current rate of change, planners require improved technology support. They must be able to visualise problems, identify potential solutions - and then validate the effectiveness of the available options.

Speed, of course, is critical here, as short term or on-the-day planning is always a race against the clock.

Planners simply cannot afford to create timetables from scratch when responding to disruption: those armed with tools that enable them to quickly and accurately make dated variances are at a distinct advantage – something we have seen first-hand through the past year, when some were able to implement multiple short-term plans at short notice.

Equally, simulation tools that model disruption scenarios ahead of time are essential for enabling planners to quickly implement fully tried and tested emergency plans. The ability to make both individual and bulk changes is also crucial for issues of different scales and longevity.

Even the best equipped planners have faced an arduous past 12 months. However, we have seen that those equipped with more advanced tools have been better positioned to respond, delivering robust, streamlined plans which can then be put into operation and shared with all downstream systems including crew rostering, passenger information and more.

## **Conclusion**

Rail planners' jobs have never been more challenging – or more important. If they were previously seen as vital cogs in the railway machine, the past 12 months has not only underlined their importance; it has made clear that their challenging task is fast becoming near impossible.

To keep pace with the requirements of a rapidly changing world, planners require better support in the form of advanced tools that enable them to respond quickly, keeping our trains running safely, sustainably and efficiently.

All of us in this industry owe it to them to equip them with the tools they need to build a better rail future for us all.

You can find out about technology solutions for rail planners at [www.signaturerail.com](http://www.signaturerail.com)