

Risk and reward

What needs to change to keep the trains running during weather disruption?



Rolling stock crisis

With orders drying up, a 'boom and bust' cycle has created a headache for train manufacturers.

Rail fares reform

Trials in London, Scotland and on LNER suggest change is coming, but how and when remains unclear.

Great British Railways

Will the draft Rail Reform Bill provide any clear direction on the future of the UK railway?

ANALYSIS, STRATEGY AND INSIGHT

Q1 Editorial Board Chairman introduces RailReview

Sir Michael Holden
Editorial Board Chairman

Q1 Costs... and consequences



The rail industry is facing a period of significant change and challenge. As the industry moves towards a new era of competition and efficiency, it is essential to address the costs and consequences of these changes. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

The prospect of making meaningful inroads into productivity among train crews, for example, or in ticket office, has received significantly more attention in the industry in recent months. It is a challenge that we must all face, and it is one that we must address head-on.

Q1 2024



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Features The important strategic issues

Better forecasting of where the danger lies

PAUL CLIFTON talks to the people who have to balance railway risk and reward, and the need to protect passengers and goods against the need to keep services running



Due to severe weather a speed restriction has been imposed across the whole network for most of Friday which is causing disruption to train services. We strongly advise you not to travel today. If you must travel today please check your journey before you travel by visiting www.rail.gov.uk/journeys. Your tickets will be valid for travel on Saturday 19th February.

Running services: risk and reward

PAUL CLIFTON studies the balance between ensuring the trains run... while keeping passengers and staff safe.



The balance between ensuring the trains run and keeping passengers and staff safe is a complex one. It is one that we must all face, and it is one that we must address head-on. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

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The crisis on the Great Western was a stark reminder of the challenges facing the industry. It was a crisis that we must all face, and it is one that we must address head-on. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

Rolling stock

PHILIP HAIGH considers the prospects for future orders



The prospects for future orders in the rolling stock market are uncertain. It is a market that we must all face, and it is one that we must address head-on. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

Train manufacturers at a critical juncture

A 'boom and bust' cycle has created a problem for Britain's rolling stock manufacturers, with orders drying up - and few new ones on the horizon. PHILIP HAIGH considers the prospects for future orders



The boom and bust cycle in the rolling stock market has created a significant problem for manufacturers. It is a problem that we must all face, and it is one that we must address head-on. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

Flooding on the Glasgow South Western Line in December 2023, caused by Storm Gerrit. NETWORK RAIL.



The flooding on the Glasgow South Western Line in December 2023 was a significant event. It was a event that we must all face, and it is one that we must address head-on. This issue of RailReview explores the challenges facing the industry and offers insights into how we can navigate these challenges successfully.

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RailReview

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The Rail Reform Bill: does it help or hinder?

Three years on from the Williams-Shapps Plan for Rail, we're still no closer to a definitive blueprint. With a general election looming, will the Rail Reform Bill provide much-needed clarity? CONRAD LANDIN reports

The UK Government's draft Rail Reform Bill... Three years on from the Williams-Shapps Plan for Rail, we're still no closer to a definitive blueprint. With a general election looming, will the Rail Reform Bill provide much-needed clarity? CONRAD LANDIN reports



The changing role of our railway stations

Innovations to improve Britain's stations often meet stumbling blocks in the form of red tape. PETER PLISNER investigates some of the ways train companies have been breaking through the regulations

Railway stations are a mix of old and new... Innovations to improve Britain's stations often meet stumbling blocks in the form of red tape. PETER PLISNER investigates some of the ways train companies have been breaking through the regulations

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Upcoming events

Rail Live - June 19-20 2024.
Venue: Long Marston Rail Innovation Centre.

National Rail Awards - September 12 2024.
Venue: Grosvenor House Hotel, London.

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Sir Michael Holden RailReview

Editorial Board Chairman



Q1 Costs... and consequences

I hesitate to return to the vexed subject of the industry's cost base, for a number of reasons. But I feel I need to do so even if some will find it uncomfortable reading.

Firstly, it is commonly considered nowadays within the industry that there is far more upside potential to balancing the books through revenue growth than by bearing down on the cost base, given the very poor outcomes of recent efforts to do just this.

I don't disagree with this assessment, but I strongly believe that growing our way out of this crisis is a necessary but insufficient strategy.

Secondly, pretty much everyone in the industry - including almost every separate organisation I can think of, with the notable exception of the Office of Rail and Road (ORR) - has been badly scarred by the series of efforts made since the pandemic to reduce costs within the industry.

Even those businesses who successfully managed to reach pay deals with their staff have suffered from loss of access to infrastructure during the lengthy series of strikes by Network Rail staff.

Rolling stock companies have suffered from a glut of units (and even locomotives) being prematurely taken off-lease in early to mid-life.

The whole infrastructure supply industry is now suffering from the slowdown in renewals activity and the chronic uncertainty in enhancements.

The Rail Delivery Group is on extended life support, the future of Rail Partners is uncertain, Transport Focus is being stymied by lack of funding for its rail research, and the Great British Railways Transition Team feels like a baby condemned to wearing nappies forever.

The train operating companies (TOCs), which have been prevented from reaching settlements with their staff, have the dual horror show of extended micro-management by civil servants.

Even the Department for Transport is not immune from the chaos, as the shenanigans over the curtailment of HS2 last autumn demonstrated just how bereft it is of any real clout in government.

Thirdly, every significant recent attempt to trim the cost base has ended in a shambles that succeeded only in setting the cause of cost control backwards by some years.

The prospect of making meaningful inroads into productivity among train crew, for example, or in ticket offices, has receded significantly owing to the botched way in which proposals for reform have been developed and handled for England nationally.

It would be good if we could see an easing-off of upwards pressures on the cost base, but sadly (energy excepted) this does not appear to be the case.

Uncertainty of forward workload among suppliers contributes significantly to rising unit costs. And we must remember that despite looming energy price reductions, the price of diesel and electric traction currently sits well above historic levels.

Unit cost problem

Depressingly, much of the DfT's focus on cost reduction has been to reduce the level of activity. In effect, this reduces the variable cost of decremental levels of activity without tackling the level of fixed costs or the absolute level of each element of variable cost.

This was inevitable in the immediate

aftermath of lockdown and the much lower levels of commuting and business traffic seen during that period. But the time for cutting the volume of vehicle miles run has long since passed.

Stand back, though, from the day to day cut and thrust of running the railway and consider for a moment the implications for infrastructure of the current financial position.

Rising unit costs, coupled with a fixed funding settlement for Control Period 7 (CP7) at levels insufficient to maintain assets in steady state condition, or to renew at a rate to keep pace with the ageing of those assets, is a recipe for gradual decline in asset reliability.

Add to this the need to divert parts of the funds originally earmarked for track renewals, in order to spend significantly more on drainage and embankment/cutting stabilisation because of the wetter and more severe weather we have been experiencing of late, and the stage is set for ever-decreasing performance.

This is happening despite, by any dispassionate analysis, the large amounts of money allocated to maintenance and renewals year by year.

We have reached the point where the gradual escalation in unit costs for infrastructure is starting to make the railway unaffordable - to this government at least, and quite probably the next one, too.

The recently completed Feltham and Wokingham Area Resignalling project is stated by Network Rail to have cost £375 million for around 80 miles of double-track railway.

At close to £5m per railway mile, this delivers virtually no additional benefits to users and is small beer in cost savings. It is simply the cost of keeping the railway operational some 40 years after it was last resignalled.

That's an annual charge of around £120,000 per rail mile just to pay for the cost of installing signalling controls, never mind their operation and maintenance. Even on an important commuter route you need to

The prospect of making meaningful inroads into productivity among train crew, for example, or in ticket offices, has receded significantly owing to the botched way in which proposals for reform have been developed and handled."

Network Rail engineers upgrade a level crossing at Wokingham in February, as part of the Feltham and Wokingham Area Resignalling project. NETWORK RAIL.



sell a lot of season tickets just to pay for this element of essential railway infrastructure.

Elsewhere, two new platforms and a freight loop to be installed at Darlington are set to cost almost £100m, even before construction work has started.

A single new platform at Bradford's Forster Square station (including presumably the track and connections to service it) has just been authorised at £24m.

Replacing two lifts at Bolton station is going to cost over £570,000.

It's worth remembering that £570,000 is more than enough at current costs to construct and fit out a five-bedroom detached house (assuming you already own the land, that is). But it now costs a similar amount of money simply to replace two existing lifts within existing lift shafts within an off-track environment not requiring costly possessions or (hopefully) isolations.

Tim Shoveller, CEO of Freightliner's owner Genesee & Wyoming, reminded us recently (and very eloquently) about how complacent the industry has become over the costs of doing anything.

A new road truck tractor unit, including a full cab fit-out, now costs around £100,000.

You can buy an articulated trailer to go with it for £10,000. So just £110,000 and a few days for delivery gets you going as an owner-driver in the road haulage industry. What does £110,000 buy you on the railway these days?

What have been the main drivers of unit cost escalation over the past 20 years?

It's surprisingly difficult to get at any real data or analysis. There's lots of talk of efficiency and value for money in regulatory documents for each Control Period review, and press releases are full of the latest initiative designed to improve either or both of these.

But there's precious little that shows how much it costs to perform various of the core tasks involved in maintaining and renewing the railway over time, with the impact of inflation stripped out.

I have therefore made my own high-level calculations of NR's costs based on data published on the ORR data portal, which dates back to April 2010, and adjusting for inflation using the Office for National Statistics official inflation indices.

In 2010-11, operating and maintenance costs plus the annualised capex charge for

renewal costs totalled £4.2 billion. At 2022-23 values, that is £6.9bn.

In 2013-14, the same costs totalled £4.7bn, which has an identical current value of £6.9bn after allowing for inflation. So, no significant change in the amount being spent on the railway in those four years.

Yet in 2022-23, NR spent £8.8bn on these three items - some £1.9bn more in real terms than was being spent nine years earlier.

With the obvious exception of Okehampton, the network was broadly the same size then as it is now, but presumably the average age of the assets has increased by a few years in the intervening period.

Much intellectual effort on the part of both ORR and NR is put into determining the exact volume of maintenance and renewals required to sustain the asset base in each CP, but I think there is common consent that the determinations for at least CP6 and CP7 have been insufficient to maintain assets at steady state overall, and the average age of assets has probably increased by four or five years over the past 13 years. I say 'probably' because it seems impossible to get at accurate average age data anywhere in the public domain. ➤

► I know I'm making some broad-brush assumptions along the way here, but please bear with me for just one more of these.

Given that the level of activity on the network is broadly the same now as it was back in 2010-11, but the total cost has increased in real terms by £1.9bn on a base of £6.9bn, we are looking at a net increase in unit costs of almost 28% over that time period.

Given that there have undoubtedly been some efficiencies delivered over that time period (think remote monitoring, digital inspection, reduced operational costs from resignalling schemes) this implies that in other areas the deterioration in unit costs has been greater than 28%.

Drivers of inefficiencies

What has driven this extraordinary trend towards inefficiency?

A simple question you might think, but one where it is amazingly hard to find any solid data with which to answer it. My speculation can be no better than any other seasoned and independent observer, but here goes.

First on my list would be the flight away from red zone working. While there are undoubtedly risks to be managed before allowing track workers to work on the line while trains are running, it is much cheaper to plan and execute work and to deliver it in a timely manner if it doesn't have to be done during planned periods of no trains running.

Before I get lambasted here, I'm absolutely not arguing for a return to the old order, where track workers were not protected as well as they are today. But I do recall from my decades on the track that it is possible to work in safety on the track while trains are running if staff follow the rules diligently.

There must be a compromise somewhere that produces a safe working environment without the need to eliminate rail movements altogether.

In this regard, the loss of adjacent line operation has been particularly expensive in terms of the level and cost of disruption involved in carrying out basic track inspection and maintenance tasks.

My second cost driver has been the culture of risk aversion, which grew up in the early years of NR's life.

It became much easier to just follow the standards, because it became extremely difficult and time-consuming to seek to persuade those in authority that a derogation from standards was both possible and appropriate.

I also sense that the change in treatment of the old NR zones from profit centres to cost centres, and the accompanying drift

towards centralised decision-making by command and control from the centre, also contributed towards poorer-quality decision-making and less concern about value for money.

It also resulted in a bigger superstructure of people paid large salaries in HQ roles, all adding to overheads.

Fighting back

Much has been written in the past about this rise of risk aversion within NR - the unwillingness to challenge standards, and the extended project timescales with attendant project on-costs we have become used to.

But under the current leadership team we have seen a serious attempt to row back on this: through devolution to get more decisions made closer to the coalface, through rationalisation of senior management roles, through Project SPEED and other initiatives, as well as project teams being empowered that it's OK to challenge standards where they appear inappropriate or are driving unreasonable costs.

We are starting to see some early signs of success with this change of culture, and I have seen several excellent projects entered in recent National Rail Awards competitions.

Examples such as the Flow footbridge and reduced electrification clearances show

that it is possible to challenge the status quo and to reduce the cost of projects on the infrastructure.

But it is a super-tanker that NR Chief Executive Andrew Haines and his senior team are trying to turn around here. They may not be able to do much about construction cost inflation, but the way that the supply chain is managed, and how renewals and enhancement projects are developed and delivered, will significantly affect total project costs.

Unfortunately, rumours abound of continuing pressure from ORR to further ratchet up the approach to safety management, which of course comes at a cost which someone has to bear.

It's not as if the industry as a whole is conspiring to cut corners on safety, so pressure to move further than the accepted principle of ALARP (As Low As Reasonably Practicable) risks further driving up costs.

In NR's case, this means even fewer funds will be available for maintenance and renewals, because of the fixed nature of revenue over the duration of the five-year Control Period.

It's not only infrastructure

Tim Shoveller has also been quoted recently as saying that our railway lives in a bubble.

By way of example, he says that

Sir Michael Holden cites GB Railfreight as a good example of how a company can drive significant productivity growth. GBRF 66768 approaches Melton Mowbray with the 1028 Felixstowe North-Birch Coppice on October 9 2023. PAUL BIGGS.



Freightliner pays its truck drivers roughly the same as a railway company pays its shunters, and expects a 50-hour week from them for this amount. There is no shortage of applicants and productivity is high.

He also observed somewhat wryly that track access costs are rising annually in line with inflation, while road fuel duty has been frozen yet again for the 12th consecutive year.

Rail freight operates in a very competitive and agile market, and this has affected the way that operators have to pay and utilise their staff.

All rail operating businesses which survive only through their revenue from customers have managed to reach pay settlements with their staff. Many have also driven significant productivity growth by adapting terms and conditions of employment over time.

GB Railfreight is probably the best example of this in the UK, as its train managers (as its drivers are called) are deployed extremely flexibly and can turn their hand to whatever task is required of them. GBRf has grown from running its first trains in 2002 to become the biggest freight operator (by train miles) during the most recent reporting quarter.

Likewise, open access operators have been able to agree pay and productivity deals with their staff in recent years which

“Those franchises and concessions which are not let and managed by the DfT have all managed to reach pay deals with their staff over the past year or two. It is the DfT franchises where there remains a huge problem with pay and productivity.”

have enabled them to survive and thrive through some pretty lean years.

Those franchises and concessions which are not let and managed by the DfT have all managed to reach pay deals with their staff over the past year or two. It is the DfT franchises where there remains a huge problem with pay and productivity.

And here I hesitate because I know what I want to say will upset many people. But I do feel that the following three things need to be said.

It is obvious to all that the approach to pay deals with TOC staff since the pandemic has been extremely badly handled. It is indefensible that in some TOCs, train drivers have not had any pay increase now for nearly five years. But the unwillingness among trade union leaders and their members to countenance productivity deals to fund improvements in pay is not simply a post-pandemic feature, but one that has existed for many years.

I'm not defending the government's approach to the current pay negotiations - far from it. But it is possible to sense the palpable frustration within government that the industry has not itself been able to tackle what is seen as a high wage low productivity environment.

Against such a background, the current government, which is not in the least favourable to rail, has simply decided to draw a line in the sand over pay. And it has subsequently stuck to its guns, no matter the consequences within the railway industry.

As I write this, Labour transport policy for a future government is still unknown. But it is entirely possible that a future Labour government, faced with the same financial pressures that the existing one has, will continue to take a similar line on pay and productivity within the railways.

I imagine that sorting out the NHS, social care and defence will seem quite a lot more important to it, and thus will take the lion's share of any available additional funding.

There is an acute sense of entitlement within the TOC and NR worlds which is proving a very hard nut to crack.

I do understand the unions' starting position on this. Current terms and conditions have been hard fought for over the generations and aren't going to be given up easily. And pay has lagged behind inflation in the years since the pandemic.

Yet it is also undoubtedly true that the key roles in the railway industry are well paid by comparison with other sectors, yet productivity often lags badly. Rostering and diagramming practices among traincrew is an area ripe for modernisation in most TOCs.

Average bus driver basic salary in London is currently £33,000 for a 38-hour week. This compares with the average basic salary for a train driver in London of £64,000, mostly for a 35-hour week (Source: Glass Door).

The following statement will cause apoplexy among my train driver friends, but in my opinion driving a double-decker bus in London is a much tougher job than driving a train on the main line railway. The employment packages and working environments for bus driving are also much less attractive.

Yet on the whole, London bus operators continue to be able to recruit and retain staff. There also continues to be no shortage of applicants for train driver roles when they are advertised, despite the lengthy training periods before qualification currently seen.

The conclusion I draw from this is that flexibility of deployment of staff within the TOCs is the big opportunity. Let's not try to reduce the staff remuneration, but instead make sure that those highly trained individuals are earning their keep much more of the time than they are currently.

After Ashington...

I suspect that the Ashington line will be the last one to receive funding for reopening in the foreseeable future.

Our railways have simply become unaffordable as far as policy makers are concerned, and the current government's response to the post-pandemic waves of strikes shows that railways outside London are no longer considered essential to the fabric of the community.

Yes, we obviously need to continue the drive to grow revenue in order to reduce the net cost of the railway. But the need to reduce costs by driving productivity and efficiency through many aspects of the industry is paramount if the trust of government is to be recovered.

And I believe this conclusion will hold good for the next government to be formed, too, no matter what its political makeup turns out to be. ■





ALAMY.

Railway dependability: are we too risk-averse?

Every week now, there is a significant infrastructure failure. On the Great Western, it happens most days.

There is a growing perception that the railway is less dependable than before. The promise that buying a ticket will ensure you reach your destination is not always binding.

Often that is incorrect. But perception matters: it influences travelling choices.

Rail remains the safest form of travel in the UK, and it is still one of the most reliable. It would be daft to arrive at circumstances in which travellers feel they should take a less safe but more dependable alternative - especially when that alternative is more damaging to the environment.

Yet that is happening. In January, ScotRail cancelled all trains in advance of Storm Isha and Storm Jocelyn, running no services in the morning peak twice in a week - including in the Central Belt commuter region.

In England, Network Rail imposed a blanket 50mph speed limit, affecting the Sea Wall at Dawlish and south London suburban services in equal measure.

Roads remained open. So did airports. Buses, coaches, trams and taxis all ran. Trains did not... or were heavily disrupted.

Is the railway too risk-averse? Too quick to suspend services? Or is this good safety management of the ageing cost-constrained infrastructure?

We could call it the "Carmont effect" - a response to the most recent fatal train crash on our railway, in which failure to react adequately to severe weather played a large part.

In this issue, we examine the threat to rail's dependability from many angles.

Network Rail Safety Director Martin Frobisher tells us the industry has become too risk averse. He sets out a data-driven strategy to achieve a better balance between the need to keep people safe and the need to deliver passengers and freight owners the services for which they have paid.

A trial of a new risk model is under way in the North West.

"I think it's brilliant," says Frobisher. "Our goal is to roll this out."

For the passenger train operators, Rail Partners' Andy Bagnall makes the case against blanket speed restrictions in favour of a more nuanced approach.

"We have to ensure the railway serves its purpose," he argues.

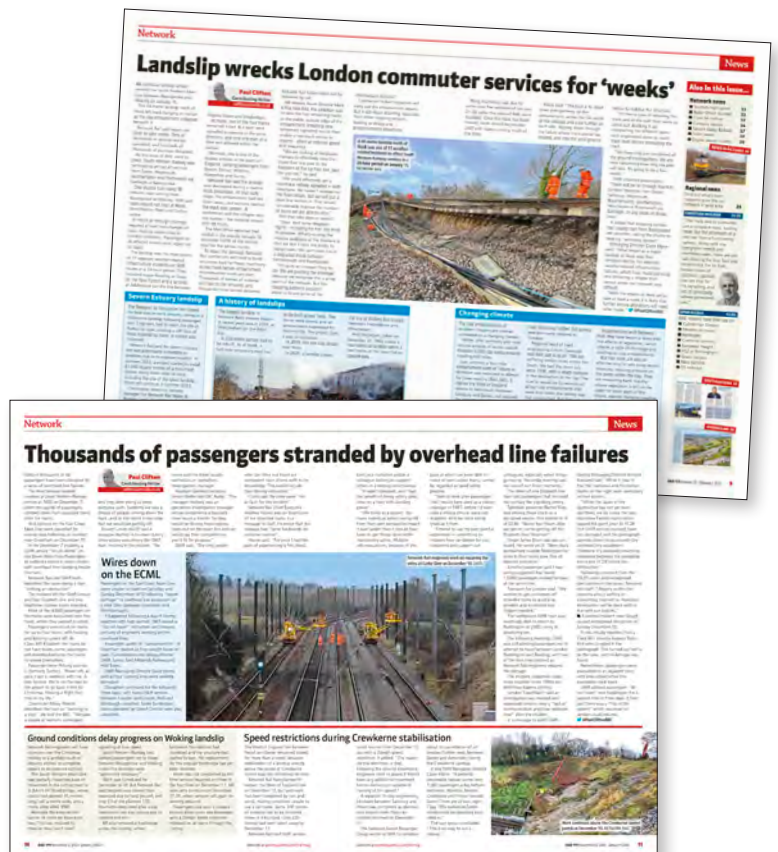
And ASLEF General Secretary Mick Whelan points out that aversion to unnecessary risk is a good thing for his members.

We take a deep dive into infrastructure maintenance. The team instigating a recovery programme on the poorly performing Reading to Paddington route sets out its plans to restore reliability.

And we assess the bigger picture: running a dependable service in a changing climate - in particular more intense rainfall, the effects of which are already being felt in Scotland.

Read on: because these are the big issues that will dominate railway thinking for decades to come.

We look too at the Government's latest ideas for restructuring the way the railway is led. But whatever politicians do or don't do after the General Election, whatever administration they dream up to run the railway, the industry cannot wait while Westminster dithers, dodges and delays. ■





DO NOT TRAVEL

Due to severe weather a speed restriction has been imposed across the whole network for most of Friday which is causing disruption to train services

We strongly advise you not to travel today

If you must travel today please check your journeys before you travel by visiting

www.southwesternrailway.com

Your tickets will be valid for travel on Saturday 19th February

South Western
Railway

NetworkRail

Better forecasting of where the danger lies

PAUL CLIFTON talks to the people who have to balance railway risk and reward, and the need to protect passengers and goods against the need to keep services running

“The question is whether we have become too risk averse. I think we have.”
Martin Frobisher is Network Rail’s group safety and engineering director. So that’s quite an opening gambit.

“I think you should refer to Carmont,” he adds, referring to the crash near Stonehaven in Aberdeenshire on August 12 2020, in which three people died. The derailment followed unusually heavy rainfall of two inches/51mm overnight.

“When you look at the prosecution at Carmont, controlling the speed of the train was the issue deemed to be causal. There were lots of issues about the construction of the drain, lots about record keeping. But the direct link with the accident was controlling the speed of the train.

“We should not skirt the issue of Carmont, because it has influenced what we do.”

There’s a perception that the crash has led to a more cautious response to the threat of severe weather, to a point where services are cancelled more frequently than is entirely necessary.

Across the railway, infrastructure has been battered by a changing climate that brings greater extremes: more intense winter rainfall in the west is being countered by hotter, drier summers that desiccate and shrink the clay embankments of southern England.

The ageing network was never designed to cope with this sort of weather. Without changes to the way the infrastructure is maintained, the level of disruption seen recently will become the norm.

Flooding will become a particular challenge, especially as the sea level rises. Carmont brought a focus on drainage: if the railway cannot avoid greater surface run-off, then it must become better at dispersing it.

“We have become better at weather forecasting, and we have become more precise about using those forecasts to impose speed restrictions,” says Frobisher. A meteorologist is now based in Scotland’s control room.

“We have done a really thorough piece of work with RSSB [Rail Safety and Standards Board], which I think is our way out of this.”

The result is a risk model. From a weather forecast, it calculates

the risk to a passenger service. It also measures the economic impact of imposing speed restrictions, as the proxy for the effect on passengers. It then balances changing speed against effect.

A trial is under way on West Coast north and on the Cumbrian coast.

Frobisher elaborates: “There are so many factors involved. If you impose a speed restriction, that is not a zero-risk option. You create passenger crowding on platforms. You create more signals at danger, so you increase the SPAD risk. What we have is a model that balances all these safety factors. I think it is the way forward.”

But the railway cannot rely on the model alone to dictate how a train driver responds to changing weather.

“You need a human in the loop. The model cannot possibly know that a river has burst its bank, where the foot of an embankment is under water. But the local earthworks engineer can. The combination of local knowledge and the model gets us to the right answer.

“But it gets us into some difficult issues. For the model to work, >



Flooding will become a particular challenge. In December 2023, the Glasgow & South Western route from Carlisle was severed at Thornhill, when large volumes of water overwhelmed a culvert, leaving track suspended over the gap. More than 100 tonnes of debris fell across the track between Dumfries and Sanquahar. NETWORK RAIL.



“If we didn’t put a value on risk, we would just always stop in severe weather, and that would be so wrong. People would still go to their destination, but they would choose a less safe mode of transport.”

*Martin Frobisher,
Group Safety and Engineering Director, Network Rail*

► it has to put a value on a life. Because it calculates risk in those terms.

“It is a scientific formula. That is the fatality-weighted risk times the value of a life, which the industry calculates at £2.3 million (that’s published by RSSB), multiplied by a gross disproportionality formula, a principle established in law. And the outcome is the delay we would be prepared to buy to offset that safety risk.

“The law uses the phrase ‘reasonably practicable’ - just stopping the railway when risk increases is not the answer when we provide a public service. If we didn’t put a value on risk, we would just always stop in severe weather, and that would be so wrong. People would still go to their destination, but they would choose a less safe mode of transport.”

The problem with the model is that it doesn’t match how drivers work.

It divides the West Coast Main Line between Preston and Carlisle into 20 segments of great detail, recommending a different speed for each. In the real world, that is not driveable, so the information from the modelling has to be distilled and communicated in a different way that the driver can use.

Frobisher has a research fund of £19m to address that challenge, as part of the business plan in the current five-year control period. A way must be found to take the risk model’s speed recommendation, incorporate any temporary speed restrictions, and deliver it to each driver.

It has to become more than a piece of paper pinned on a depot noticeboard at the start of the driver’s shift, and it has to be capable of



Cowley Bridge



Floods close the line at Cowley Bridge Junction, near Exeter, in the run-up to Christmas in 2012. IAN GUNTER.



Network Rail’s flood defence barrier to stop flooding north of Exeter was brought into use in May 2020. It can be quickly assembled across the line when poor weather is forecast. NETWORK RAIL.

modification during that shift, as weather deteriorates or improves.

“At the moment it’s just the noticeboard,” he points out. “It doesn’t take much to beat that quality of information.

“If we have a really heavy storm on Preston to Carlisle, we would currently operate at 50mph. In the same conditions, the model is recommending about 80mph, so relative to this model, we are being more risk averse at the moment.”

Securing greater resilience of the infrastructure will not be cheap. But it is likely to be cheaper than the unquantifiable alternative: losing transport arteries more frequently, repairing them, and counting the cost of passenger and freight disruption.

In some locations, this may be as simple as raising equipment cabinets above track level where it regularly floods, such as on the low-lying line through Somerset to Taunton, at Cowley Bridge (near Exeter), or across the waterlogged New Forest to Bournemouth. Elsewhere, there will be little point spending money on projects that climate change will render obsolete.



The fatal incident at Carmont in August 2020 has influenced Network Rail's approach to risk, says Martin Frobisher.

Network Rail has invested heavily in sensors to warn of movement in unstable cuttings and embankments. There are 6,000 of these structures in its Southern region alone, and more will require this level of remote monitoring.

"Network Rail is really quite good at managing risk," counters Steve Fletcher, deputy director at the Office of Rail and Road. He leads the engineering and asset management department.

"I would say they are world-beaters," he says, adding hastily: "That's not to say they couldn't do better.

"I can think of a time when train performance was so much worse than it is now. But people have short memories.

"We can see a trend of incidents that are becoming more severe - linked primarily to more frequent and more severe weather events. We need to learn from these.

"Putting a blanket speed restriction on is not ideal. Network Rail is attuned to that, and so are we. I would struggle to say it is risk averse - it manages risk on a daily basis. It has to be cautious,

particularly in Scotland. Carmont was a reality check.

"I've worked in Saudi Arabia. And in the desert, if you get a wind speed of 15mph, you don't run trains! That's because of the sand.

"You have to understand the exposure. East Anglia is more threatened by floods than by winds. The North West gets pummelled by winds. The South West gets pummelled by both. I'm mindful that Network Rail is good at this.

"I think the balance could be improved, with Network Rail improving staff competencies and staff retention. And improving data management, so it better understands its assets and does more reliability-based and risk-based maintenance.

"One area in which I have confidence is Network Rail's ability to use the data it collects. It uses a parameter for percentage of asset life remaining. The modelling in this is supreme. It has 25 years of superb data, and its models are well developed. It is leagues ahead of others, particularly on track data."

Will Godfrey, director of economics, finance and markets >



Speed restrictions at York station. ALAMY.

Speed restrictions: it's about getting the balance right

ANDY BAGNALL, chief executive of Rail Partners, tells **PAUL CLIFTON** that blanket speed restrictions are not the best way to manage challenging weather

Are we too quick to reduce or suspend services when the weather gets bad?

Andy Bagnall treads delicately around his response. Conscious that safety always has to come first, and equally conscious that speaking out of turn in the context of the Carmont fatal crash would not be received well.

Nevertheless, speaking for the private train operators, he needs to get across that the travelling public expects a reliable and dependable service, even when conditions are rough.

"There is a job of work for all of us to understand whether blanket speed restrictions in particular are the right answer, or the first answer, to increasingly frequent severe weather," he says carefully.

"Or whether we can take a more nuanced approach to dealing with weather and its engineering implications. We need to step away from crude responses to specific problems to get the balance right."

During last winter's storms, there were occasions when Network Rail imposed a 50mph speed limit across the south and west of England - the same speed along the sea wall at Dawlish as

it was in Hampshire and across suburban south London.

And an occasional 20mph speed limit on the whole of the highly-exposed West Highland Line doubles the journey time, making it impossible for one crew to complete a normal shift.

"The last fatal crash on the railway, at Carmont, was the result of a weather incident. Erring on the side of caution is a natural and proper response to that," says Bagnall.

"There are times when it is appropriate to introduce restrictions which disrupt the availability of the network.

"We're seeing more winter events with heavy convective rainfall. We're seeing increasingly hot summer days. The rails can heat up and buckle, and overhead wires sag. It would clearly be unsafe to pass at speed, and instead lower the forces on the track.

"The flip side is that we need to get the balance right. To run an entirely safe railway, you wouldn't run any trains - that would eliminate risk. The game is to reduce the risk to as low a level as reasonable.

"The biggest question is around the use of blanket responses to what can often be localised circumstances - using technology to ensure we do not use a sledgehammer to crack a nut, thereby disrupting a huge number of people across a wide area in response to a specific risk.

"Can we use technology to be more precise in our identification of risk? In terms of meteorological analysis. And in terms of using on-train technology to identify specific vulnerabilities in the infrastructure: on-train cameras and sensors.

"Less obvious but full of potential: can we use better technology to use a more varied speed restriction regime, and how that is communicated to drivers?

"We use a largely paper-based system - bulletins and noticeboards to tell drivers about any changes at the start of their shifts. Is that the most effective - and safest - way to keep drivers informed?



"Less obvious but full of potential: can we use better technology to use a more varied speed restriction regime, and how that is communicated to drivers?"

Andy Bagnall, Chief Executive, Rail Partners

► at ORR, chips in: “Reducing cancellations and maintaining punctuality as passengers return after the pandemic is a really vital objective.

“We need to see an evolution in which speed restrictions in bad weather become more targeted. But you can only do that when you have confidence in the data, and when people on the ground understand how to use it.

“One of our big successes has been getting Network Rail to focus on its core assets: the track, structures and earthworks, and committing £600m more than was in its initial plan for the current period.

“A lot hinges on the changing approach to maintenance and the effective monitoring of infrastructure and embedding of new technology. Essentially: risk appetite and risk management.”

Godfrey oversees the periodic review of Network Rail. He returned to ORR in 2022 from Ofwat, the water regulator, after an interval of 17 years.

“We have one of the safest railways. Where we need to look closely is the changing risk around weather and climate. We don’t want Network Rail near the frontier of this, but we do want it pushing that frontier forward.

“You have to understand the exposure. East Anglia is more threatened by floods than by winds. The North West gets pummelled by winds. The South West gets pummelled by both. I’m mindful that Network Rail is good at this.”

Steve Fletcher, Deputy Director, Office of Rail and Road

“This is where the action will be in the coming years and decades. The balance of moving from scheduled time-based renewals towards more sophisticated maintenance exemplifies this.”

The alternative will be a gradual erosion of passenger trust. When bad weather looms, people can choose to drive instead.

A less safe, less climate-friendly form of transport. But one which people will consider more reliable and increase their chances of actually getting there when the wind blows and the rain falls. ■

Storms and high winds can prompt speed retrictions... or even bring down trees that block the line completely. This is at Taynuilt in December 2023. NETWORK RAIL.



“It is easier to have a blanket speed along a whole route than to communicate changes with different limits in different locations at different times during that driver’s shift. That’s not a particularly sophisticated or risk-based approach.”

Bagnall uses the comparison of variable speed limits on a motorway, which are widely used, clear and easily understood.

“And they do not involve a feat of memory by the driver, who has to learn something before setting out. We could use better in-cab signalling or trackside electronics.

“Travelling is not risk-free. But the railway is relatively safe compared with other modes... and has to remain so.

“I’m keen to convey to you that there is a perfectly legitimate reaction to the very real problem of a changing climate. But as an industry, we need a more sophisticated response to balance running a safe railway with one that does what it exists to do for passengers and goods. A risk management approach rather than a risk-averse one.

“We haven’t yet arrived at getting that balance right.” ■

We are getting warning lights across the whole network..

Train drivers worry that a gradual lowering of rail's dependability reflects managed decline of the infrastructure. ASLEF General Secretary Mick Whelan sets out his concerns to PAUL CLIFTON

I believe that not investing in the infrastructure costs more in the long term and leaves us less able to react to circumstances.

I believe we are in managed decline. We used to hear random concerns about bits of the railway not being maintained. Now they are not random - they are getting more prevalent.

Understand it from a driver's perspective. When you drive something weighing 100 tonnes at more than 100mph, you press that little handle in the right place because of your knowledge. You believe the infrastructure and the signalling will be robust enough for you to stop safely.

When drivers start worrying about that infrastructure, they start losing confidence. That causes problems for us all.

Many of the recommendations coming out of the Carmont crash have been implemented, which is positive.

Climate change seems to be impacting our ecosystems. But now we get better information quicker, so if there is something we can't legislate for that will make the railway unsafe, we can make better decisions.

In fact, most of the disruption recently has been about flooding - something that would have closed the railway in any era.

What we don't have is the ability to recover which we had in the past.

We are laying off people who clean the ballast, people who replace rails. There are 497 of those operators. They're getting rid of 297, because apparently there isn't the demand for them. That doesn't inspire confidence in the level of infrastructure maintenance, and our ability not to be impacted by wet weather events.

We have a railway running with a warning light on. You've seen that on the Western. We have asked Network Rail's Western Region for an urgent meeting.

It was bad enough when we had four cracked rails in a month last year, and now we are getting more. But we are getting the warning



Mick Whelan asks readers to think of the driver's perspective. A ScotRail driver escaped injury on December 27, when his Inter7City train struck a fallen tree across the track at Broughty Ferry, south of Dundee. But the front end of power car 43129 was significantly damaged. PAUL MCSWEENEY MSP/ASLEF.

lights across the whole network, such as foliage not being managed.

We are coming towards the view that the railway is less dependable. The evidence is there: the number of issues we have is increasing.

If we believe something is not safe, if the industry does not step in, then we will have to. We will have to tell people not to do stuff or tell them to drive slower.

Drivers are less comfortable than they were before. Their concerns are not yet at a level where we feel we have to do anything dramatic. But when people lose confidence, they pass that on. We have a problem that is building.

We need reassurance from the people we work for, and from Network Rail, that they will do the right thing. It's reasonable to expect that when a driver goes out to work, the driver will come home again safely.

We are coming towards the view that the railway is less dependable. The evidence is there: the number of issues we have is increasing. ■



"We are coming towards the view that the railway is less dependable. The evidence is there: the number of issues we have is increasing."

What do passengers want and expect?

No passenger wants an unsafe railway, but do they want one that closes to avoid any risk? Transport Focus Director **NATASHA GRICE** looks at responses from a 2015 survey and how opinion has evolved since

Nine years ago, Transport Focus worked with the rail industry's then National Task Force to explore passengers' views about extreme weather.

Opinions may have evolved a bit since then - for many, COVID and new technologies have reduced the need to physically be at an office or meeting, and strikes have sadly forced people to cope with the railway being shut.

But what passengers told us during the extreme heat in 2022 suggests that views haven't fundamentally changed. People who could not get where they needed to go were clearly frustrated that, in their eyes, the railway let them down.

So, what did the 2015 research find?

Passengers had high (and possibly unrealistic) expectations that the railway should provide a normal service whatever the weather. They had a strong sense that with the right level of investment and planning, it should be possible to provide a decent, safe train service.

Whether accurate or not, passengers feel that if railways can be made to work in places with far more extreme weather than us (hot and cold), then we should be able to do it here, too.

When it comes to safety, that international context makes it hard for passengers to accept that the weather we experience in Britain makes it unsafe to run trains. And the fact that the railway is so safe in comparison with road transport also plays a part.

Passengers do not want the railway to do unsafe things, and they trust it not to. At the same time, they are aware that with sensible mitigations such as speed restrictions, the railway is still going to be far safer than getting in the car - whatever the weather is doing.

We asked passengers about their priorities during times when the weather prevents the railway running perfectly, and they wanted as near normal a service as possible.

As with any form of disruption, they also wanted better passenger information - an area where the industry, while making progress, still has a long way to go.

Back then, passengers had a strong adverse reaction to late starts the day after a storm (at that time, 'route proving' following storms had led to 1100 starts on parts of the network).

It is interesting that even in 2015, long before Carmont where

"A fair-weather railway cannot be the backbone of Britain's transport system in the way it aspires to be. 'Trust us, rely on us - but you'd better have a car/lorry for the days we're shut' is not a good sell."

the weather tragically exposed a construction defect, passengers in Scotland told us that they felt the railway was being too cautious and suspending services too quickly.

However, there is evidence from Scotland that recent photos of water up to platform edges and damage to trains that have hit fallen trees is successfully highlighting the challenges faced.

To better understand how decisions are made when bad weather hits, we recently joined Scotland's Railway for a visit to its Integrated Control Room.

Weather operations delivery managers take an evidence-based approach and provide professional meteorological advice - to manage weather-related incidents and profile the risk associated with weather events.

They focus particularly on vulnerable earthworks, with constant detailed monitoring of weather patterns and forecasts to assist decision making. Our learnings from the day will help inform our future work in this area.

IMPACT OF SUSPENDING SERVICES

What should today's railway take from all this?

First, it must never forget that its job is to move people and goods. Opting out of doing that, even if a justifiable decision on a particular day, is ultimately failure to do that job.

A fair-weather railway cannot be the backbone of Britain's transport system in the way it aspires to be. "Trust us, rely on us - but you'd better have a car/lorry for the days we're shut" is not a good sell.

Second, while it's clearly true that many people can now organise their lives around the railway being shut, in ways that they couldn't in the past, the industry must not forget that not everyone has that luxury. If you need to be somewhere to get paid, suspending services entirely has serious impact.

Although not caused by the weather, we can see from our research during industrial action that having no service at all impacts disproportionately on those who cannot work from home, likely to include those in lower-paying jobs.

Third, the railway must be careful not to undermine the case for investment to make it safe to operate, even if at reduced speed, during severe weather.

Is there a danger that by amending the timetable in advance, fewer trains show as delayed or cancelled (or none at all if the service is suspended), giving the false impression from performance data that there isn't a problem to address?

Returning to safety, no passenger wants an unsafe railway. But do they want a railway that closes to avoid any risk and forces them to travel by road, where the latest data shows that Britain-wide, 1,633 people lost their lives in the 12 months to June 2023? Possibly not. ■



DB ice! Heavy snow caused the cancellation of hundreds of trains in Munich and across southern Germany in December 2023. ALAMY.

Extreme weather: are they coping in Europe?

Safety is the priority, but are we at risk of losing the year-round resilience of the railway? **BEN JONES** looks at how other European railways manage performance when the weather does its worst

Extrême weather, it seems, has become an increasingly important factor in railway operation over the past decade.

While the climate has influenced the punctuality of public train services ever since their inception 200 years ago, even a casual observer would acknowledge that weather-related disruption is becoming noticeably more frequent.

Winter storms have again been in the news, bringing high winds, snow, and heavy rain - closely followed by flooding - to many regions of Europe.

Flood water washes away ballast from under tracks, weakens earthworks, and inundates tunnels. High winds bring down overhead power lines and scatter mature trees across tracks, creating unacceptable risks to staff and travellers - especially at night.

Summers now bring higher average temperatures with more frequent bursts of extreme heat, often followed by sudden, violent pulses of rain, dumping billions of litres of water on rock-hard ground.

Little wonder that infrastructure managers (IMs) and train operators seek to minimise risk by reducing services or suspending them altogether when adverse conditions are predicted.

Travelling long-distance by rail in winter can often feel like a gamble. It's not a case of 'will my train run late', but 'how late will it run' or even 'will it run at all?'

I made two long journeys in mainland Europe in January, with very different results.

A return trip from Warsaw to Kyiv (RAIL 1002) passed without incident, despite temperatures well below freezing (-10°C), frozen rivers, and snow across Poland and Ukraine. Train operators, staff and passengers were well prepared, and the trains were busy and punctual despite the conditions.

Ukraine's 12,200-mile rail network has proved astonishingly resilient, despite being a frequent target for Russian attacks since February 2022.

Ukrainian Railways (UZ) has suffered only one complete shutdown - for just two hours - over the last two years. Although train frequencies and speeds are low by European standards, that record provides an unflattering contrast with the UK and (increasingly) other major European railways.

A week later, an ambitious journey from Denmark back to the UK

“Extreme heat causes equipment to overheat and fail, continuous welded rail to expand and deform, and ageing earthworks to dry out, crack and fail. All of these issues pose an increasing risk to railway safety.”

in one day was less successful, scuppered by the failure of two high-speed trains and temperature-related speed restrictions.

Deutsche Bahn's notoriously unreliable Frankfurt-Brussels ICE route conformed to its miserable reputation, with one cancelled train and the next one arriving almost an hour late.

Elsewhere in western Germany, IC and ICE services were heavily delayed, along with many regional services. Social media reported 'chaos' in the Ruhr region around Essen and Cologne for much of the day, and across Belgium due to an incident in Brussels.

Both German and Belgian railways are suffering widely reported reliability and resilience issues, exacerbated by decades of under-investment in congested rail networks and many other issues familiar to UK readers.

Having been forced to stay overnight in Brussels due to the serious failure of the last Amsterdam-London Eurostar (on which passengers were stranded until 0300 awaiting a rescue locomotive), the run back to St Pancras the following morning was hampered by speed restrictions in northern France. Trains were limited for safety reasons to 200kph (125mph) rather than 300kph, after two Eurostar sets were damaged by flying blocks of ice earlier in the week.

Overall, the impression was that railways in northern and eastern Europe were better prepared for adverse weather and took it in their stride, while their colleagues further south and west struggled to cope in conditions that were (on the surface) relatively innocuous.

While many of us have a 'gut feeling' that the railway gives up more easily than it used to, evidence suggests that days that were once considered 'extreme' and 'rare' are now becoming more common - and could become the new normal from the second half of the 21st century.

REALITIES

Like Network Rail, Germany's infrastructure manager DB InfraGO (formerly DB Netz) is confronting the daily realities of a changing climate. Train operator Deutsche Bahn (DB) is more exposed to its effects than any other large company in Germany, owing to its nationwide reach.

In 2018, the Potsdam Institute for Climate Impact Research (PIK) outlined the scale of the problems and its guidelines for tackling them. It concluded that some extreme weather conditions are already occurring more frequently and will probably continue to increase in the coming years. This has a direct impact on the reliability and resilience of train services.

A second PIK study in 2021 led to a strategy for handling future weather extremes, with greater resilience across the German network. DB uses targeted scientific data to better protect infrastructure, vehicles, energy systems and stations against climate impacts in 34 regions with varying climates.

Professor Hans Joachim Schellnhuber, director of PIK, said: "The railway is active almost everywhere in Germany - that is its >

► great strength, but it also makes it particularly vulnerable to the consequences of climate change. No matter where local weather extremes strike, they almost always affect the railways.”

DB’s goal is to make its rail service ‘weatherproof’, so that passengers can travel unhindered, and goods can be transported reliably. The strategy includes improved vegetation management, more robust vehicles and facilities, and a weatherproof infrastructure.

In the future, sensors will record system temperatures and environmental conditions around the clock. This enables DB to identify possible disruptions caused by climate damage early and initiate repairs as quickly as possible.

A Deutsche Bahn spokesman tells *RailReview*: “DB uses selected forecast data that shows the weather for today and the next three days. Depending on the season, up to 14 forecast parameters are relevant - including temperature, snow depths, wind strength, amounts of precipitation.

“Since 2019, DB has had its own platform (Wetter@DB) for weather forecast data and actual data. To be able to make operational decisions in extreme weather situations, DB also uses short-term weather forecasts from the German Weather Service.

“In winter, based on weather forecasts, snow clearing and security forces (among other things) are sent to the locations at an early stage. For example, if it becomes clear two days before it snows that existing switch heating systems cannot process the amount of new snow, winter service staff help by hand.

DB is further developing its weather forecasting tool to allow better prediction of embankment fires. It is also extending forecast periods to up to eight days and installing additional interfaces to external weather portals such as federal state flood networks.

“The new weather forecast tool should be available nationwide from mid-2025. But even with the best protection, there will still be extreme weather events from which railways - like other modes of transport - are not immune.”

STORMS

Recent observations indicate that the distribution of storms has shifted from winter (November-February) to the remaining months of the year.

This brings additional problems when trees are in leaf and offer a larger surface area for storms to attack. Together with heavy rain, healthy trees on waterlogged ground can also be brought down by storms.

German studies show an increase in heavy rain, particularly in the south-east of the country. These are likely to occur more frequently in low mountain ranges, leading to more frequent floods and the erosion of railway embankments.

At the same time, temperatures are increasing, while cold and snow are decreasing. Since weather records began in 1880, the annual mean temperature in Germany has already risen by 1.4°C. The number of hot days has almost doubled on average since 1961.

Extreme heat causes equipment to overheat and fail, continuous welded rail to expand and deform, and ageing earthworks to dry out, crack and fail. All of these issues pose an increasing risk to railway safety.

White winters are becoming less common, and days with snow depths of 15cm or more are expected to decrease.

However, particularly severe cold snaps are still to be expected and possibly be even more severe - as demonstrated in early December 2023, when 40-50cm of snow fell overnight in southern Germany. Snow and ice caused huge disruption again on January 17-19, causing the cancellations of hundreds of trains and flights and traffic chaos across the southern half of the country.

DB operates a four-step strategy for managing extreme weather events. At Level 0, trained staff and repair equipment is put on standby with up to two days’ notice if storms are expected.

When the alert moves up to Level 1, DB InfraGO’s control centre in Frankfurt-am-Main calls in more staff, and a working group meets to co-ordinate weather-related measures nationwide. Regional teams meet at operations centres in the affected regions.

If the weather event has only local effects, the regional operations centre manages the effects of the storm and its consequences (Level 2).

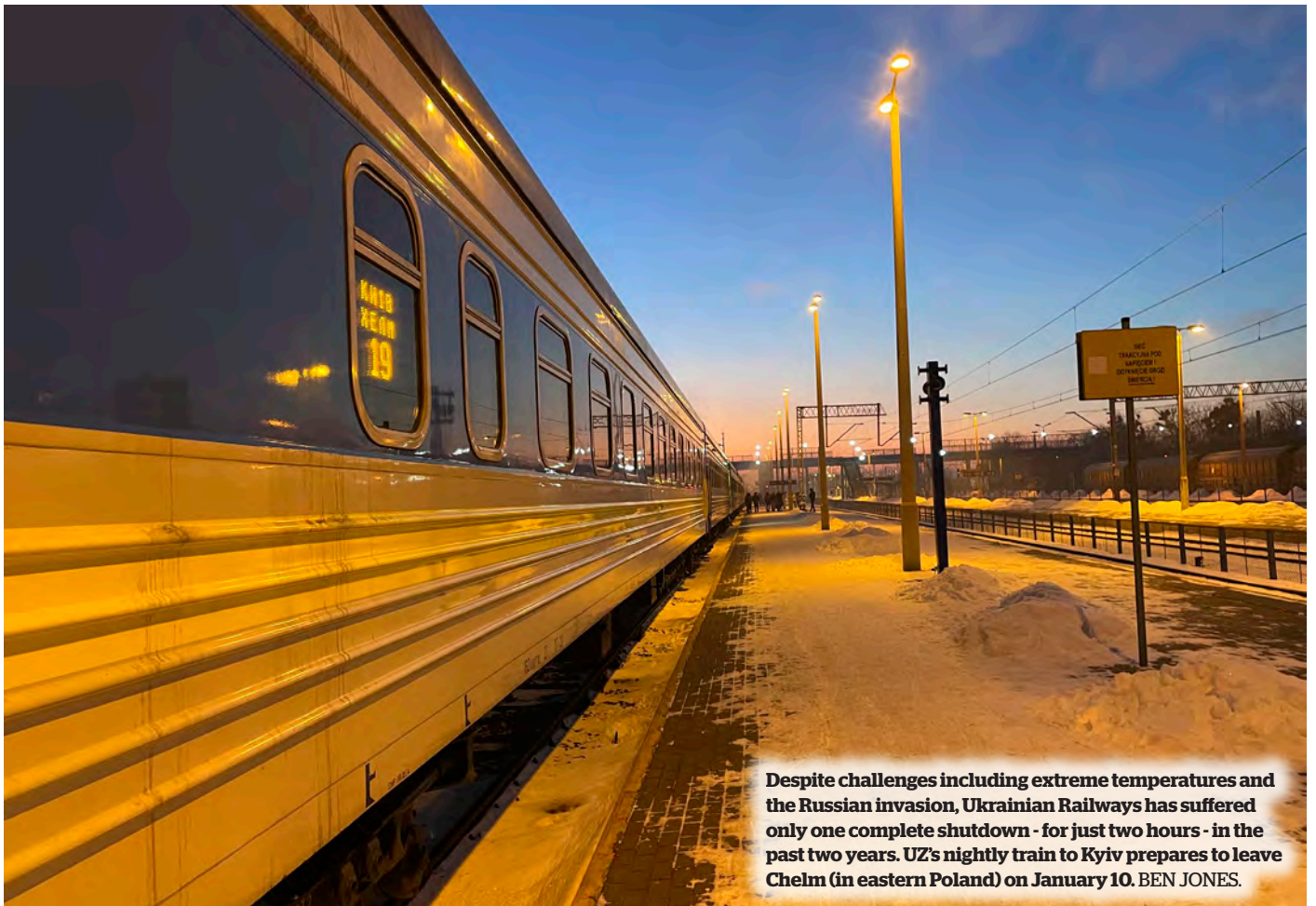
But if two or more regions are affected the central task force in Frankfurt moves to Level 3 to co-ordinate efforts at a national level.

Based on the experiences of the past few years, DB now advises passengers in advance via various channels to postpone their journey if possible, as in the UK. DB says it communicates “comprehensively” via customer media channels and (in theory) at stations on the operational situation when train services are likely to resume.

Only in “exceptional situations” will DB completely suspend all rail traffic in individual regions. This precautionary measure is designed to protect people, vehicles, and systems. It says this approach has proven successful. The number of travellers stranded in stations was



A DB Regio mechanic installs a new filter for a train’s air-conditioning system, as part of the company’s precautions for dealing with extreme hot weather. Failures of heating, ventilation and air-conditioning systems on trains decreased significantly between 2015 and 2020. ALAMY.



Despite challenges including extreme temperatures and the Russian invasion, Ukrainian Railways has suffered only one complete shutdown - for just two hours - in the past two years. UZ's nightly train to Kyiv prepares to leave Chelm (in eastern Poland) on January 10. BEN JONES.

significantly lower during the most recent storms.

Like all railways, DB's focus is on making routes usable again as quickly as possible after a storm. Hundreds of staff use special equipment to clear tracks and repair technology and overhead lines. DB also uses helicopters to obtain a quicker and more accurate picture of any damage.

MITIGATION

A successful programme of vegetation management that has been in operation since 2007 has been significantly expanded as part of efforts to reduce disruption.

Between 2018 and 2023, DB reportedly invested around €625 million (£535m) to thin out forests in a six-metre cutting zone on both sides of tracks, to reduce disruption from falling trees.

It also committed to regular checks of air-conditioning systems in more than 4,000 signal boxes, sub-stations and control units, as well as other cooling devices, with the aim of protecting the control and safety technology against extreme heat.

Heat-related disruptions fell by 20% between 2015 and 2020. Failures of heating, ventilation and air-conditioning (HVAC) systems on trains decreased significantly in the same period.

Despite all this, DB's performance was worse than ever in 2023, falling to its lowest level for eight years.

Punctuality of long-distance trains in particular has been abysmal for a railway that was once a beacon of reliability. In November 2023, almost half of all IC and ICE trains ran late, with just 52% arriving less than six minutes behind schedule.

Exceptional snowfall of up to half a metre in Bavaria on December 2/3 led to numerous breakdowns and prompted the cancellation of hundreds of trains, with malfunctioning signalling systems and electronic information boards exacerbating the problems. In many cases, trains were trapped in depots and sidings by heavy snow and frozen points.

Both rail and road passengers were advised to cancel any

unnecessary journeys amid the chaos, after Munich's main station was closed on December 2. Massive disruption continued into the following week.

Martin Burkert, head of the EVG Railway and Transport Union, said DB was ill-equipped to deal with the weather as a result of years of under-investment.

"The DB slogan 'we travel in all weathers' has lost its credibility," he told the German press in December, calling large parts of the country's rail infrastructure "creaking and dilapidated".

Detlef Neuß, chair of the non-profit organisation Pro Bahn, which represents public transport users in Germany, says DB was better equipped in the past to deal with harsh winter conditions.

"Instead of concentrating its attention on turning a profit, Deutsche Bahn needs to focus its attention on ensuring that the operation functions on a day-to-day basis," he says.

It's tempting to fall back on the generalisation that railways are better in other countries, or were better, cheaper, and more reliable in the past.

As we've seen, the evidence doesn't always back that up, although the evolution of railway technology and the massive growth in mobility have had an effect on the performance of trains and control equipment over the past 40 years.

We travel further and more frequently than previous generations, both for leisure and for commuting. As a result, more of us are likely to be inconvenienced when train services are disrupted.

Equally, the advance of Health & Safety legislation, risk assessments and compensation culture has made rail companies in many countries safer but more risk-averse over the past 20-30 years.

Thanks to the continuous development of technical standards, modern passenger trains are much safer for those on board in the event of a collision or derailment. At the same time, the relentless shift from locomotives and coaches towards lighter multiple units in many countries since the 1980s has created a different risk.

While the crew of a 130-tonne locomotive would plough ►

► through drifting snow or smaller obstructions, there's less confidence in the ability of lightweight multiple units to tackle anything above rail height.

In recent years there have been multiple incidents in which electric or diesel multiple units have been lifted off the rails by compacted snow. On a couple of occasions in Switzerland, they have been blown clean off the track by ferocious side winds.

Often cited as a paragon of what cohesive planning and sustained investment can achieve, Swiss Federal Railways' (SBB) spends between £9m and £13.5m (CHF10-15m) annually on protecting itself from natural hazards.

Given Switzerland's challenging Alpine topography, this figure seems relatively minor. But SBB spokesman Martin Meier tells *RailReview*: "Restricted operations or train cancellations on individual routes are rare, mostly caused by landslides. However, protection against natural hazards is an important issue for SBB.

"The existing protective structures, the protective forest, and a professional monitoring and alarm concept form the basis for us to continue to protect railway operations and customers. Defensive measures include protective dams, high rockfall protection nets, rock stabilisation, and natural hazard alarm systems."

Maier adds: "It's important to bear in mind the sometimes very different conditions - for example, with regard to the size and topography of different countries. Financing and political processes are also rarely comparable between countries."

FRAGILE

It could be argued that many of the countries struggling to run an all-weather service are the same ones already suffering from under-investment, crumbling infrastructure, congestion, and poor reliability. Poor weather exacerbates an already fragile situation, and the safest solution is to advise passengers not to travel or (in the worst cases) to suspend services altogether.

An article about Ukrainian infrastructure, published in *Issues in Science and Technology*, provides a revealing insight into the

"In recent years there have been multiple incidents in which electric or diesel multiple units have been lifted off the rails by compacted snow. On a couple of occasions in Switzerland, they have been blown clean off the track by ferocious side winds."



The Alpine topography presents challenges for Swiss Federal Railways. ALAMY.

difficulty of generating interest - and therefore funding - for resilience measures.

"In armed conflicts, infrastructure is both a target and a defence. The same is true amid disasters such as floods, hurricanes, and earthquakes. Between calamities, though, infrastructure rarely garners attention and is often taken for granted - as seen in society's slow-walked responses to the challenges of climate change.

"Despite ongoing efforts to raise awareness it often takes disasters such as high-profile bridge failures to stir up popular willingness to invest in infrastructure."

As the evidence for man-made climate change grows, perhaps it's time to change our view of how the railway deals with extreme weather events.

Rather than criticising train operators and IMs for acting in the interests of safety, we need to accept that extreme weather events now occur with greater frequency and severity, and prioritise funding for efforts to make the railway more resilient - whatever the weather. ■

A safer and a better railway

In an extract from his speech at the Rail 100 Breakfast Club in January, Rail Safety and Standards Board Chief Operating Officer **JOHNNY SCHUTE** outlines the path of standards needed to future-proof our railways

The Rail Safety and Standards Board has changed remarkably in the past five years. We've improved the ability within the organisation so that we feel confident and comfortable in providing leadership, safety, health, interoperability, technical integration and sustainability.

We bring the industry together, so achieving collaboration. We do it through our traditional routes of groups and committees, but we now generate plans and look for endorsement from those groups and committees - hopefully through consensus, as we know that sticks best, but not at the expense of pace. We must keep moving fast.

We are encouraging innovation through our research and Future Rail programme. This means doing the 'horizon-scanning' and 'thought leadership' that hard-working rail staff don't have the time to do.

RSSB plans to go further, to link together our core areas of expertise that sit within strategic business areas, for a safer, healthier, harmonised, sustainable and efficient future railway. We can only do this within six new strategies:

- Taking first our aspiration to generate safety and health insights to improve performance. Our vision is to monitor and analyse data better - and we have many terabytes of data in the rail centre.
- Transforming our health and wellbeing data insights, so that they're as good as the ones we have in safety.
- Helping develop a strategic workforce plan to reduce industry dependency on specialist skill sets.
- Improving safety performance without increasing the regulatory or financial burden, by introducing things such as the Data Reporting, Analysis and Corrective Action System (DRACAS) roadmap. Plus, openly sharing data on defects, faults and failures that lead to safety incidents that are more likely to delay and disrupt travel. This will create a smarter, more cost-effective management of systems safety and health, better able to attract and retain high-calibre and diverse staff in the digital age.
- We aim to benefit from artificial intelligence by incorporating learning from the development of train protection and speed supervision into standards - supporting the creation of a new train protection strategy that improves safety and reliability, while using technology to reduce that cost.
- Finally, bringing in tools to enable adoption of automation and AI safely, improving predictability of performance, more effective use of capacity, and faster recovery from unexpected changes.

Understanding data

Improving testing capabilities will enable the rail industry to reduce the time and effort for testing new assets. RSSB will do this by issuing guidance on how digital testing can replace physical testing, and help the supply chain assess the high-level impacts and implications of new assets with greater confidence.

We will exploit the value of data, and promote greater data interoperability, through the provision of new guidance and standards, enabling the industry to share, integrate and analyse data quickly and easily, so increasing its value. This should improve rail operations, aiming for an annual industry cost reduction of 1%-2%.

Risk modelling

We want to improve the rail industry's resilience to extreme weather and climate change through risk modelling and maturity models.

These measure our true capability, leading to proportionate, operational responses, and targeted investment in the necessary assets and operations.

We are committed to embedding sustainability, and will implement a sustainable rail blueprint. We aim to grow a sustainable rail culture and include this blueprint in key industry contracts.

Finally, we want to provide the data architecture so there is systematic and efficient monitoring, reporting and analysis of sustainability. This will help rail as the standout sustainable transport mode.

We have designed a tool called PRIMA which looks at operational route sectors. By feeding data such as rainfall, topography or the state of an asset into an algorithm, we can demonstrate an optimum route speed which remains safe given the conditions. It's mostly about cuttings and embankments, because those are the assets that tend to fail.

PRIMA is a decision support tool. The final decision on route speed remains with the operator. Trials in Cumbria prove it's viable to raise the speed restriction to 60mph in some cases.

We're hoping to roll PRIMA out across the UK by the end of 2024, building up our number of assets from tunnels to viaducts and adding different weather conditions.

Leadership

Establishing an optimistic, can-do, confident culture, always striving for the best - accountable, compassionate and relentlessly focused on the mission of providing the best for our customers will restore rail's fortunes.

People need a purpose and belief in what they're doing. We must provide it. We must give back pride in the sector among both the workforce and the customer. We must innovate because we don't have the money or resources to do otherwise. We must trust our people and train them properly, look after them, and get them to work together.

We need to stitch together data, to find those insights that will make a difference. We need to use novel technology such as AI and digital testing that will reduce cost and focus on aspects that set us apart from other transport modes, particularly sustainability. It underpins our credentials as the greenest mass transit system available.

Collaboration is important, too. Everyone has a part to play - from rolling stock owners to freight operators, those that work on the infrastructure, and in the supply chain.

I would like to see better collaboration in the digital space, too. RSSB is the data aggregator for the rail industry. But so much of it sits there and isn't used. We need to see more of it used to solve problems and devise new solutions.

At times, the best can become the enemy of the good. Getting something 'out of the door' that's 80% complete, but which gets used, is better than something that's only 100% complete in five years' time.

We need to know when Great British Railways will be formed, and whether it will give us the direction we so desire. Until it is, I'm unequivocal - in our area of expertise, the leader is RSSB. It's about safety, reporting, health, interoperability, and standards.

What we can't have is a void. Unless we start putting industry leaders together to start making constructive headway, we will fall behind. At RSSB, we're trying to drive that. ■

A Great Western Railway Class 800 stands at Paddington in August 2021. GWR operates trains along one of the busiest corridors in England - the Great Western Main Line between Paddington and Reading. ALAMY.



Confronting the crisis on the Great Western

TOM EDWARDS, BBC transport correspondent for London and the South East, recalls the day in December that the Great Western hit the headlines for the wrong reasons, and asks how its failings can be rectified

It was at the start of the festive season that the problems on the Elizabeth line and the Great Western came into sharp focus.

On December 7 2023, passengers were stranded on trains for hours after damage to overhead power lines.

The Great Western had no power and no communication. Hundreds of passengers had to be walked along the tracks to reach stations. It was a very bad day for the railway.

One of the commuters stuck that day was Ben Sherliker, from West Ealing.

“Once the driver’s radio had gone out, they couldn’t signal to us,” he recalls.

“I expected the driver to walk down the train or something, or the police to come by and knock on the door and say you are going to be waiting for so long, but there was nothing.

“So, everyone was in the dark, everyone was getting more and more frustrated. People were getting off the train. That was the main problem - the communication, and not knowing what was going to happen.”

Irene Fung was with her newborn baby on a train heading to Heathrow. She too was stuck on the train, and she missed her flight.

“The Elizabeth line is brand new, right? So, I thought it should be quite reliable,” she says.

She has a valid point. But while the trains on the Elizabeth line are indeed new, the infrastructure it uses on the Great Western line is not.

The Great Western is maintained by Network Rail... and it has been struggling. It is always subject to an Office of Rail and Road investigation, owing to poor reliability.

There have been numerous broken rails and power line problems,

because one of the busiest rail corridors in the UK hasn’t been able to cope with an increase in traffic.

It is used by Great Western Railway, the Elizabeth line and Heathrow Express, as well as freight. Any problems lead to thousands of disrupted journeys.

If December 7 was the line’s low point, then that low point had been brewing for months.

Ever since Elizabeth line trains started operating in May 2022, commuters in West London have been complaining about a poor service on the line. Initially complaints were dismissed, but slowly they began to grow as travellers become increasingly frustrated with reliability.

London Mayor Sadiq Khan tried to intervene, and wrote to Network Rail on December 13, saying: “The reliability of the Elizabeth line has not been good enough.”

Khan conceded that it was “hugely complex” to operate a “metro-style service” on the same infrastructure as national rail services, but he wanted improvements.

For decades, the line has also been used by freight operators. Traffic includes important stone deliveries to projects such as HS2, and household waste.

Maggie Simpson, director general of the Rail Freight Group, believes the line’s resilience and the maintenance plans needed to be looked at.

“Stuff happens - of course it does. But you have to try and make it happen as little as possible.

“I think it is worth Network Rail understanding why that route is performing worse than other similar routes.

“Is it something to do with the way they are maintaining it, or assets? I don’t know, but it’s definitely below other similar routes,

The screenshot shows a BBC News article with the headline "Thousands of passengers stranded by overhead line failures". The article is dated 10 December 2023. It features a sub-headline "Wires down on the ECML" and a photograph of a railway track with overhead power lines. The text discusses the impact of the power line failures on passengers and the challenges faced by Network Rail. A small inset image shows a train on the tracks.

so there must be something going on because I don’t think it’s particularly old infrastructure compared with anywhere else. So, something in the way they are managing it needs to be reviewed.

“I suspect also they need to look at the resilience point. If we are getting an incident, is it being recovered quickly enough?

“Obviously with Crossrail there are a lot more trains than there were, and it may be that is stressing some of the systems that might need to change.

“We run a lot of freight in the night and the day, so understanding where and how you get the right level of access to the network to do the work you need to do without stopping freight trains is also really important.”



“Late at night for the last two hours of service, we are dropping to two tracks instead of four.”

Marcus Jones, Western Route Director, Network Rail



“We have a lot of disruption on the infrastructure, and we are particularly concerned about the corridor between Reading and Paddington.”

Mark Hopwood, Managing Director, Great Western Railway

► So... why has all of this happened and what is the solution?

Marcus Jones is Network Rail's Western Route Director. He now oversees the Thames Valley service recovery plan - known internally as Project Brunel. A new management team is in place.

He acknowledges the service "hasn't been good enough", with commuters only being able to rely on the service "two days a week".

Network Rail believes the issues stem from a huge increase in usage on the route since the launch of the Elizabeth line. There are 17% more trains and 38% more tonnage.

But Jones concedes that maintenance and renewals did also slip, creating a perfect storm: "What we do think has been a unique factor is that we have opened a brand-new railway which we are really proud of, which was a really phenomenal achievement, and a real success.

"But we've had a lot of large-scale enhancements on the railway, coupled with COVID and industrial action, which meant we did get behind on some of our maintenance and some of our core renewals. It means part of this plan is to catch some of those renewals back up, but we're also finding our maintenance is getting in a much better place now."

Technically, the main issues have come from track defects, points, signalling equipment, and overhead wires.

Network Rail has identified 19 locations where renewals and improvements need to be made quickly. It is allocating £140 million to this.

Jones says that, crucially, the failures have happened in areas that have affected the railway badly: "Based on the data that's coming out of those key failures, we've been able to build a really credible plan of how we can put some sticking plasters on it to stabilise our performance over the next six months.

"It is not where we want it to be long-term, but customers will be able to rely on us a bit more, because at the moment it's fair to say they can rely on us for two days a week."

Using data from failures, NR will (for example) start to replace axle counters - part of the signalling systems used to detect the clear or occupied status of a section of track.

These have been failing. They will be replaced with a UK-first axle counter that features better monitoring, so NR should be able to tell before they fail.

The signalling system between Heathrow and Paddington will be upgraded over the next six months. Jones says that should give some "performance uplift". There will also be track renewals.

Because of the increase in trains, any disruption is also now having a much bigger impact.

Previously, a ten-minute stop by a train on the line would disrupt two others. Now, a ten-minute stop goes right up the Elizabeth line affecting five or six services, rippling all the way into Essex.

Those impacts had been modelled previously, although Jones concedes that the full impact across the network could have been "underestimated".

He says there will be a knock-on effect for commuters for the next few months, however, and that there could be more disruption ahead: "The next six months we are going to stabilise the railway so people can rely on us every day. But equally, the next six months, we're sorry for the additional access we have taken, and we are

trying to make sure we do limit it to absolutely as low as possible, so we aren't disrupting people unnecessarily."

Access is a problem. Network Rail says that since 2018, the average working time on the infrastructure per night (given the increased use) is limited to 2.5 hours.

Network Rail will increase that. For example, over a four-week period from 2200 every night, use of the four lines is due to be reduced to two. Jones says that will cut services, and that for two weeks trains won't call at some stations such as Hanwell, West Ealing and Acton Main Line.

"We are going to run a two-track timetable so customers can still move on the Western network, but at reduced capacity.

"Late at night for the last two hours of service, we are dropping to two tracks instead of four. It means we are able to do some of this work in those timeframes, so we aren't taking all of those line blocks which are disrupting people.

"The other thing is we are trying to integrate our work more with



An Elizabeth line service calls at West Ealing on November 9 2022. Essential overnight infrastructure maintenance work on the section between Reading and London Paddington means that for two weeks Elizabeth line trains after 2200 won't be calling here. ALAMY.



“We rely completely on the overhead power supply. If there was one area that we are particularly focused on, it’s overhead electrification.”

Howard Smith, Director, Elizabeth line



“I am pleased that they have brought forward a comprehensive plan to resolve the problems on the line, and I will continue to hold them to account.”

Sadiq Khan, London Mayor

HS2 and our existing closure programme, to minimise the impact on customers.”

Some of the infrastructure is also old. The overhead wires between Heathrow and Paddington date from the 1990s. Over the next five years, they will be replaced as part of Network Rail’s Control Period 7 (CP7) plan. NR is also seeking to establish if any renewals from CP7 can be brought forward.

There was a review after the incident on December 7. All involved agreed that clearer communication with passengers had to be a priority.

Mark Hopwood is managing director at Great Western Railway. He says Network Rail now has a good team in place.

“We have been involved with Network Rail in trying to get them to put a plan together that does the right things.

“The first thing is we share our passengers’ concerns. We have a lot of disruption on the infrastructure, and we are particularly concerned about the corridor between Reading and Paddington.

“The good thing is we now have a team at Network Rail that first of all understands how serious the situation is and that it needs to be addressed. We also have a leadership team that knows what good looks like.”

GWR says most of the problems are coming from infrastructure.

“Passengers are clearly demanding improvements, and we agree. In very simple terms, two-thirds of the delays that people are seeing on our trains in the Thames Valley come from Network Rail - that’s normally to do with things such as track, signalling and overhead wires.

“Over the last six or seven years, delays caused by the rolling stock themselves has reduced by over 50%, so we are really keen to see an improvement of that magnitude come through on the infrastructure as well.”

Hopwood hopes the disruption will be kept to a minimum: “I think what’s important now is that they deliver on those plans. We don’t want the work itself to be disruptive to customers, but sometimes you can’t make an omelette without breaking some eggs. So, there will be some times, when we see some disruption, to let Network Rail to get in and fix things.”

Howard Smith is director of the Elizabeth line at Transport for London: “It’s a good plan. The best plans appear like common sense. Stabilising things, focusing on response and stabilisation, then followed by more intensive work on the assets that are already in place.

“And then longer term, at the end of Network Rail’s control period in particular, actually doing some renewals of the life expectancy on tired assets such as some of the overhead power lines out of Paddington. It’s common sense and it’s a good plan.

“If you look across the assets that are causing issues, it’s pretty much across the range.”

For Transport for London, there is one particular area of focus.

Smith explains: “The one thing that’s particularly important to us is that we are completely an electric railway. We rely completely on the overhead power supply. If there was one area that we are particularly focused on, it’s overhead electrification.”

There is also work planned to build Old Oak Common station for HS2 and the Elizabeth line. Seventy days of closures are planned over the next five years, and Network Rail hopes to co-ordinate its work with the track possessions already in place.

London Mayor Sadiq Khan says he will be monitoring the improvement plan.

“I have been absolutely clear with Network Rail, MTR and TfL that the issues we have seen over the last six months are not acceptable,” he says.

“I am pleased that they have brought forward a comprehensive plan to resolve the problems on the line, and I will continue to hold them to account.”

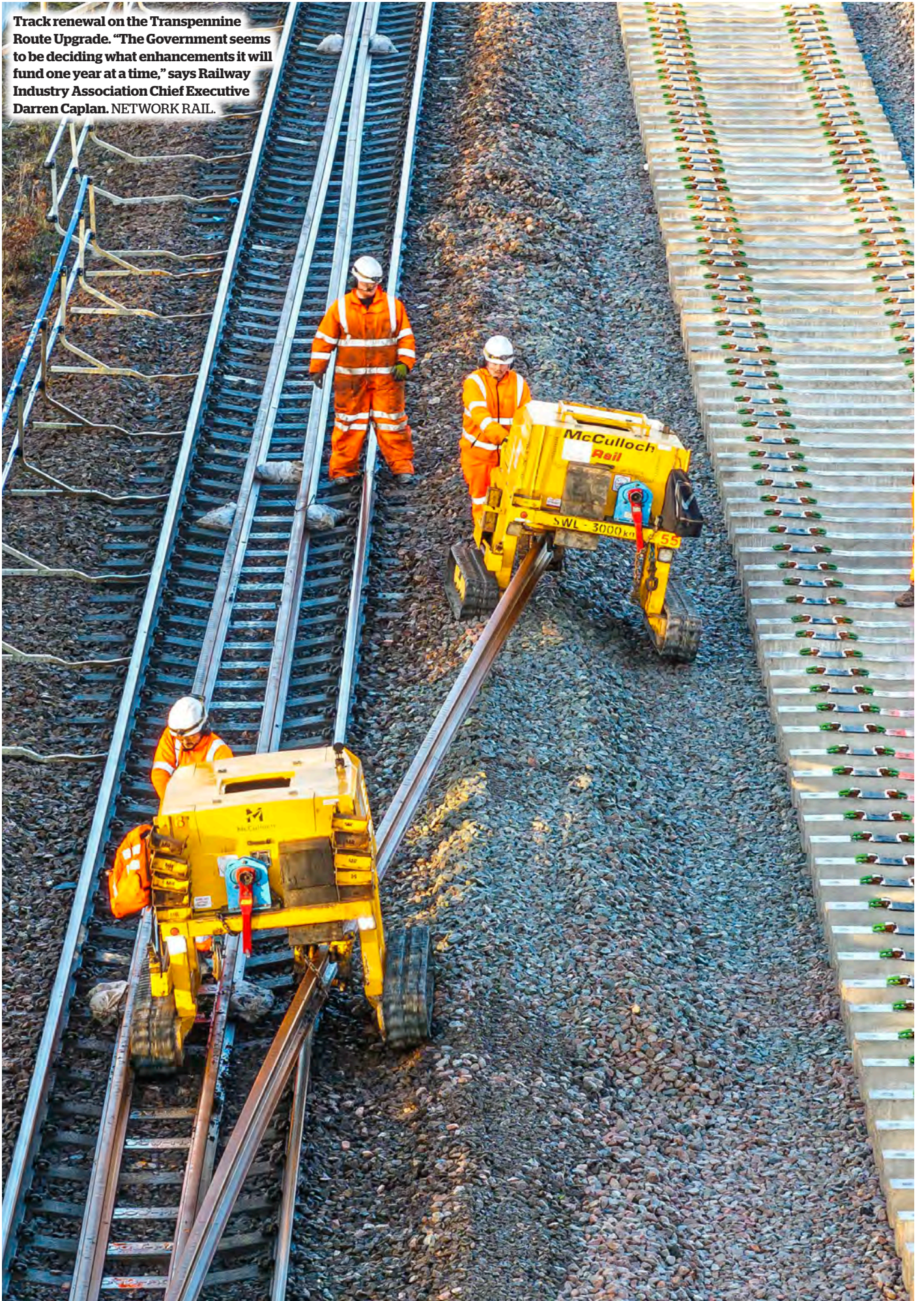
There is some optimism, but the big question now is: will the improvements work?

NR says commuters should see a good service within six months. The stakes are high politically and reputationally.

Network Rail concedes what commuters already know: the railway in and out of Paddington has not been anywhere near good enough, and it has to improve. ■



Track renewal on the Transpennine Route Upgrade. "The Government seems to be deciding what enhancements it will fund one year at a time," says Railway Industry Association Chief Executive Darren Caplan. NETWORK RAIL.



The constant obstacles to maintaining infrastructure

Is what happened between Reading and Paddington symptomatic of wider problems? PAUL CLIFTON examines: are these failings coming soon to a railway near you?

“No,” says Network Rail’s Martin Frobisher. “We’ve done lots of analysis.” In the previous pages, Tom Edwards has detailed the dismal litany of failings that have taken place on the busiest section of the Great Western Main Line.

Frobisher, Network Rail’s safety and engineering director, believes they are specific to that route. Which indicates that the infrastructure management is not consistent across regions. And Frobisher concedes that other parts of the network face even greater challenges.

“I started by asking whether we have a problem with the reliability of the overhead line,” he explains.

“We compared it with other systems around the country. When you benchmark it on the number of failures per gigawatt hour drawn, it is actually the most reliable in the country. That shocked me.

“When you look at Western versus the rest of the country, it appears reliable when normalised that way. If you normalise it by how many failures occur per month, you come up with a different answer.

“There is something unique about the traffic pattern - a vast difference since the Elizabeth line. The power draw is very different. I don’t think anywhere in the country has that density of trains.

“I have lots of data that shows the incidence of broken rails is better now than it has ever been, across the whole network. We do not have an adverse trend. There were instances on the Paddington approaches which caused huge passenger delays. But I can demonstrate there isn’t a nationwide trend on cracked crossings either.”

It’s all about the money

“The railway has slightly less money to spend on operations, maintenance and renewals in the next five years than it had over the last five years,” warns David Clarke, technical director at the Railway Industry Association.

“In other words, less to keep the infrastructure in a steady state.

“And it has redeployed quite a lot of money to deal with climate

resilience. As a consequence, there is less work on traditional assets - track, signalling, and so on. Network Rail acknowledges there will be a decline in asset condition. It expects a deterioration in performance.”

But the funding is defended by Will Godfrey, finance director at the Office of Rail and Road: “The funding settlement is £43.1 billion for the next five years. While there are challenges, in real terms that is only 1% less than the previous periodic review.

“But the nature of the risk and challenge has changed. The way the business is managed has to change, too. It has to get smarter about targeting the response to the risks. It can’t just chuck money at the same things it was doing five or ten years ago.”

Steve Fletcher, deputy director at ORR, agrees: “There’s not enough money for the whole railway to run like a Swiss clock. There just isn’t. It’s about managing risk with the funds available - a sound asset management strategy to enable us to get the best bang for the buck.”

RIA worries this will only build bigger challenges further down the line.

Says Clarke: “Redeploying resources now will leave Control Periods 8, 9 and 10 spending more money to recover from that. What do we think is the likelihood of the government giving them more money in the future than in the recent past? I would not put any bet on that.

“If you learn from the past, this is a big driver of why we now have a backlog of signalling work. Because the same sort of decision was taken ten to 15 years ago, when signalling was life-extended and under-invested, unable to remain in a steady state.

“In the next control period, from 2029, the climate resilience work we are tackling now won’t have become any less. So, unless the economy has grown sufficiently for the government to give us more money, I think it is unlikely we will be able to recover from what is not being done now.”

RIA Chief Executive Darren Caplan chips in: “The Government seems to be deciding what enhancements it will fund one year at a time. And HS2 sets a precedent: regardless of what you say you will spend, it is now easier to cancel things that had been agreed and promised. ➤

“Make no mistake, there will be more storms, and they will be harder to deal with. We have a Victorian network that we cannot completely rebuild. The scale and pace is hitting us right here, and right now. We do what we can within funding limits. That means better forecasting, better telemetry to understand the assets, better risk modelling, and investing in the weakest assets wisely. But we cannot fix everything.”

Martin Frobisher, Group Safety and Engineering Director, Network Rail

“There is chaos at the heart of government at the moment. Between the Department for Transport, the Treasury and No. 10. In the last few years, we have had so many Transport Secretaries, Rail Ministers and Business Ministers that there has been no one piloting good policy. It seems to us that No. 10 has set its face against rail. They are spending what they have to... but no more. It’s not a priority.”

Darren Caplan, Chief Executive, Railway Industry Association

► “How on Earth can Network Rail plan ahead if it doesn’t know what enhancements are to happen, where or when?”

“For example, the whole strategy for the West Coast Main Line is having to be redrawn as a result of the cancellation of HS2. That incurs cost.

“There is chaos at the heart of government at the moment. Between the Department for Transport, the Treasury and No. 10. In the last few years, we have had so many Transport Secretaries, Rail Ministers and Business Ministers that there has been no one piloting good policy.

“It seems to us that No. 10 has set its face against rail. They are spending what they have to... but no more. It’s not a priority.

“Look at the UNIFE global rail study, or any other international comparison. They all show growth in rail all around the world. Everywhere. Except here. Some places at 3% a year; many at double that rate.

“We are the only country where rail is contracting. Yet we are good at rail in this country. It is an astonishing position to be in, caused by the hiatus in decision-making.”

For five years in a row, RIA asked its members the same questions about confidence to invest. In 2023, it found they were more pessimistic than at any time since 2019, even through the pandemic. It found that more than half the industry expects to shrink during 2024.

Clarke adds: “No matter who gets into power next, they are

not going to reform rail overnight. Turning ideas into projects is measured in years. They are going to appraise projects.

“Any individual project that is not yet in development - and very few of them are - is years away from spades in the ground.”

Shifting focus to a changing climate

“For Network Rail, a lot hinges on doing things differently in the coming years,” says ORR’s Will Godfrey.

“The root cause of incidents varies by region. The health of the assets varies by region. Consistency of response between regions is something we need to pursue. Climate change in particular distinguishes between regions.

“We’ve seen Scotland performing particularly well, not surprisingly, in responding to the issues arising from Carmont. We want to see more of that learning spread across the regions.

“Where we need to look closely is the changing risk around weather and climate. Incidents will always happen. The point is how well they are anticipated and mitigated in advance, and how well Network Rail responds.”

ORR’s Fletcher: “If you’re managing the North West, particularly around Carlisle, it has been pummelled by the weather. The delivery units, the maintenance gangs, are all tooled up and they know what to do.

“If you go to another maintenance gang in East Anglia, say, the chances are the experience and competency in responding may not



The site of Edenbridge landslip, which occurred in December 2019. It took place over a 30-metre section of embankment where the railway is carried high over the River Eden. ORR’s Steve Fletcher notes that the North West, particularly around Carlisle, is “pummelled” by the weather. NETWORK RAIL.

be as good. It's vital we get these skills and learning taken across the network.

"What they've not done until recent times is develop the means to understand how their exposure to risk changes over time.

"Climatic change planning is vital, particularly in exposed regions. Both data competency and structural examinations - we started to get twitchy about lack of compliance in examinations, and we did not hesitate to raise it as a big issue."

Frobisher concedes: "We are making compromises on asset sustainability, because our budgets for renewals are tighter and the assets will be older at the end of CP7 than at the start. But we are spending more money on maintenance, and we have better technology to get more from our assets.

"We've diverted money from things such as high-output renewals, which were ripping up large lengths of track to replace them on a cyclical basis.

"We are focusing on specific renewals at the places where we have problems. We are investing in technology such as telemetry and better weather forecasting to manage the impact. Asset sustainability is something we will have to manage in our constrained financial environment.

"We are investing more in drainage now. We are hiring lots of people for drainage maintenance, and we are investing in drainage renewal. We have reduced track renewals to pay for more drainage work because that gives the best overall balance in terms of risk."

For anyone still doubting the depth of impact of climate change, this is already having a very clear effect on how Network Rail operates.

Its data shows that it rains 8% more in Scotland than it did before. The climate pattern in Scotland has changed more profoundly than elsewhere on the network. As it worsens, more change to the way Network Rail operates will be needed there.

"The climate change risk is really on us right now," says Frobisher.

"As this gets worse - and it will - we will have to change further.

"Flooding in particular will be pressing in the next few years. We know there will be more rainfall. But it is nuanced: we could have one storm that is on a different scale. In the longer term, by which I mean 20 years, all the models have to include the profound effect of sea levels rising."

Frobisher concludes: "Make no mistake, there will be more storms, and they will be harder to deal with. We have a Victorian network that we cannot completely rebuild.

"The scale and pace is hitting us right here, and right now. We do what we can within funding limits. That means better forecasting, better telemetry to understand the assets, better risk modelling, and investing in the weakest assets wisely. But we cannot fix everything."

Hope for the future

The Office for National Statistics reports that the UK population will increase by seven million by 2036, mostly through inward migration and predominantly into large urban areas. That has enormous implications for transport, health, and housing.

"The financial model needs to consider what happens if you don't sustain the railway to an adequate standard. There is a mature question to ask about the cumulative effect, and to understand the long-term trade-off between a safe railway and an efficient railway."

Robert Cook,

Policy Director, Railway Industry Association



Passengers board a Northern service. Research by Steer on behalf of the Railway Industry Association anticipates long-term significant growth of passenger numbers, with implications for transport provision. NORTHERN.

"The Government's actions towards rail suggest it does not expect there to be growth," says RIA's David Clarke.

"But demand for rail has always tracked population and economic growth. Common sense says the railway will keep on growing. But nobody is planning for that. It looks increasingly clear that COVID was only a big blip on the graph."

In February, RIA commissioned consultant Steer to assess long-term passenger demand. Taking scenarios that ranged from sluggish to rapid up to 2050, it anticipates growth of between 33% and 100% from the pre-COVID peak.

"So, at either end of that very broad spectrum, you have to plan for very significant growth," says RIA Policy Director Robert Cook.

"There is a long-term positive here. But you have to layer onto that what the Government is doing to prepare for it.

"It is not coming clean about its own analysis of the implications of the decisions to reduce rail spending and to cancel part of HS2. It is sitting on all that stuff, because of its narrative that says, broadly, that we don't need investment in rail and can make do with improving roads instead. It doesn't make clear whether it sees rail as a cost or an investment.

"The Treasury budgeting system today is focused on the short term, and not the long term. An extension of that focus cannot come soon enough.

"The financial model needs to consider what happens if you don't sustain the railway to an adequate standard. There is a mature question to ask about the cumulative effect, and to understand the long-term trade-off between a safe railway and an efficient railway.

"The business case to focus on is how the assets have been allowed to reach a condition in which they cannot withstand bad weather. The railway needs to understand and communicate what the long-term societal hit will be because of that."

ORR's Will Godfrey cautions: "I can't tell you what the Chancellor will decide about railway expenditure tomorrow, let alone in ten years' time. Nevertheless, we have to look ahead.

"In British Rail days there was a steady state. But steady state is different in every control period. The technology is changing fast. We have to look now to Control Periods 8 and 9 (2029-39) for challenges that will grow.

"Achieving steady state - a given level of performance of the network - requires doing things really radically differently in the medium term.

"To me, that is the big picture beyond the immediate problems we face today." ■

Government sets a target for rail freight



Back in December 2023, the Government finally published its long-awaited rail freight growth target, setting an ambition to increase rail freight by 75% up to 2050.

Announcing the target, Transport Secretary Mark Harper noted that “rail freight is crucial to achieving the Prime Minister’s priority of growing the economy and creating opportunity right across the country”.

We couldn’t agree more with that sentiment. But why does the target matter so much? And what will it mean for the sector, the railways, and government?

The target itself has been a number of years in the making. First committed in the *Williams-Shapps Plan for Rail* back in May 2021, it was also a commitment in the *Transport Decarbonisation Plan* in July of that year, and has been variously reannounced since - including in Mark Harper’s George Bradshaw address last February.

The target wasn’t available for the Department for Transport’s High Level Output Specification for Control Period 7 (2024-29), but that did commit Network Rail to setting a five-year target, regulated by the Office of Rail and Road. So, the publication of this long-term target was both overdue and welcome.

However, while the response from the rail freight industry has been wholeheartedly positive, among railway commentary more generally the target has been met with some criticism.

In particular, some have noted that in practical terms the target merely keeps pace with anticipated growth in the economy as a whole, rather than expanding modal share, and comes with no commitment to expenditure.

Others question why government should set a target for freight at all, or why it was published ahead of Great British Railway’s overall long-term strategy for rail. These are valid points, but they fail to recognise the key reasons why such a target is so vital.

It is worth unpacking the point on whose

role it is to generate growth. It is self-evident that government does not sell freight trains, but they do have a role in ensuring the success of the sector.

At its most simple, growth comes from running more trains, each and every day. And that requires a few things to happen.

You need a network path that allows an economic service to operate, good-quality terminals for loading and offloading, enough goods to fill the train every day, and reliable and punctual operations.

These are the tasks for the freight operator, the customer, and Network Rail, along with other parties such as wagon lessors and terminal operators.

In theory, this should be enough. Yet the actions of government can make it easier or harder for this to be achieved.

A pro-freight sentiment, instigated via the target, will encourage more customers to look at rail - and feel supported in doing so by government.

It will make it easier for rail policy in franchising and passenger services to take account of freight needs on the network.

It will make it easier for freight needs to be considered when enhancements or upgrades are planned, because the growth target will set out clearly why they should be.

It can frame future funding reviews and advice from ministers to Network Rail.

And above all, the support of government will help to build the confidence in private investors which is so necessary - be that locomotives and rolling stock, terminals, or new systems to support customers.

The target is also a tangible output of the work on rail reform, developed by the DfT with advice from the Great British

Railways Transition Team.

It can also form the centrepiece of the freight governance structures that need to be built into any future design for the railways, be that GBR or any alternative model.

Government has been clear that it wishes to see freight grow, and so it follows that organisational structure, policies and incentives now must be aligned to that, as well as the way that decisions on access and investment are taken.

While we still don’t know what the future structures will be under the next government, it seems likely that more integration of track and passenger train is coming, and that there will also be more devolution around the current regional structures and for city mayoral authorities.

This is uncomfortable for freight, which operates across the network and needs seamless and joined-up operations for end-to-end flows.

These changes will likely drive an even greater focus on passenger rail, whose farebox is also captive to the industry - unlike freight, whose benefits fall to society at large.

This means that we need to have an assertive governance structure for freight which protects our interests and enables new and better services to operate across the network.

Embedding the growth target within GBR (or similar body) and in regional partnerships will be a critical way of achieving this. And with government standing behind the target, it will be harder for it to be overlooked by senior leaders and managers, too.

“Government has been clear that it wishes to see freight grow, and so it follows that organisational structure, policies and incentives now must be aligned to that, as well as the way that decisions on access and investment are taken.”



DB Cargo 66137 and 66109 Teesside Express lead the O824 Mossend-Tees Dock intermodal service through Chathill on July 17 2021. Intermodal is one of the sectors offering huge potential for rail freight, says Maggie Simpson. PAUL BIGGS.

The experience from Scotland, where there has been a target for the last five years, is that it drives behaviour change, helping to increase understanding of rail freight and supporting better decision-making.

In that context, it is apparent that the presence of a target is more important than the number itself. As outlined above, freight growth needs both public and private investment from a range of different players.

Therefore, doubling (or thereabouts) the size of the industry over 20-30 years feels intuitively about right, with the freight operators each needing to double in size, needing significant investment in their own equipment, people and systems.

There will also need to be comparable investment in new terminals and facilities, and in wagons and depots. And all this needs to be achieved through the inevitable economic cycles and geo-political changes ahead, which bring volatility for investors.

So, meeting the target is absolutely achievable, but nonetheless a major commitment and one which government is therefore right to back.

However, the level of the target does matter to some extent - not least in supporting government funding decisions and investment over the long term.

The target of 75% falls short of doubling and is the middle of a range of options that were presented in the evidence assembled by GBRTT.

The DfT and HM Treasury also reworked

“Conventional markets such as port intermodal and construction still have significant potential, and newer markets such as retail and express freight offer huge new opportunities, targeting long-haul road and air freight movements.”

the analysis after the decision to cancel parts of HS2, to ensure that the target was consistent with the capacity likely to be available for freight, and more generally to ensure that the target was in line with the expected future levels of rail funding.

This means that at some future stage (if the target is achieved), funding may well dry up, which in turn makes further growth more challenging. This will all need to be faced in future, but it will be much better to go into those discussions with the success behind us than not at all!

From our conversations with businesses, we know that there is a huge ambition to send more goods by rail.

Conventional markets such as port intermodal and construction still have significant potential, and newer markets such as retail and express freight offer huge new opportunities, targeting long-haul road and air freight movements.

New bulk products such as liquid fuels, hydrogen and even liquid carbon can also move by rail. And the construction of new infrastructure, including to support

decarbonisation, is also an opportunity for rail.

So, whatever the commentary, the growth target is a hugely significant policy statement from the Government, which has been clear that it wishes to see rail freight grow.

There is no equivalent for passenger rail. And in a period where rail policy and structures are complex and changing, this is hugely significant and a major boost for market and investor confidence. We are certain that it will be transformational for the sector. ■

About the author

Maggie Simpson is Director General of the Rail Freight Group. Previously she worked in a range of passenger and freight roles at the Strategic Rail Authority and Office of Passenger Rail Franchising, including freight strategy development and franchise management. She has also worked in consultancy.

The manufacture of TfL Elizabeth line Class 345s kept the Alstom production line at Derby busy. But the work is drying up. PAUL SHANNON.



Train manufacturers at a critical juncture

A 'boom and bust' cycle has created a problem for Britain's rolling stock manufacturers, with orders drying up - and few new ones in the pipeline. **PHILIP HAIGH** considers the prospects for future orders

There's a key question looming for Britain over its rolling stock industry: does Britain want to produce its own trains?

That means designing as well as building them, with building more than simply assembling major components brought in from abroad.

Nick Crossfield runs Alstom in the UK, including its factory at Derby. He told the Transport Select Committee last December: "I could convert Derby from a site that employs 3,000 people, supports about 15,000 people outside, and spends £1.4 billion (as a rough order of magnitude) in the local supply chain to a facility employing 300 people, importing major sub-systems and structures from abroad. We would final-assemble them in Derby, test them, and supply them to the market.

"That is a very easy transition to make. It is not one that I want to make, and it is not one that I believe the company should make."

Alstom at Derby spends 70% within Britain and 30% abroad. That would radically change if Derby shrinks to become merely a production facility.

Crossfield told MPs: "We will take our wiring loom from North Africa. We will take our body panels, which will come in pre-pressed and ready, from China. We will take frames from central and eastern Europe. It is a very different supply chain. Once you lose it, guys, you don't get it back. You do not get it back."

Derby would have lost the 450 well-paid and highly skilled engineers whose work, Crossfield argues, is split 50:50 between work for British stock and work that's exported.

For many, it doesn't matter where a new train comes from, provided it's reliable and satisfies passengers. Passengers riding today's Avanti West Coast Class 390s will not know or care whether they're from Savigiano in Italy or Washwood Heath in Birmingham

As it happens, Washwood Heath was part of Alstom. It closed once it finished the West Coast Pendolino order over 20 years ago, with no other work to do.

Now Derby faces the same threat, as its production lines witness the end of Aventura production which has entailed them building 2,500 vehicles across five train operators - chiefly the Elizabeth line with Class 345s, but also Greater Anglia, South Western Railway, West Midlands Railway and c2c.

Winning the Elizabeth line order back in 2014 was a lifeline for Derby. The plant had faced the prospect of closure when London's other major commuter stock order went to Siemens in 2010. This was the order for Thameslink that resulted in 60 eight-car and 15 12-car trains being built as Class 700s.

Siemens builds its stock abroad, but it is now creating a factory at Goole to deliver an order of Piccadilly Line trains for London Underground. It said in mid-February that Goole's share of this order was to rise from around half of the 94 trains to up to 79.

Of course, Siemens is not building production facilities at Goole for just 79 trains. It hopes to follow its Piccadilly production with stock to replace the Bakerloo Line's 50-year-old trains, and then the Central Line's.

But there is no guarantee that either order will come because Transport for London relies on central UK government funding for major projects such as rolling stock replacement.

And for now, the government is sitting on its hands. That's even amid pressure to order more Class 345 units for the Elizabeth line to increase capacity into central London from Old Oak Common, where the same government seems keen that High Speed 2 terminates with limited onward links. Linger too long over this decision and there will be no Aventura production line on which to build these trains.

Linking rolling stock orders to new factories has recently become fashionable - in part because of complaints that major orders, such as those Siemens Class 700s, were delivered from abroad.

Hitachi was the first to pledge a factory when it won the Department for Transport's Intercity Express Programme rolling stock order back in 2012.

Its Newton Aycliffe site remains busy. Having built those IEP units for LNER and GWR, it won follow-on orders for GWR, TransPennine Express, Avanti West Coast and Lumo. It's currently building a version for East Midlands Railway.

Whether there is more work beyond that remains an unanswered question.

Likewise CAF, with its Newport facility that has been supplying '19x' diesel multiple units - most recently Class 196s to West Midlands and Class 197s to Transport for Wales.

CAF also has an order for ten ten-car trains for LNER, for >



"We will take our wiring loom from North Africa. We will take our body panels, which will come in pre-pressed and ready, from China. We will take frames from central and eastern Europe. It is a very different supply chain. Once you lose it, guys, you don't get it back. You do not get it back."

Nick Crossfield, Managing Director, Alstom UK

► delivery from Newport. They will be tri-mode trains, able to operate in electric, battery or diesel mode. This builds on the Department for Transport's IEP project, which called for bi-mode trains able to operate from overhead wires or on-board diesels.

This leads to the second fundamental: how should Britain decarbonise its railways?

The answer starts from the point that rail performs very well in carbon terms, when compared with flying or driving.

Electric trains perform very well, especially if they use low-carbon electricity such as nuclear or renewables, although even diesel trains do well on a 'per head' measure of emissions.

Electrification brings high up-front capital costs, but it can transform the environment around a railway. When Network Rail Scotland and ScotRail introduced electric trains between Edinburgh, Glasgow and Stirling in 2019, stations such as Haymarket noticeably changed. No longer were diesel trains accelerating away every few minutes, accompanied by noise and fumes. Instead, electric trains almost silently picked up speed.

And despite the cost overruns seen during Great Western electrification in the 2010s, more wiring is coming. UK rail ministers repeat commitments to take Midland Main Line wires north to Sheffield, although there's no concrete funding beyond Market Harborough as yet. There's commitment too for the Pennine route via Huddersfield, with wires now advanced to Stalybridge in the west and Church Fenton in the east.

It will be many years before the complete route switches to electric traction, but it's moving the right way - albeit stage-by-stage with no firm long-term commitment.

Scotland remains committed to electrification, but it has no funding to deliver Network Rail's recently revealed £450 million framework contract that is looking initially at the line to Aberdeen.

There remain two missing pieces from Great Western's truncated scheme. Trains can only reach Bristol and Oxford by running on diesel power. The latter stands just ten miles from the limit of electrification at Didcot, and passengers on those miles can see electrification mast foundations already in place in several areas.

For diesels, the future remains in more doubt now than just a few years ago.

Back in 2018, Jo Johnson said as rail minister in a speech: "I would like to see us take all diesel-only trains off the track by 2040. If that seems like an ambitious goal, it should be, and I make no apology for that. After all, we're committed to ending sales of petrol and diesel cars by 2040. If we can achieve that, then why can't the railway aspire to a similar objective?"

His words were widely interpreted as 'banning' diesels from 2040, which were set to cause problems with large parts of some operators' DMU fleet already 40 years old. They were (are) unlikely to last until their 60th birthday, but the life of any replacement would be too short to make them viable.

This led the Railway Industry Association to recommend last summer: "The ambition to remove all diesel-only trains (passenger and freight) from the network by 2040 to be replaced by an ambition to maximise the cumulative reduction of carbon (and improvement of air quality) by the most appropriate means, through both direct decarbonisation of rail and through modal shift."

It added that no one should buy new diesel-only trains.

RIA Technical Director David Clarke told the Transport Select Committee last December (at the same meeting in which Alstom's Nick Crossfield spoke): "We think battery is probably the major solution, with hydrogen in certain niche areas.

"That means - again, coming back to the hiatus we see today - that if you were to replace the 1,600 oldest diesels that are running around the network now with (let's say) battery or hydrogen multiple units, we would call that a no-regrets decision. Wherever you put them today, you know that even in 2050 you are going to have 30% or 40% of the network to put them on."

Batteries have been on the cusp of rail success for several years. Using government funding, Network Rail, Bombardier (now

Alstom) and Greater Anglia converted one of GA's Class 379s into a battery-powered train. That was in 2015. (Ironically, the '379' fleet is now in store, unemployed despite being a modern electric multiple unit introduced in to traffic as recently as 2011.)

Merseyrail has in service a few Class 777s (built by Stadler, one of the more recent UK rolling stock suppliers and one that manufactures only abroad) that have traction batteries to allow them to reach Headbolt Lane station, which sits a mile or so beyond the limit of Merseyside's electric network.

To date, the trains have proved unreliable, to the extent that Liverpool City Region Mayor Steve Rotherham offered passengers refunds as he admitted: "Being a pioneer hasn't come without its challenges."

Chiltern Railways has also tested batteries, using a combined diesel and battery powerpack to convert DMU 168329 to a hybrid unit in February 2022. It hoped for a 20% cut in fuel consumption and around a 70% cut in NOx emissions.

But last September it said that the unit would be converted back into a straight DMU, and that it was also cancelling the conversion of 165004 to a hybrid. Chiltern claimed that while the hybrid '168' had delivered fuel efficiencies, the time and costs of conversion proved too much.

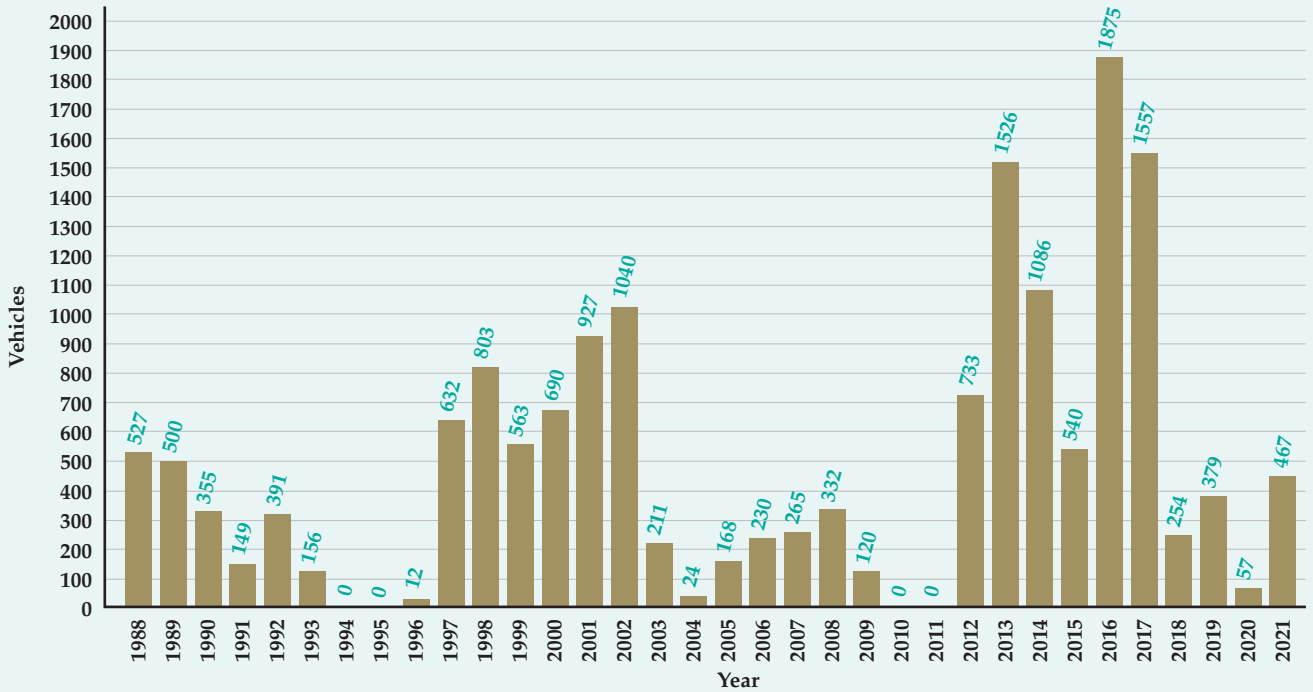
Nevertheless, Iarnród Éireann is taking forward similar technology as part of its environmental plan. Similar hybrid powerpacks might feature in new-build trains, allowing them to claim to no longer be diesel-only.

GWR was testing in February a Class 230 powered by batteries capable of fast charging, with runs along the Cotswold Line. It plans to put such trains into work on the Greenford branch in West London, with a charging point fitted between the rails at West Ealing. From these tests, GWR engineers reckoned the '230' could manage 120 miles on a single charge.

That's the sort of range that should have train operators such as Northern interested. It has the perfect testbed in the Northumberland Line, which is due to open later this year but with



Main line train orders



Source: RfA. Note: Figures exclude light rail and LU orders.

diesel trains. It could be operated as a standalone line with captive rolling stock, making it an ideal showcase had the DfT (Northern's owner) wished.

Hitachi is also entering the battery hybrid game. It's replacing one of the diesel engines under TransPennine Express 802207 with a battery raft. This '802' was already a bi-mode (electric and diesel), so the trial takes it into bi-mode territory.

TPE Fleet, Safety and Service Director Paul Staples hopes the trial

will show how batteries work with high-speed services, while also eliminating exhaust fumes in stations. The trial is set to start next August.

Observers may also be interested in seeing how the '802' bridges the 15-mile electrification gap between Church Fenton and Neville Hill, Leeds.

This need to test and perfect rail traction batteries suggests there's decent work for Crossfield's engineers in Derby and those at other manufacturers. But it doesn't suggest that there will be work at scale down on the assembly floor very soon.

As Crossfield told those MPs last December: "As an OEM supplying into the market, I would characterise it short term as very challenging. In the next two to three years, it will be hugely challenging. Medium to long term, it is quite an attractive market."

"Particularly in the longer term - from, say, 2027-28 onwards - the UK market for rolling stock is predicted to be the second largest in Europe. Drilling down even further, the market for commuter rail in the UK from 2027-28 onwards is probably the fastest-growing market in the European geography. Medium to long term, there are good prospects and high potential, but the short term is hugely challenging."

But he wasn't impressed with Britain's progress in areas such as decarbonisation. The battery trials mentioned above involve (or have involved) little more than a handful of trains. They have largely been developed from the bottom up.

Indeed, Hitachi's trial with 802207 uses a unit that TPE has not had available for service since March 2022, when it was damaged in a derailment in Heaton Depot.

Crossfield noted: "The other grave concern that I have about the UK market for rolling stock is that not just in volume, but in technology, this country is way off pace in terms of decarbonisation."

"In most of the major developed rolling stock markets in the spaces around Europe, and around the world, where most of the major OEMs operate, decarbonisation is accelerating at a pace that we do not see in this country. If we are to build a capability here and not be a net importer of that technology in future, we need to accelerate our efforts to introduce new technologies."

Clarke, Crossfield and a third witness - Angel Trains Chief Executive Malcolm Brown - were speaking ahead of the DfT's publication of a 'road map for procurement' that Transport Secretary Mark Harper had mentioned at an earlier Transport Committee >



Rolling stock potential orders

Operator	Contract size	Likely award date	Earliest expected delivery
Northern	Up to 450 units (around 1,000 vehicles)	2025	2029
Southeastern	35-570 vehicles, option for another 70 vehicles	Early 2025	Autumn 2027
Chiltern	20-70 new or converted units (nominally 90 vehicles)	Early 2025	End 2028/Early 2029
TransPennine Express	29 units with options for another 26 (nominally 174-330 vehicles)	Mid 2025	Mid 2029

Source: DfT

► meeting. Harper had said it would “provide certainty about what work is coming down the road” and be published by the end of 2023.

While Clarke said he was waiting with “bated breath” to see what that road map might look like, he also explained what RIA might want to see, drawing on its report from last summer’s.

“In our earlier report we postulated an approach that would bring out an opportunity to reduce the cost of running the railway,” he said.

“We have experienced boom and bust. In any industry, if you have a boom and bust of demand it tends to lead to inefficiency, and therefore higher cost. We postulated that if we had a smoother order book profile, you would see a reduction in cost.

“To prove to ourselves that you actually could have a smoother order book profile, we went through it and said: ‘Well, what would we do if we were the guiding mind?’

“What you do is take away a peak that would otherwise repeat itself in roughly a 35-year cycle. You look at that peak and bring some forward.”

“They might be the diesels, for example, that you ultimately want to replace. You bring them forward and get benefits sooner, and you push some further back, maybe by some refurbishment. In that way you lop the peak, as they say.”

What came from Rail Minister Huw Merriman on January 31 fell short of this. Merriman wrote: “Despite the challenging conditions we continue to face, new competitions are now under way to replace trains on Northern, TransPennine, Southeastern and Chiltern, subject to business case approval.

“There are also several major fleet upgrades under way, including an upgrade of GTR’s Electrostar fleets, a planned refurbishment of the CrossCountry Voyager fleet, and a major refurbishment of the Pendolino fleet which is being carried out by Alstom at its Widnes site.”

Merriman also encouraged train builders to work with open access and other UK operators, as well seeking export business.

An annex to the letter listed current live competitions that were already listed on government websites (see table). The dates listed with these competitions suggest it’s unlikely that any contracts will be signed until 2025, with no deliveries until 2027 at the earliest. Volumes might reach 2,000 vehicles, largely concentrated around 2029, which suggests another round of the boom and bust cycle is set to be locked in.

There was also little in the letter that the rail industry did not already know. Indeed, Merriman wrote: “While I appreciate that some of the information provided here is indicative or that you will already be aware of, I trust that it is nonetheless helpful to provide this level of visibility to the industry about our thinking.”

The overall conclusion from this letter can only be that the UK government isn’t thinking about rolling stock. Indeed, a sceptic might suggest that Merriman’s inclusion of the phrase “subject to business case approval” means that the UK government remains to be convinced about the need to replace ageing rolling stock, or that it has a role in helping smooth the boom and bust seen over recent decades.

Yet as Britain’s rail industry stands, Westminster’s government plays a vital role. It tightly controls train operator spending within England, and it owns and largely funds Network Rail.

This means that decisions about electrification sit with government - and the provision or not of overhead wires plays a key role around rolling stock decisions. So, in the absence of committed wiring plans, stock such as those Class 379s sits in store.

If the government plans to keep a tight rein on train operator spending, then it needs to consider aspects beyond rolling stock.

Malcom Brown told the December Transport Committee meeting: “If you go to battery, how are we going to charge it? Where are we



Great Western Railway has been testing a Class 230 powered by batteries capable of fast charging, with runs along the Cotswold Line. The battery train stands at Reading Traincare Depot. GWR.



Hitachi's Newton Aycliffe plant has turned out units for LNER, GWR, TransPennine Express, Avanti West Coast and Lumo. GWR 800003 races through Wootton Bassett on December 12 2021. JACK BOSKETT.

going to charge it? How are we going to connect to the National Grid?

"Just now, there is a timeframe of about seven years, I believe, for certain parts to connect. There is no point having a battery train if we have nowhere to charge it. I'm not going to take a three-pin plug to the depot and shove it in. I need to think of the whole actual system - but the investment is there, and it is willing."

It's that need for system thinking that brings the government into play, even if the investment itself comes from private sources such as pension funds.

As Crossfield said in his evidence to MPs: "The type of rolling stock that you can have, and will be buying, is also determined by the type of infrastructure that you are going to have. There needs to be that kind of consistent, long-term investment view. It needs to be stable, and it needs to reside in an overarching body like the DfT."

It should also avoid too much detail, according to Brown: "I do

not agree that the guiding mind should be programming which trains are made when. I think the guiding mind should be taking information, such as the long-term rolling stock strategy, and saying: 'This is what we see as a predictable future.'

"It should be at that level, not down in the weeds, and setting out a view of the whole system and its infrastructure, and how you interconnect with car transport, bikes, and so on, rather than being incredibly myopic. People tend to drift into the detail because, of course, that is what they can be certain of. We need it to be at a higher level."

On the immediate problem of work ceasing at Alstom's Derby plant, which Crossfield said in December would be finished by the end of January, Alstom told *RailReview* in mid-February: "Discussions are continuing with the UK government over the future of train manufacturing in Derby." ■

Is rail decarbonisation on track - and does it matter?



DAVID CLARKE, Railway Industry Association Technical Director

The short answer to the question above is no and yes respectively... but let me explain why.

The GB rail network is not on track to be net zero by 2050, simply because we are not delivering electrification or zero-carbon rolling stock at a pace which will meet that deadline. This is despite the welcome inclusion of additional electrification in the *Network North* announcement.

Does that matter? Yes, it does!

Rail is a very efficient transport mode. Passenger trains are responsible for about 8%-10% of daily journeys, but only 1.4% of UK transport emissions. And every freight train replaces up to 129 heavy goods vehicles on the roads.

A cynic might look at this and say: "Why bother? Let's focus on the other 98.6% of carbon emissions!"

That would be a mistake. Rail punches above its weight today in terms of carbon reduction. and why would you want to damage that? But rail's future promise is to support modal shift, and thus reduce both carbon and congestion in other modes.

This is not fanciful. A recent report by Steer Group predicted between 37% and 97% passenger demand growth, and the Government has set a target for 75% freight growth.

So, how can we get rail back on course?

The Railway Industry Association believes that a clear strategy is urgently needed. Electrification has high up-front costs, but (long term) it is the most economical way to operate a busy railway.

Further, a recent report identified that around 1,200km (750 miles) of electrification would decarbonise 95% of rail freight. For

the less intensively used parts of the network, technology such as battery passenger trains are already starting to be introduced.

A key strategic document that is missing today is an agreed map of what will need to be electrified to decarbonise the GB rail network.

Currently 38% of the network is electrified, and projects currently under way or proposed will increase this to 51%.

However, RIA estimates that approximately two-thirds of the network will need to be electrified. A rolling programme of electrification to deliver this over the next 25 years would incentivise investment in the people, process and plant that increase productivity and thus reduce cost.

Such a map would also make clear what will not be electrified. This would allow rolling stock investors to offer new or refurbished trains - perhaps bundled with the necessary supporting infrastructure.

An immediate opportunity is to address the circa 1,100 diesel vehicles which will be 35 years or older by 2030 - not only reducing carbon but also improving railway performance and passenger experience.

To summarise: to get rail decarbonisation back on track for 2050, improve the customer experience, and prepare for demand growth, there needs to be agreement on a 25-year rolling programme of electrification which will allow rolling stock proposals to support both this electrification and decarbonisation of the routes which will not be electrified.

This will not only contribute to the wider GB economy, it will also allow rail suppliers to deliver more cost-effectively by reducing the 'boom and bust' which has bedevilled the industry.

Two LNER Azumas stand at London King's Cross. LNER has done away with Off-Peak and Super Off-Peak tickets on trains from King's Cross to Newcastle, Berwick-upon-Tweed and Edinburgh. ALAMY.



The first steps on the path to fares reform?

LNER ditching Off-Peak for a 70min semi-flexible fare has attracted criticism, but with TfL and the Scottish Government also encouraging new ways of paying for your journey, is momentum gathering?

Change is coming to the system of fares and ticketing on Britain's railways. But just like those tickets allowing "any permitted route", while the final destination might seem set, how will we get there and how long will it take?

Well, that depends. Even before the new 'guiding mind' for the industry, Great British Railways, has put a spade in the ground at its new headquarters in Derby, indeed before the plans to turn it into reality have been debated by MPs, the GBR Transition Team is keen to get things under way.

"Progress can be made while it (the bill) works its way through the political system," says GBRTT Programme Director for Fares, Ticketing and Reform Stewart Fox-Mills.

"I think we just have to look forward to try and get the task done as quickly as possible, because it's going to make a huge difference to the railway."

Fox-Mills sees himself and GBRTT as a facilitator of the change, although ultimate responsibility for Britain's Railways will still lie with the Transport Secretary.

And that means the real power, as always in Whitehall, lies with HM Treasury, which has its own reasons for seeking change.

"There's a challenge for recovering rail revenue, and we operate at quite a significant subsidy from government at the moment," he says.

"But what we're identifying is that there's great opportunity by simplifying things and, where available, passing on value - particularly where there are available seats and smoothing demand, and that has considerable revenue opportunity."

First out of the blocks has been LNER. It had already scrapped return tickets and introduced single-leg pricing. But that was only to pave the way for even bigger changes at the start of February.

Under the banner of 'simpler fares', LNER did away with Off-Peak and Super Off-Peak tickets on trains from King's Cross to Newcastle, Berwick-upon-Tweed and Edinburgh. In their place came the '70min flex', a ticket allowing passengers to travel 70 minutes either side of the service for which they had booked.

Together with advance and anytime fares, that means there are now just three types of ticket per class, compared with a total of 11

before, and 23 prior to the introduction of single-leg ticketing.

This has been no overnight change, according to LNER Commercial Director David Flesher.

"What we've been working on, for five years or so, has probably been in the making for over 30 years. It's tackling the complexity, the confusion - those barriers that customers have told us for a long time is what stops them using rail."

"It comes down to things such as overcrowding, complexity, flexibility, and value for money, so our fares reform programme is really about trying to tackle those problem statements," adds Senior Programme Manager Paul Smith.

"If we can make headway against those, we can make rail a more attractive proposition. And we've had to do this in a way that isn't only fit for LNER, but has the possibility to be transferable, at least to other long-distance UK rail."

Rail Delivery Group CEO Jacqueline Starr describes what is happening as "steps in the right direction", adding: "We need to see the outcome of those trials, to move forward with further implementation, so that over time there'll be a more logical fares structure and one that's easier for people to navigate."

LNER says the trial has got rid of off-peak fares after their use had dwindled over the last 20 years, falling from around 50% to 10% of sales as customers switched to travelling on advance tickets.

Nevertheless, says Flesher, this "was always going to be a little bit more impactful and drive more debate".

That could be seen as an understatement. The SNP, which has embarked on its own fares reform, scrapping all peak-time tickets and making ScotRail "4% busier" while shifting demand across the day, has been among the critics.

In February, Owen Thompson, the SNP's Chief Whip at Westminster, attacked the changes, saying: "LNER has pushed up prices for thousands of tickets, in some cases costing passengers going to and from Scotland hundreds of pounds extra."

In response, Flesher says: "The noise we've heard around simpler fares is around price and increasing price - and that's not our objective."

Smith adds: "More than half of customers who have bought this product have actually paid less than the old Super Off-Peak fare and have got flexibility for cheaper than ever before. We feel quite confident we've made the right decision, but the proof will be in the pudding. And that's why it's a pilot."

Five weeks after the new flex tickets had gone on sale, and less than three weeks after the scrapping of off-peak fares, LNER was saying it was too early to draw any conclusions. But it has been encouraged by their take-up.

"We've seen over 5,000 sales of that product on those three flows already, so that's encouraging," says Smith.

"But we are also identifying how intrinsically linked fares and retail are. On those platforms where we are optimising the >



"Fares need to be understood to restore trust and confidence, and also to be simple enough for today's self-service channels - website, ticket machines and apps."

Mark Smith, Man at Seat 61

“For a ticket to London you’d have about 16 different options, and they were completely different prices. I just remember standing staring at the screen, along with hundreds of other people, taking forever to try and choose the right ticket and not having a clue.”

Seb Dance, London’s Deputy Mayor for Transport

► simplicity of the fares to the customer, they are outperforming those spaces where they have not adjusted to the new structure as well.”

Put simply, sales were going well on LNER’s own website, but lagging on those operated by third parties.

The company believes having single-leg fares allows customers to mix and match - for example, buying an advance ticket for an outbound journey and a semi-flex ticket for the return.

Flesher believes that while this might be useful for the business traveller, worried that a meeting could over run, it will have an even bigger impact on the leisure market where travellers might fear a football match going into extra time, want to have one more drink with friends, or worry how long it will take getting children back to the station.

“All that has put them off in the past, thinking that they’d end up getting charged an extra amount. You just don’t want them to take that away as an abiding memory of rail,” he adds.

While the change might be rolled out in future to other long-distance operators, the problem for now is that even if it has reduced the types of ticket available for LNER, the travelling public may not make the distinction between operators. Instead, they see it as yet another fare to add to an already confusing, long list of ticket types.

Mark Smith, the man behind the seat61 train travel site, sums up the plethora of fares simply.

“It’s a complete mess. Fares need to be understood to restore

trust and confidence, and also to be simple enough for today’s self-service channels - website, ticket machines and apps.”

The problem with LNER’s plan, as he sees it, is that it has been designed around the operator and not passengers: “What they’ve done is make inter-city rail mere transportation as opposed to providing mobility.”

People making shorter journeys want flexibility, while those taking longer trips are more prepared to build their plans around the cost of the journey, he says.

“If you go with LNER’s structure - which is basically any time, semi-flexible, advance - that isn’t going to work on the medium distance, say Peterborough or Stevenage to London, where people pop into London and need flexibility.

Even the industry does not claim the East Coast trial is a one size fits all.

In the West Midlands and North West, operators are looking at pay-as-you-go on urban routes.

Around London, too, Transport for London is expanding the reach of its own tap-in and tap-out technology - not only east and west beyond Greater London via the Elizabeth line, but also south down to Gatwick Airport.

“I remember in the old days at Gatwick,” says Deputy Mayor for Transport Seb Dance. “You would get off the plane, get to the ticket machine, and be presented with three different train operating companies and three different fares policies.

“For a ticket to London you’d have about 16 different options, and they were completely different prices.

“I just remember standing staring at the screen, along with hundreds of other people, taking forever to try and choose the right ticket and not having a clue.

“Now, of course, you just tap-in and you tap-out and are charged a peak or an off-peak fare. And it doesn’t matter what train company you use.”

This does away with the ‘soft barrier’ to people using the railway. It’s a very different scheme to LNER’s, but once again it aims to make things simpler.

Andy Bagnall, chief executive of Rail Partners, which represents private sector train operators, says we are reaching the point of no return on single-leg ticketing, with the extensions of pay-as-you-go around London alongside the Birmingham and Manchester trials.





ScotRail 43003/135 top and tail the 0854 departure for Aberdeen at Glasgow Queen Street on March 22 2023. The Scottish Government is staging a six-month trial with no peak rail fares across the ScotRail network. PAUL BIGGS.

All combined, he says: "You're getting towards 500 stations operating this way. What pay-as-you-go and that [LNER] approach have in common is single-leg pricing at the root of them.

"People want to tap-in and tap-out on shorter journeys, and they want single-leg pricing on longer journeys in a way that spreads demand more efficiently.

"We are not there yet. But we are reaching a point where enough components of the system have been unbundled that it will complete the delivery of pay-as-you-go in urban areas and single-leg pricing on all long-distance routes. At first it will create more anomalies, more inconsistencies, but will soon make it the inevitable thing to do.

"Without consciously creating a Big Bang moment, it will become clear that enough of these schemes together will add up to fares reform. We will reach a point where the only sensible thing to do is roll it out everywhere."

But it would be wrong to think this is a sign of different parts of the rail industry moving in lock-step. Far from it - while single-leg fares at LNER were always designed to be revenue-neutral, the mayor in London (like the government at Holyrood)

"Without consciously creating a Big Bang moment, it will become clear that enough of these schemes together will add up to fares reform. We will reach a point where the only sensible thing to do is roll it out everywhere."

Andy Bagnall, Chief Executive, Rail Partners

is putting more public money into the system.

In London, the result will be fares freeze. In Scotland, for many it will be a reduction.

Deputy Mayor for Transport Seb Dance makes no bones about it - the decision is political. But that does not mean it is aimed at encouraging people to vote for his boss in an election year. As in Scotland, the politics is about getting more people onto public transport.

"It didn't make sense for the additional burden for that policy to come onto fare payers, so that's why we took the decision to use GLA budget," he says.

All this comes at a time of change outside operators' control, with alterations in passenger flows which accelerated under COVID.

"It's imperative that we offer people new, more flexible options to reflect their changed travel patterns," says RDG's Starr.

Dance adds: "We're looking at the Friday peak fare at the moment, and running a trial to determine what the impact of having all-day off-peak fares on a Friday will be. We also want to look at the pattern of travel and work with partners in the leisure industry and business to see what impact it has, if any."

LNER's Smith notes: "Fares reform is not something that is going to happen overnight."

GBRTT's Stewart Fox-Mills agrees. He says other trials beyond the East Coast one are "not imminent" but are under discussion. And the plan is not to limit the experimentation to the train operators.

"We want as much innovation as we can get. If you're buying another customer experience, can rail be integrated into that?"

"One of my favourite examples is if (say) you're going to the Reading Festival. Why can't you just buy your rail travel at the same time? It probably helps the festival out by having less cars turning up. It's a good thing for the customer and a good thing for the railway." ■

Alex Robertson Opinion

Fares reform: passengers must be the priority



Transport Focus research consistently confirms value for money as a top priority for passengers. Only reliability and punctuality come close in importance.

Meanwhile, in our surveys, only around six in ten passengers are satisfied with value for money on their most recent journey. This has long been rail's Achilles heel, even before recent cost of living pressures.

But value for money is not all down to ticket costs. Judgements are influenced heavily by train punctuality and the ability to get a seat.

A fares structure that many people find complicated and confusing is also a barrier. It's hard to feel satisfied if you worry you may have paid more than you needed to.

Complex fares also affect how people buy their ticket. While many passengers have switched to buying their ticket online, a sizeable minority remain reluctant. Our research shows this often comes from concern that they may not be buying the cheapest ticket. In the words of passengers:

"When trying to book tickets for journeys online I have found the choices, variations in prices bewildering, and the website options confusing."

"With the complexity of different rail companies and different types of tickets, I could only be confident I had the right ticket for each part of the journey when I purchased it at the ticket office."

So, what do passengers want from fares reform? They tell us they want a fares system that is simple to use, easy to understand, and flexible enough to cater to how they work and travel today.

All this is easier said than done. Nobody wants the fare they use to be removed in the name of simplification. However, a simpler and more understandable fares system doesn't have to mean no choice - many people are willing to trade some flexibility about when they travel to save money.

Part of the success of pay-as-you-go is in

capping fares so that passengers don't have to think about what ticket to buy.

I worked at Transport for London when Oyster was introduced. When someone explained to me it would include fare capping, it felt almost too good to be true. I kept asking questions, not sure if I had understood it right.

Returning to the transport sector nearly 20 years later, it seems scarcely believable that many urban areas are still waiting for an Oyster equivalent.

Simple 'tap and go' systems are never going to be the answer for every journey, however.

On longer-distance journeys, the elephant in the room is (of course) split ticketing. That train companies don't automatically offer the best deal is one of the main reasons why trust in fares has been eroded.

Split ticketing has gone mainstream. Members of my team at Transport Focus regularly save more than £70 on a peak-time journey from London to Manchester just by splitting at Milton Keynes. People should not find themselves paying radically different prices based on where and how they bought their ticket.

This is one of the reasons why Transport Focus joined with the Rail Delivery Group in launching the Easier Fares consultation in 2018. With nearly 20,000 responses, more than eight out of ten wanted the fares system overhauled. There's no reason to think there is any less appetite for change now.

There have been some improvements since. Single-leg pricing was successfully trialled on LNER, allowing people to mix and match ticket types and pay only for the

level of flexibility they need, while doing away with the nonsense of off-peak singles being only £1 cheaper than a return.

Barcode ticketing has been introduced, allowing more people to use their phone.

And the rollout of pay-as-you-go ticketing outside London has begun.

However, these individual initiatives will not be enough on their own. A clear strategy is needed to help people see how the various trials and developments fit together and to set out a long-term vision.

Change can be uncomfortable - there will be winners and losers. The best way through this delicate process is pilots providing transparent evidence against clearly communicated objectives.

LNER's new demand-based pricing trial has come in for a lot of criticism. Some fares are clearly higher, but what's less clear is how many are lower and if the cost per passenger overall is intended to remain the same.

Trials such as these are just that - we won't know if they work until we see the results. But before then, if they are to command people's confidence more effort will need to be put in to how they are communicated.

With value for money a top priority for passengers, the stakes couldn't be higher if we want to get more people back on our railways. ■

■ Alex Robertson is chief executive of Transport Focus. He spent over five years at Transport for London early in his career working in policy and public affairs. Prior to joining Transport Focus, he was the Executive Director for Strategy and Operations with the Parliamentary Health Service Ombudsman and Chief Operating Officer at the Pensions Ombudsman.

"On longer-distance journeys, the elephant in the room is (of course) split ticketing. That train companies don't automatically offer the best deal is one of the main reasons why trust in fares has been eroded."



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Transport Secretary Mark Harper says the draft bill “demonstrates our commitment to reforming the railway”. ALAMY.

The Rail Reform Bill: does it help or hinder?

Three years on from the *Williams-Shapps Plan for Rail*, we're still no closer to a definitive blueprint. With a general election looming, will the Rail Reform Bill provide much-needed clarity? **CONRAD LANDIN** reports

The UK Government's draft Rail Reform Bill arrived with a whimper - not a bang.

At just 32 pages, the document is deliberately light on detail, although Transport Secretary Mark Harper says it "demonstrates our commitment to reforming the railways". One of his predecessors, Patrick McLoughlin, said it was "incredibly disappointing" that the Bill remained only in draft form, and Labour's Shadow Transport Secretary Louise Haigh argues that it has "no prospect of becoming law".

The Bill's first and most significant clause amends the Railways Act 1993, so that it will state: "The Secretary of State may by regulations designate a body corporate as the Integrated Rail Body." This will take over both infrastructure management and franchising and strategic functions.

A set of explanatory notes published by the Department for Transport adds: "It is the government's intention that Network Rail Infrastructure Limited (NRIL), the Network Rail company that currently carries out the infrastructure management function, will be designated as the IRB."

Some in the industry are sceptical of putting Network Rail in the driving seat, but the Great British Railways Transition Team (GBRTT) argues that it's simply the easiest and most practical solution.

The Bill has now gone out to "pre-legislative scrutiny" - a process overseen by the Transport Select Committee. Ministers and officials believe this will allow the rail industry to contribute to its development before it enters the process of parliamentary readings. But given that a General Election is likely to be held in a matter of months, how useful will this exercise be?

If they hold onto power, the Conservatives would be likely to stick to a development of what appears in the Bill, as it delivers its plan for Great British Railways in line with the *Williams-Shapps Plan for Rail*.

Labour has promised wholesale reform of the railways based on public operation of passenger services. But this too could be delivered within the framework of an amended version of the Bill, and some in the industry will see this as preferable to the party going back to the drawing board.

The Bill is of particular significance to the GBRTT. Set up following the launch of the *Williams-Shapps Plan* in May 2021, the team has

"Conservatives would be likely to stick to a development of what appears in the Bill ... Labour has promised wholesale reform of the railways based on public operation of passenger services."

had to contend with three Transport Secretaries and three Prime Ministers. When Anne-Marie Trevelyan and Liz Truss were in these respective positions, the GBR project was kicked into the long grass, but it came back onto the agenda after Truss was toppled.

GBRTT has recently faced some testing headlines. On February 26, the *i* newspaper reported a GBR source saying GBRTT staff were "twiddling their thumbs". It was claimed that the body's proximity to the DfT was hindering its objective of moving power away from Whitehall, with a source noting: "Turkeys don't vote for Christmas."

Then, as *RailReview* went to press, the National Audit Office (NAO) released a damning report into the UK Government's programme of rail reform. It concluded that the "DfT committed the rail reform programme to a timetable that it had identified as high-risk, reflecting ministerial ambition, but without a clear plan for what it needed to implement".

The report also identified continuing friction between the DfT and the Treasury over "key areas of reform from the start, such as the remit of Great British Railways". It also found that the governance of the Rail Transformation Board, created "to oversee delivery of projects, manage trade-offs and dependencies between these, and act as the key decision-making forum", was "confused" with "accountabilities unclear".

The NAO called on the DfT to conduct "a lessons learned exercise from its planning and delivery of rail reform to date", and that when "fully resetting rail reform in the future, it should ensure it has secured full commitment across government for its ambitions".

GBRTT is led by Network Rail Chief Executive Andrew Haines, with Anit Chandarana as lead director. Its board is chaired by Keith Williams, who led the review, with Network Rail Chairman Lord Peter Hendy as his deputy.

With Chandarana on secondment to the DfT, Rufus Boyd has been GBRTT's interim lead director since August last year. Speaking to *RailReview* at the GBRTT's offices in Waterloo station before the NAO report was published, he describes the criticism in the *i* article as "something of nothing", adding: "I just thought: Really? Insider close to the project? Are you in the DfT? I mean, where are you? Who's really briefed this?"

The organisation is also keen to emphasise the positive aspects of its proximity to the DfT. Asked whether the Bill has given the team a clarity of purpose they were lacking before, GBRTT Policy and Strategy Director Michael Clark says: "No, not to us here at GBRTT, because we've had the privilege or luxury of being very close to the Department and they're assisting in this.

"What I think it really usefully does is provide further clarity and momentum to the sector about the direction of travel that we're on in quite a concrete way, particularly the market where they might still be interested in rail.

"To my mind, Williams five years ago built a big consensus for change. No one wants the current system to stay as it is. >



“There are some ideas they’ve stolen from other people, but they want to maintain privatisation, they want to maintain the profit system in the railway, and it’s basically a patch-up job for the failed policies.”

Mick Lynch , General Secretary, RMT

► Because of the political turmoil and COVID, I think it’s very useful now to bring that consensus back and to flush out any particular touchpoints where there is disagreement, so that we’re ready to go next election, new Parliament - that should be consensus locked in, so everybody knows what they’re doing on the Bill, everyone knows the direction, off we go.”

Micro-management from Whitehall remains a significant concern in the industry. Rail Minister Huw Merriman defends DfT involvement in railway management in recent years, telling *RailReview*: “It’s right that government gets involved and makes sure that the money is being spent well and there’s that accountability for the taxpayer.”

But he says that while it’s “a natural consequence of the changing financial state of the railway and what Government’s had to do”, it’s not “the most efficient way to do it”.

Merriman continues: “So, here you’ve got someone - me as a minister, and the Secretary of State - actually arguing that we should be less involved in the decisions. The railway should make the decisions on an integrated basis that means the best decision for track and train, not one or the other, and that’s what we’re determined to do.

“So, I hope it’s a positive of Whitehall and Government saying that we’re not the best party to make some of these operational decisions, and our role should be more strategic - and that’s what will happen when this body is set up.”

But given Conservative ministers have been talking about rail reform for the best part of a decade, and Great British Railways for three years, why has it taken until the tail end of this Parliament to get to this stage?

“For me, I’ve been in post for short of a year and a half, so the King’s Speech was sort of the first opportunity I had to advance the matter forward,” says Merriman.

“I think it’s important to be able to land on one choice. And it’s this classic bit of legislation in that it’s not that detailed in terms of what it does, and it needs to go through the parliamentary process and get that support - cross-party, cross-industry - that this is the right thing to do.

“The beauty of giving it pre-legislative scrutiny is that we can find out if it does have support, and I believe it will. And then all the surprises will have been dealt with, and then it has a very simple path for the legislative path itself.”

Boyd suggests the Bill has been drafted to assuage and not exacerbate political differences: “All the three parties are kind of in the same place. Taking railway decisions further away from ministers is a key feature. That is a very helpful feature of the Bill and its explanatory remarks and supported by all the major parties.”

Clark concurs, saying he has “quite high confidence” that it will still be of use whatever the outcome of the election.

Boyd started his career at British Rail in the late 1980s, serving in the company’s public relations department in the run-up to privatisation.

“I have seen what it took to set up the current system,” he says. He believes this will help him “not unpick it completely, because people have not quite got all of the detail of this”, but “unpick the

relevant bits” - particularly around fragmentation.

One clause of the Bill requires the new integrated body to “prepare a report setting out what it has done during each financial year to increase the involvement of businesses in the private sector in the provision of railway services”. Is this designed to assure the industry there won’t be a power grab?

Boyd believes it’s more serious than that: “People who draft parliamentary bills will not put PR fluff into bills. I think this isn’t a bit of hand-waving to say something to the sector. I think it’s a deep commitment by the current Government that is set out in a clear way... we absolutely think there is a role for the private sector, both in broader supply, and there will be in future.”

Says Clark: “I think [the Government] made that explicit on the face of the Bill to reassure the sector and the Conservative Party that this is a new private-public balance - it wasn’t tipping over too much into a public body with this integrated railway, it was there to facilitate and set a framework for the private sector to succeed.”

However, it’s the kind of thing that could persuade some in the Labour camp and the rail unions of the need to start afresh. RMT General Secretary Mick Lynch thinks the Bill is a non-starter.

“If you put them under any pressure, it will never see the light of day,” he tells *RailReview*.

“There are some ideas they’ve stolen from other people, but they want to maintain privatisation, they want to maintain the profit system in the railway, and it’s basically a patch-up job for the failed policies.”

Lynch believes there is a “danger” that private sector pressure could persuade Labour to adopt an amended version of Great British Railways rather than full public ownership, but he is “fully engaged with the [shadow transport] team”.

He adds: “The industry bigwigs know there’s going to be a Labour government, there’s going to be a change. So, they’ll be lobbying to preserve as much as they can, and they’ll be lobbying for chief executive jobs in various sectors.

“So, the only game in town is public ownership as far as we’re concerned. It’s making sure it’s meaningful and brings real change, and what the structure’s like, and what it delivers for the passenger, what it delivers for the environment, and of course



The Great British Railways Transition Team has made recommendations for simplifying rail industry rules and processes, to help the railway focus on the needs of customers. GBRTT.

from our point of view, for the workforce."

Meanwhile, the purpose of GBRTT has shifted. The NAO report explains that in autumn 2023, "DfT took the decision to pause some of its work on rail transformation, particularly around structural reform" following the King's Speech, which effectively killed off the possibility of legislating in the current parliamentary term.

"We are not GBR in waiting," says Boyd. "We might have been actually if you went right the way back to when there was a really tight legislative timescale. We had to be thinking as if we were GBR."

He turns to Clark to ask: "But right here, right now, what do you think the earliest we could get legislation is? A couple of years from now?"

Clark replies: "I'd say two years, but it could easily be quicker."

Merriman, incidentally, is rather nonplussed when asked if that's the timescale he's working on, too: "Well, I haven't got a date at all. I don't know where that date comes from, because any legislation is down to the Prime Minister and a chief whip of any political party that's in government. We obviously know that there'll be a General Election at some point this year as well. If that's the case, then there's a new King's Speech and a new list of legislation, so I can't speculate on a date and I don't know how they could either really."

Boyd stresses that "the key thing is supporting government", and that the GBRTT "will sit on the right-hand side" of the DfT in a "series of engagements with the sector". The DfT will "do the technical work", with GBRTT explaining why the course of action it is taking is strategically helpful.

Boyd continues: "What has changed very recently, but did start before the Bill, is that we have been identifying incremental improvements to rail that we should and could be getting on with. Whether it's 18 months or two years away from a Bill, you can't just wait for it and say it will be better after."

"So, whether that's revenue generation, which is a big thing for us, developing some tools such as single profit and loss accounting for the sector to work out where the money goes. These are things we're getting on with now - and that is a change."

Clark elaborates: "What we were doing a lot last year as if GBR was nine, 12 months away - that's a huge sectoral transformation on an operational railway that you've got to get right."

Five tests for other options

At a RAIL100 breakfast, GBRTT's interim lead director Rufus Boyd set out five tests for alternatives to the Great British Railways transition, warning: "Perhaps one of the biggest risks is that we return to a debate on alternatives."

1 Does it make the railway simpler and better to use for passengers and freight customers? And specifically, will it facilitate and deliver the Government's rightful ambition for a 'retail revolution'?

2 Will it set the railway up to better deliver the Government's other strategic objectives for rail, such as financial and environmental sustainability, economic growth and levelling up?

3 Does it give the sector's employees, suppliers, innovators and investors the confidence they need to make long-term commitments?

4 Would an alternative proposition bring the sector's revenues, costs and decision-making closer together, and closer to the operational railway to deliver better outcomes?

5 Would it ensure that accountabilities are clearer, and the different parts of the system work better together, so that the benefits of major investment are maximised, and the resulting risks are reduced?

GBRTT set about preparations on issues such as ticketing, integrating franchising into Network Rail, and working on the plan for the business units of the new configuration.

"We did a lot of work with the private sector. We did a lot of work with regional mayors. Incorporating a new system-wide integrated railway, what would they like locally on services and their desire to integrate? And that included fares and ticketing, of course."

All that would come together as a "long-term strategy for rail", he says, but it's now further off."

We've got that on the shelf. As Rufus was saying, now we've pivoted to the practical and how we can start baby-stepping to get benefits."

There is a word of caution on this in the NAO report, which warns that "it is not yet clear how GBRTT in [its revised] role will work with other bodies, including how DfT can hold it to account as sponsor and act as a collaborative delivery partner".

Labour, for its part, has said a revised plan for the railways is "imminent". It is not known how much it will differ from *GB Rail*, the document produced by former Shadow Transport Secretary Andy McDonald.

In *RailReview* Q4, 2022, former Shadow Rail Minister Tan Dhesi suggested track and train would initially remain "separate legal entities" under Labour's set-up, in a departure from McDonald's vision of a "single publicly owned railway company". Ironically, the Conservatives' specification of a single integrated body could end up pushing Labour back to the position it took under Jeremy Corbyn's left-wing leadership.

Meanwhile, GBRTT's management seems distinctly relaxed about criticism over the pace of change or political uncertainty affecting the organisation.

"GBRTT doesn't matter. The 'transition' is quite key in that, we're a time-limited entity," says Clark. "Everyone is seconded, they don't have a permanent job here. We're not building an institution that people care about."

Boyd says: "We're not short of people who've got their ideas about other plans. Not Government - Government's very clear. There is continuity, the three parties are very clear. There's a lot of people who say 'Why are we doing this again, just remind me?'. And I think it's absolutely critical."

"The problems of 2018 have got worse, not better, because of COVID and because of, effectively, the private sector having to transfer risk back to government." ■





Private sector involvement in Rail Reform Draft Bill

The Rail Reform Draft Bill was released shortly before the annual Rail Partners-sponsored George Bradshaw address.

At that debate, the Rail Minister and the Shadow Rail Minister agreed that reform was required, but set out competing visions for what it would look like - particularly in respect of private sector involvement in the operation of services.

Arguably, however, both government and opposition are proposing a change to the way the railways are run which will involve a centralised body taking joined-up decisions. Is the structure of the body envisaged by the Draft Bill therefore something they could actually agree on?

Huw Merriman (Rail Minister) seemed to be suggesting that it should be. He invited his opponent to agree to help him push through the Draft Bill, in order to get it on the books as soon as possible on the grounds (presumably) that it should not be contentious.

Stephen Morgan (shadow) seemed more reticent, presumably in part because his party had not yet published its detailed description of how it foresees the future industry structure (due in the next few weeks, he said). Also, he may not have had as long to scrutinise the drafting as the incumbent minister had.

Reflecting this, one questioner observed that while it was clear that a Conservative victory would result in rail reform in the structure envisaged in the Draft Bill, it wasn't so clear what a Labour victory would mean.

If Labour chooses to abandon the Draft Bill and (potentially) to start again with White Papers, consultations and parliamentary drafting, the current status could remain for a further extended period.

On that basis, Rail Partners Chief Executive Andy Bagnall repeated his opening remarks that the General Election in 2024 will be highly important to the railways and for, at least, the timings of reform.

Now that we have the text of the Draft Bill, it may be possible to consider what it does and does not provide for, and what scope there is for flexibility in the way it is applied.

The point is whether or not (to save time) the Draft Bill could actually accommodate Labour's vision as well as the Conservative vision, such that both parties could get behind it and attempt to deliver it in this Parliament.

While that is ultimately a political rather than a legal question (and one I would accordingly hesitate to predict), it will depend to some degree on the precise provisions of the Draft Bill being proposed.

In turn, that will depend upon what the bill provides for in the key areas of difference between the parties - including, in particular, the role of the private sector.

Labour has not (at the time of writing) set out its detailed position on the future structure of the railways (in England).

However, given the numerous public statements from shadow ministers, I have assumed for the purposes of this article that under Labour's reforms: (a) the industry would be nationalised; (b) current privately operated passenger franchises would be taken into public control as they expired; (c) a publicly controlled body would act as guiding mind; and (d) private owners of rolling stock and privately run freight businesses would continue to be welcomed to invest in the industry.

If so, the legal question is whether the current Draft Bill drafting would prevent any of those things.

A key point about the Draft Bill relates

to its scope. It is essentially quite a narrow proposal. It creates a power for the Transport Secretary to nominate a corporate body to be an Integrated Rail Body (the 'IRB' soon to be on everyone's lips), makes consequential amendments to allow that IRB to be both infrastructure manager and the body specifying railway services, and then lays down a number of controls and powers for the Department for Transport to influence that body.

Firstly, the fact that the IRB is to be a 'body corporate' is not an issue in principle. That just means it is likely to be a 'normal' company registered at Companies House which in this case is likely to be owned/controlled by government (although actually a body corporate could also be separately created by statute - for example, Northern Ireland Transport Holding Co, which owns NIR).

While government would be free to consider other structures for a franchising body, the intention is to initially use Network Rail Infrastructure Limited (NRIL), which is a private company but a public body (until presumably NRIL is renamed Great British Railways or another corporate body with that name used to be the IRB).

So, would the IRB be sufficiently 'public' to count as having 'nationalised' the railways?

There is nothing in the Draft Bill to suggest that the IRB (ultimately GBR) would have to operate independently of government. In fact (as below), probably the opposite in some cases.

So, would it (in practice) be too distant? Would it in fact be a reincarnation of the old Strategic Rail Authority (SRA), which was

"The IRB/GBR is an infrastructure manager as well as a specifier of services and a manager of operator contracts. It will have its hands on the railway's operating levers in a much more real sense, and be under scrutiny and dependent upon funding settlements accordingly."



The annual George Bradshaw address saw Rail Minister Huw Merriman (left) debate with the Shadow Rail Minister Stephen Morgan (right) in an event chaired by Sky News Political Correspondent Tamara Cohen. RAIL PARTNERS.

formed as an industry guiding mind and was arguably unwound when it sought to act too independently of the DfT.

The IRB envisaged is also not (despite superficial impressions) likely to be much like the SRA. The SRA was a small organisation which did not itself attempt to get involved in the running of actual track, services, stations, depots, and so on. It could be seen as just a guiding mind.

The IRB/GBR is an infrastructure manager (the largest single entity in the railways already), as well as a specifier of services and a manager of operator contracts. It will have its hands on the railway's operating levers in a much more real sense, and be under scrutiny and dependent upon funding settlements accordingly.

There are provisions which clarify that the IRB will not be a crown body and its employees will not be crown employees, which some might see as putting this new rail body a little further away from pure 'nationalisation'.

However, this is normal for public arm's length bodies. And few would say it means that an organisation ultimately owned/controlled by government was not 'nationalised'.

Also, under the Draft Bill, the Secretary of State will retain powers over the IRB which go beyond its shareholder and licensing powers.

In preparing the draft, the Government considered "that explicit powers of direction and guidance over the IRB provides more overt and transparent mechanisms for exercising control" than those of shareholder.

"The DfT considers it appropriate that the Secretary of State has more flexible, complementary mechanisms, in addition to the licence, to hold the IRB to account."

These powers include DfT retaining the power to issue directions to IRB (which will be binding) and guidance (which will not), and the less direct obligation on IRB to "have regard to the Secretary of State's statement of policy" on how the IRB should exercise its powers when awarding franchises.

These powers are expressly wide enough to include directions from the DfT that IRB only acts after consultation with it or with its consent.

The Draft Bill therefore envisages a wide award of powers to the Secretary of State from time to time, which can be exercised by statutory instrument or simply ministerial guidance.

The content of such directions or guidance could presumably change according to who was in power.

A Labour Secretary of State could presumably issue directions and guidance that reflect its expectations, which are closer to its vision of a nationalised industry. And a Conservative administration could use the powers in alternative ways in line with its policy.

In short, the Draft Bill itself would not be much of a constraining effect. The question would be one of what (and how much) the incumbent administration chose to direct.

There is one section baked into the Draft Bill which does expressly invoke ongoing private sector participation in the railways.

That is a requirement on the IRB to have

"In short, the Draft Bill itself would not be much of a constraining effect. The question would be one of what (and how much) the incumbent administration chose to direct."

regard in the preparation of its business plan to the effect of its proposals on businesses in the private sector, and then to submit an annual report on how the actions it has taken will "increase the involvement of businesses in the private sector in the provision of railway services".

Is the requirement to have regard and submit a report too far from nationalised public control of the railways for Labour policy?

It is also worth noting that the Draft Bill does not propose to remove the current obligation in the Railways Act requiring franchises not to be awarded to public bodies.

Would these decisions be too much for Labour to feel comfortable if the Draft Bill became legislation?

Will it target these provisions in the pre-legislative scrutiny to see if the current government will water them down as the price of progressing?

There are also structures built into the Draft Bill which do not go directly to the vision of reform of either party, but which are a reflection of this (current) administration's decisions (for example, provisions around removal of performance regimes).

A new administration might simply not want to do it that way. In the same vein, a new administration might simply not want to be associated with its predecessor's drafting.

Overall, it will be interesting to see how far the current Rail Minister gets with his invitation to his shadow to work together to get the Draft Bill through Parliament before the election. The general consensus seems to be that timings remain challenging. ■

About the author

Ian Tucker is a Partner at Burges Salmon. A specialist rail lawyer who has acted for sector clients for over 15 years, his background is in UK and EU rail regulation and industry dispute resolution.

Stations are important hubs for thousands of daily commuters. London Liverpool Street has taken over the mantle as Britain's busiest station. ALAMY.



The changing role of our railway stations

Innovations to improve Britain's stations often meet stumbling blocks in the form of red tape. **PETER PLISNER** investigates some of the ways train companies have been breaking through the regulations

Railway stations serve a multitude of roles across the country.

In major cities they connect thousands of daily commuters with their offices and other places of work. Many of these people come via smaller stations in the suburbs, which often provide park and ride facilities.

In smaller towns railway stations offer a focal point for transport, often connecting with buses and taxis.

Move into the countryside and many stations are a vital lifeline. In some places, they have become a community resource, providing not just an arrival and departure point, but a place to go and meet people. Cafes and other facilities are often set up to serve those who live nearby.

Moving forward, stations look set to become even more important. Climate change means that more people are thinking about alternative ways of travelling - and that is expected to mean more use of rail in many areas.

In some locations, stations are already earmarked for mobility hubs, offering access to other forms of transport including scooter and bicycle hire.

Several new stations are being planned to capitalise on nearby housing developments, linked with spatial planning with a view to providing an easy way to travel for those moving into these new homes.

However, under current rules, providing new stations - and indeed making improvements to existing stations - isn't always easy. Sometimes, there's a host of legal issues to deal with first.

The majority of stations in the UK are owned by Network Rail, which in turn has arrangements with local train operators (known as Station Facility Owners, SFOs), which are responsible for the day-to-day management and operation of the station.

Network Rail remains responsible for maintenance, repair and renewal work. Indeed, in most cases, the SFO will need to seek consent from NR to make improvements - and often they can only use NR's approved contractors, which can make things more expensive.

Major stations are the exception. In most cases they are owned and operated by Network Rail itself, because of their size and importance. They also have lucrative retail revenue streams

and are often served by several different train operators.

While COVID and the effective renationalisation of the railways has brought about changes to the way the system is run, so far there doesn't seem to have been any changes in terms of station ownership.

Last year the Great British Railway Transition Team (GBRTT) published a whole host of recommendations, including on station and depot management. All were designed to deliver a simpler and more integrated railway.

The document made it clear that funding for works at stations and depots comes from different sources which are subject to different business planning processes and timetables.

The report said: "This can lead to a lack of co-ordination of planned works by the various users and stakeholders with separate schemes at the same station/depot being delivered in isolation."

It concluded that the current way of doing things can lead to missed opportunities to combine processes and speed up delivery, reduce impact on passengers, and save costs.

Instead, GBRTT suggests a simplified operating model with a single party responsible for all maintenance, repairs and renewals at any one station or depot.

Later this year, as a result of the work done, GBRTT will be evaluating the pros and cons of different operating models. Ultimately, GBRTT wants to move towards the whole of the station asset being under one organisation's accountability.

"One of the reasons that it can be so frustrating, bringing about customer-facing change, is that the accountability for maintaining most of our stations across the UK is held by a different organisation from the accountability for renewing and enhancing the asset," says GBRTT Head of Commercial Change Rebecca Cunningham.

She maintains that the current arrangements do not allow for sufficient maintenance by the operator.

"Like with your own home, you maintain your property in order to avoid having to renew it excessively.

"If you think about the contract incentives built into any length of franchise, it is not whole-life. So, you are naturally creating a division between people who can only reasonably invest short-term and people who need that investment to be longer-term."

GBRTT suggests that the division of accountability between two organisations is one of the key problems with the operating models as they currently stand.

One of the models it is looking at has been in use since 2012 at train operator Greater Anglia, where Dutch owner Abellio, as part of its franchise bid, proposed the idea of taking ownership of the majority of the stations it serves through a ground-breaking 99-year full repair and lease arrangement.

After it successfully won the franchise, the new leasing arrangement gave the train operator (now owned by Transport UK, following a management buyout by the Abellio UK team) the ►

"We now have a greater responsibility in terms of the ongoing maintenance, upkeep and presentation of the railway estate. It means we have a lot more scope to do things."

Jonathan Denby, Head of Corporate Affairs, Greater Anglia

Bishops Stortford is one of the stations to have benefited from Greater Anglia improvement projects. This is the modern Dane Street entrance, pictured in October 2023. ALAMY.



► freedom to do a lot more at its stations to improve the customer experience.

The deal also meant that Network Rail could concentrate more on major stations and other infrastructure.

“Previously everything was fully within Network Rail’s remit,” says GA Head of Corporate Affairs Jonathan Denby.

“The lease arrangement in effect devolved greater responsibility to us as a train operator, aligning things more closely with our more customer-facing role.

“The scope that we have to do things at a local level is much broader under this arrangement. As a result of that we’ve been able to do many more projects to improve station standards for our customers.”

That’s meant big changes at a number of stations - including Cambridge, Norwich, Ipswich and Bishops Stortford, with the likes of refurbishment projects, upgraded waiting areas, and better ticketing facilities.

There have also been more partnership projects, with both local authorities and Community Rail Partnerships, to improve smaller stations.

Denby explains: “This approach placed the ability to make customer-focused improvements more clearly with our teams, who are more directly involved in looking after and working with customers and stakeholders - and that is always a good thing.

“We now have a greater responsibility in terms of the ongoing maintenance, upkeep and presentation of the railway estate. It means we have a lot more scope to do things - and we’ve used that to make a real positive difference to our stations for everyone who uses them.”

Rail Partners, which represents private sector operators, suggests that three other companies - LNER, Avanti West Coast and c2c - are leasing stations in a similar way to Greater Anglia.

“The point of the lease is that it changes the nature of the relationship between the operator and the station, and therefore changes the calculus in terms of investment and return on investment in those stations,” says Rail Partners Chief Executive Andy Bagnall.

“There are clearly some significant advantages of a longer lease, where appropriate. The train operator can invest over a longer

period. At the end of the franchise contract, there can be a payment under a residual value mechanism for the investment made.

“A short lease from Network Rail solely for the life of the train operating contract would require a return on investment within that period, and that makes larger investment uneconomic.”

The only downside of the leasing model is that it doesn’t satisfy GBRTT’s wish that any arrangement must deal with the whole life of the asset, no matter who the operator is.

On leasing stations, Bagnall admits: “It’s not a silver bullet. It is valid in some areas, but not in others.”

The Greater Manchester city region looks set to go down a similar route. During a recent House of Commons Transport Select Committee hearing, Mayor Andy Burnham proposed the idea of devolving stations to local authorities in order to regenerate them and provide better accessibility.

He told MPs: “Half the stations across the north of England do not have step-free access. That cannot be the last item on the agenda.”

Burnham suggested that accessibility should be the first thing the railway industry should be worrying about: “I keep saying to them, devolve the stations. We will come up with innovative ways of regenerating the stations, and then putting the money into dealing with the accessibility issues, and everybody will benefit.”

The aspiration to take over stations goes back to 2017 and the ‘Case for Change’ initiative. It set out how Transport for Greater Manchester would spend the rail grants that are currently received by the train operators in a different way, to ensure that passengers and customers were receiving the best value.

As part of the initiative, TfGM believes that disused station buildings and land surrounding rail stations could be unlocked and better served by developing them into commercial, residential and community spaces that meet the needs of the local communities.

“There is a need for rail industry support when it comes to community groups seeking leases on redundant spaces.”

Jools Townsend, Chief Executive, Community Rail Network

But it's not the first time that things have been done a bit differently.

Back in the 1990s, the late Adrian Shooter wanted to build a new station on the Chiltern Line to serve the Birmingham and London commuter markets. He had a vision to build a new parkway station somewhere in Warwickshire.

According to his book, *Chiltern Railways: the Inside Story*, Leamington Spa station was the first choice for development. But car parking there was inadequate, and despite being close to the M40 motorway access wasn't easy.

The next option was a greenfield site. And that's how the concept of Warwick Parkway came about. It was to become one of only a handful of stations built, owned and operated by a private company, not by Network Rail.

In *Chiltern Railways: the Inside Story*, Shooter relates how after getting through various objections and local election campaigns against the station, as well as a public inquiry, he finally found himself with permission to build the station.

But the next obstacle seemed to be Railtrack, Network Rail's predecessor. It wanted £13.4 million to build the station, a figure that Shooter described as "quite ridiculous".

One of Chiltern's shareholders was construction firm John Laing, which costed the scheme at a much more modest £5.4m.

According to Shooter, senior people at Railtrack made it clear that stations could not be built by third parties. However, as anyone who knew Adrian Shooter would affirm, he very rarely took no for an answer.

His book describes how he took then-Railtrack Chief Executive Gerald Corbett out to lunch: "I happened to mention to him that we needed a small new station built. We had been discussing much weightier matters, so it did not take much for me to get him to recite, several times: 'We don't want to build smaller stations'."



The new University station in Birmingham opened its doors in January. More open space, lifts to the platforms, a larger ticket office and improved customer facilities which will include an NHS facility will offer a much better experience for Cross-City Line passengers. TRANSPORT FOR WEST MIDLANDS.

And that was it. Shooter then went on to create Warwick Parkway.

SLC Rail consultant Ian Baxter, who worked for Chiltern at the time, recalls: "Parkway was delivered in the early days of privatisation and, while properly regulated, I think there was a flexibility that allowed Adrian and Chiltern Railways to get on with the job in a relatively unencumbered way and make it happen."

Later, Laing itself built Coleshill Parkway, sited close to the old Hams Hall power station in North Warwickshire. It provides park and ride facilities.

The construction was jointly funded by the Department for Transport, Warwickshire County Council and John Laing Group, with developer contributions secured by North Warwickshire Borough Council. Oddly, it's run by West Midlands Trains, even though it's only served by CrossCountry services.

Another procurement model came in Worcestershire, where >



An artist's impression of work to take place at Darlington station, in a £99 million project that will feature two new platforms linked by a new bridge to the current trainshed. NR needed consent from Darlington Borough Council for the work. NETWORK RAIL.

► there was a desperate need for a new station at Bromsgrove. The existing station was inadequate for the growing town. The platforms were too short and the facilities were poor.

Worcestershire County Council couldn't raise the money through conventional channels, so Centro (now Transport for West Midlands) stepped in to help.

There were plans to electrify and extend Birmingham's Cross City Line to the town. And on the basis of a higher level of track access charges being paid by the train operator, plus some revenue from a much-expanded station car park, Centro and Worcestershire were able to gain approval from the DfT to borrow enough to build the station.

Worcestershire put up 30% and Centro the remaining 70%. The two councils effectively took the construction and operating risk.

"It's a good example of where there were so many people involved, it needed a transport authority to actually step up a lead on that because nobody else would do it," says transport consultant Stephen Joseph.

Transport for West Midlands and Worcestershire County Council still jointly own the station and sub-contract its operation across to West Midlands Trains.

It's clear that the station would not have happened when it did, had it not been for the alternative way of funding it. And, of course, the electrification project needed the new station to be built first, so the timing was crucial.

Just along the track from Bromsgrove is another new station, Worcestershire Parkway, which again was built with funding via prudential borrowing. It's a good example of where alternative procurement and building arrangements can get incredibly complicated under current legislation.

The land on which the station sits is owned by the council, and the station has been handed over to Network Rail on a 175-year lease. However, the car park isn't part of the lease and remains with the county council.

And it's here that things get a bit complicated. Consultant SLC Rail managed the development and construction of the station, and dealt with all the legal agreements. Sam Uren, its company director, agrees that this can be complicated.

"The car park is owned by Worcestershire County Council and leased to the Station Facility Owner," she explains.

"The SFO isn't there for the lifetime of the car park, so subsequently you've needed an agreement from the DfT that it will include the car park in any franchise/contract commitments in the future. And that future may be very different to the model we have right now."

Another issue has come with plans to provide refreshments at the station.

Says Uren: "There's a retail space available for a coffee shop at Worcestershire Parkway. We are unclear as to why this is not used, but rail retail agreements can complicate the matter and make it less commercially viable. At the moment, there's a little coffee pod located outside the station, which avoids paying commercial rent to the rail industry."

She feels that situations such as this need to be challenged: "The current approach for commercialisation of spaces within stations often hinders many smaller stations from becoming real community spaces serving its passengers and local people.

"Why are we continuing with these commercial arrangements, which reduce the chances of passengers benefiting from having a cafe inside a station?"

And at smaller stations in rural areas, the problems can be more





Stations can offer a location for retail facilities that serve the community. In February, Kerbside Coffee opened its latest branch in a retail unit that has stood empty for two years at Hatfield station. GOVIA THAMESLINK RAILWAY.



This new fully accessible toilet at Northern's Broad-bottom station opened in January. It is one of 83 fully accessible toilets set to be installed at railway stations across Greater Manchester, as part of a scheme funded by Transport for Greater Manchester. TfGM.

acute because of lower patronage. But there still could be a need for the station to become a focal point for the community.

Jools Townsend, chief executive of the Community Rail Network, says: "We have many incredible examples of community-led projects across Britain, restoring and rejuvenating disused station buildings

and spaces for community benefit, and delivering impressive results."

These projects range from community free shops and repair cafes to active travel hubs, to meeting and activity spaces for local charities and support groups, to social enterprise cafes providing work and training opportunities, to community-run museums and galleries.

But despite the successes there have also been failures where legislation has got in the way.

Says Townsend: "There is a need for rail industry support when it comes to community groups seeking leases on redundant spaces, to avoid them being dissuaded or excluded from these opportunities.

"There can be issues with the length, cost and identities of parties, which can cause delays and uncertainty.

"Tri-partite leases, with a train operator and Network Rail as signatories, can help to address this in theory, but additional costs are beyond the means of many community organisations.

"It's essential that the body responsible for stations is open to and proactive about working with community organisations."

As with much related to rail privatisation, it's a complicated situation and one which all too often seems to be delaying or even stopping things happening that could benefit passengers greatly.

With rail privatisation all but finished in the UK following the COVID pandemic, now would seem an ideal time to re-write some of the rules and change the legislation.

The Great British Railways Transition Team is moving in the right direction. And it's clearly mindful of the fact that changes in legislation could take years.

GBRIT's Rebecca Cunningham says: "Short term, it will be the clever ways of getting around the legislation by using the structures we have and using the ability to test things as an exception to the rule. But in the longer term, once legislation creates the GBR organisation, we would look to implement the models that have been most successful."

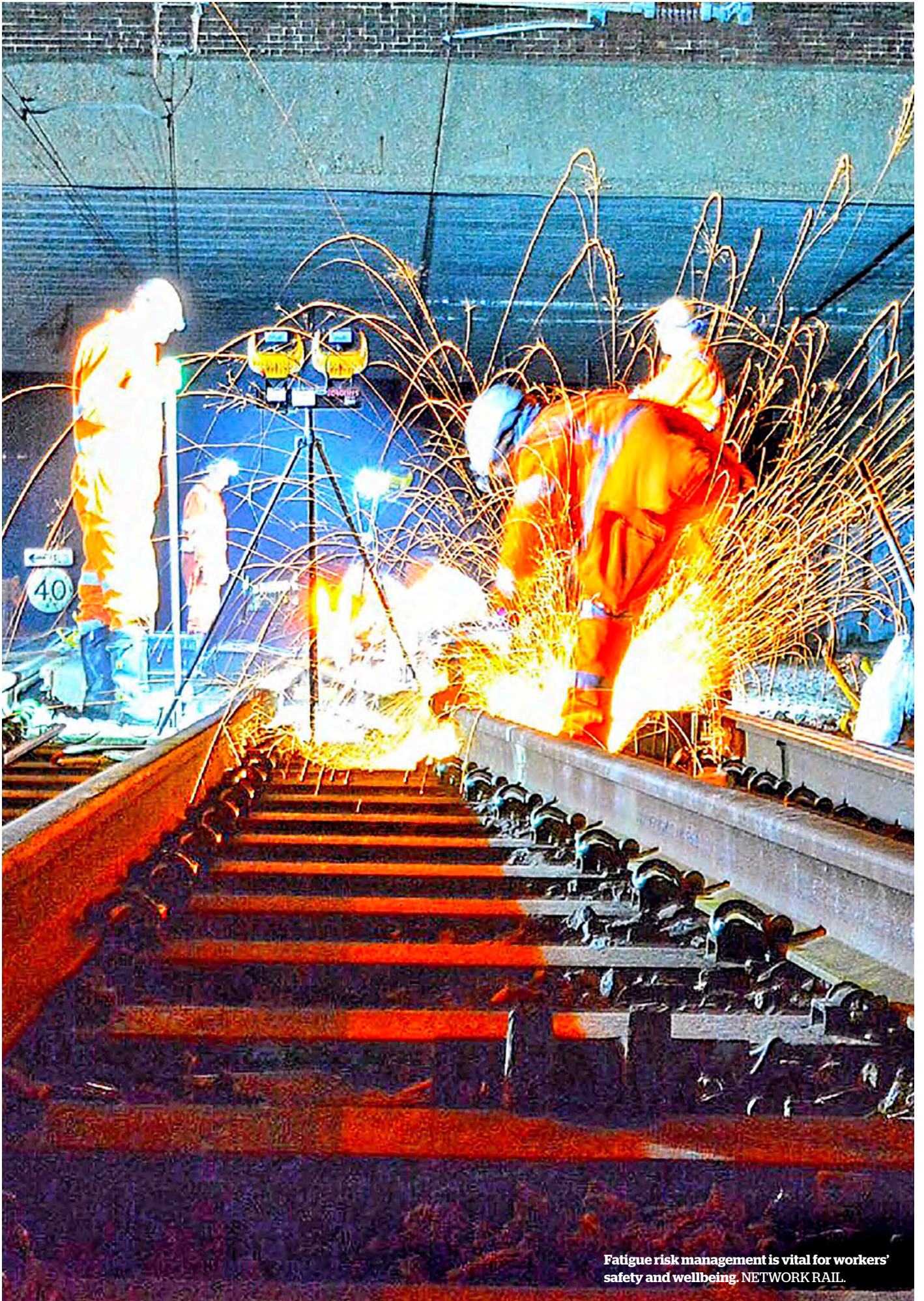
But she makes it clear that the chosen model has to be based on the accepted principle that "it's whole asset, whole life".

Ultimately, long-time transport watchers such as Stephen Joseph want stations thought about as hubs or gateways to the communities they serve.

To do that, he says: "It's all about how can we streamline and simplify making even quite small changes to stations and give the train operators, who are at the sharp end of the problem, more say and control over how that's done." ■



Opened in October 2000 and offering park-and-ride facilities, Warwick Parkway is owned by Warwickshire County Council and managed by Chiltern Railways. ALAMY.



Fatigue risk management is vital for workers' safety and wellbeing. NETWORK RAIL.

Managing fatigue risk for workers' wellbeing

SARAH BOOTH and DR CRISTINA RUSCITTO, of Baines Simmons Safety Services, discuss areas for improvements in fatigue risk management for the UK heavy and light rail industry

In its Annual Report of Health and Safety on Britain's Railways, published in July 2023, the Office of Rail and Road (ORR) highlighted that fatigue management remains a focus area for continued review and improvement.

Recent investigations by the Rail Accident Investigation Branch (RAIB), which find discrepancies in operators' Fatigue Risk Management Systems (FRMS), also support the belief that there are improvements to be made within the industry.

This article provides a view on how those within the UK heavy and light rail industry can act to improve the effectiveness of their FRMS, based on our years of experience supporting operators implementing FRMS.

ORR defines fatigue as "a state of perceived weariness that can result from prolonged working, heavy workload, insufficient rest and inadequate sleep", reducing the ability of an individual to work safely and effectively.

While some effects of fatigue may appear obvious, such as unintentionally falling asleep, workers can be unaware of how much their performance is being adversely affected by fatigue - including any lapses in attention or 'microsleeps' (brief periods of unintentional sleep).

This means that the risks associated with fatigue must be managed systematically, rather than simply relying on individuals to act when they experience elevated fatigue levels.

Managing fatigue effectively also provides business benefit. Workers who are too fatigued to work safely may report sick, rather than as being fatigued, meaning that not only is that worker lost to the business for the day, but also no data is collected on the causes of that fatigue.

This data could inform strategies to reduce fatigue, and therefore the likelihood of that individual (or others in a similar circumstance) being too fatigued to work safely in the future.

Training is a significant cost across multiple industries, and the rail sector is no exception. Evidence clearly shows that fatigued individuals pick up skills more slowly and are worse at retaining information. This increases training durations and associated costs.

In many organisations, elevated fatigue is also associated with inefficiency. Reducing fatigue levels can increase roster efficiency and effectiveness.

The regulatory requirement to manage fatigue of the workforce in the UK rail sector is long-standing. It is outlined under Regulation 25 of the Railways and Other Guided Transport Systems (Safety) Regulations (ROGS, 2006).

In 2012, the ORR best practice guidance for fatigue risk management was published in Managing Rail Staff Fatigue, alongside a call for Fatigue Risk Management Systems to be part of the wider Safety Management System in organisations with safety-critical workers, and/or where the risks of fatigue are higher due to shift work or long working hours.

Fatigue Risk Management Systems are an evolution and specialism of Safety Management Systems. This systematic application includes multiple levels of controls and recognises that limiting hours of work in isolation is insufficient to manage the risk of fatigue.

For example, prescriptive limitations which outline minimum rest periods between work periods do not guarantee sufficient sleep. Factors such as commuting and the time of day the rest period is taken are usually not considered, but they can have a big impact on sleep duration.

A comprehensive data-driven FRMS manages risk holistically and is embedded in the culture of an organisation.

An effective FRMS will ensure the best safety outcomes, protect the long-term health and wellbeing of staff, and reduce the risk of reputational damage and potential associated costs to an organisation.

However, to reach this effective position requires ongoing effort from the organisation, as well as buy-in across all levels, from senior leadership through to all members of the workforce.

Key components of FRMS should include:

- Using a data-driven approach to identify, mitigate and manage fatigue risks, which include multiple sources of data to capture the complete fatigue 'picture'.

- Ensuring competence across the workforce - both for those who may experience fatigue, and those who may influence the fatigue of others.

- A shared responsibility for managing fatigue between the organisation and individual workers.

To effectively implement an FRMS, ORR recommends a POPMAR approach:

- Policy.

- Organising (i.e. developing your organisation, identifying roles and functions).

- Planning and Implementing (Where are you now? How do you get to where you want to be? Training all appropriate members of the workforce, comparing working patterns to the fatigue factors).

- Measuring Performance (measuring fatigue in actual operations, fatigue reporting, use of fatigue models, fatigue surveys and incident investigation).

- Auditing and Reviewing Performance (Key Performance Indicators, internal and external audits for compliance and effectiveness, feeding back to FRMS improvements).

Ensuring that all these elements are in place is key to ensuring an effective FRMS. The final step (Auditing and Reviewing Performance) should inform you where there are gaps - as does learning from others within the industry.

While FRMS is a regulatory requirement under the ROGS, it is not uniformly and effectively applied throughout the industry.

In an accident report published in 2022, RAIB noted that a ►

► review of the operator’s FRMS found it did not follow current industry guidance and good practice, resulting in a recommendation being made by RAIB to the operator regarding its FRMS.

The operator was utilising the HSE Fatigue and Risk Index (HSE:FRI), a bio-mathematical model used widely across the industry and designed to predict fatigue levels according to work shifts, sleep opportunities and circadian factors.

However, the model was used in isolation as a means of identifying fatigue associated with working patterns.

Best practice recommends that multiple means of identifying fatiguing patterns are used, including comparing working patterns against the ORR ‘fatigue factors’ - time of day, duty length, intervals between duties, recovery time, cumulative fatigue, and circadian phase shift factors.

Without using all these elements, it is not possible to demonstrate that fatigue is being effectively identified and managed, in accordance with the requirements of Regulation 25 of the ROGS.

A broad assessment of your FRMS, looking at the components and effectiveness of the FRMS, can highlight any gaps or weaknesses.

Baines Simmons has undertaken assessments - called Fatigue Risk Management Diagnostics - for operators within both heavy and light rail, enabling the organisations to meet their regulatory obligations, manage risk effectively, and gain operational benefits from effectively managing fatigue risk.

Bio-mathematical fatigue models are useful for predicting fatigue levels and ‘hotspots’ where high levels of fatigue are likely, supporting fatigue risk management when used alongside other tools.

These software tools usually calculate average fatigue levels, and need to be used with a clear understanding of what the results do and do not consider (for example, most models do not consider workload effectively), and what ‘threshold’ values mean.

Understanding and identifying appropriate thresholds is a key decision for those managing the FRMS, and must be appropriate to different workgroups, according to their role and working patterns.

For example, in the HSE:FRI, the fatigue scores range from 0-100, with a Fatigue Index Score of 50 representing a 50% chance of employees achieving a Karolinska Sleepiness Scale (KSS) score of eight or nine.

In the KSS, a score of one reflects being extremely alert, while scores of eight or nine reflect high levels of sleepiness where microsleeps are highly likely.

Research by the Health and Safety Laboratory (HSL) and ORR found that the majority of working patterns in the rail sector produced HSE:FRI fatigue scores of 30-35 for day shifts and 40-45 for night shifts - and these values have subsequently been used as ‘thresholds’ by many within the rail industry.

However, the report did not aim to identify safe thresholds. Rather, individual train operating companies should identify the level of fatigue risk that they are willing to accept in their own operation and manage this risk through their FRMS.

The identified thresholds, and subsequent use of the model, should reflect that operators should control fatigue risk to As Low As Reasonably Practicable (ALARP) - always seeking to reduce the risk, unless the means of further mitigation are grossly disproportionate.

The three-tiered approach for using this guidance

Type of work	Likely significance of risks from fatigue	Relevant sections of this guidance
No shift work, no significant overtime, no ROGS safety critical work	Low	Section 4 “Basic fatigue controls”
Some shift work and/or significant overtime but no ROGS safety critical work	Medium to high	Section 5 “Fatigue Risk Management Systems”
ROGS safety critical work	High	Section 5 “Fatigue Risk Management Systems” AND Section 6 “Managing fatigue in ROGS safety critical work”

Some signs and symptoms of fatigue

Likely level of fatigue	Signs / symptoms
Early warning signs of fatigue which should prompt people to look out for more conclusive evidence of fatigue	<ul style="list-style-type: none"> • Fidgeting • Rubbing the eyes
Signs of moderate fatigue suggesting performance is being affected. Take these seriously - it is not necessary to fall asleep to make a critical error	<ul style="list-style-type: none"> • Frequent yawning • Staring blankly • Frequent blinking
Signs of severe fatigue. Liable to brief uncontrollable “micro-sleeps”, risk of errors very high.	<ul style="list-style-type: none"> • Nodding head • Difficulty keeping eyes open & focussed • Long blinks

Even where the working pattern has been designed to reduce fatigue risks as far as possible, circumstances such as disruptions, overtime, elevated workload, or personal difficulties of the worker can still result in elevated fatigue on the day. This is where another critical barrier comes in - the ability of a worker to remove themselves from work due to fatigue, supported by fatigue reporting.

Another RAIB report, published in 2023, found there were no effective channels for safety-critical workers to express if they are experiencing high levels of fatigue, or to declare themselves unfit for duty.

For fatigue reporting to work as an effective part of the FRMS, many elements must be in place:

- Workers are competent to recognise when they are no longer fit to operate safely - and know what steps to take to reduce risk.
- Company culture means that declaring yourself unfit due to fatigue is welcomed as a positive safety action. Or are there fears of negative consequences?
- Other policies do not conflict with removing oneself from duty due to fatigue, such as absence management or communications regarding avoidance of delays.
- The organisation monitoring instances of fatigue to identify common themes - and acting to reduce them where possible.

When the FRMS is working effectively, not only can you identify new contributors to fatigue, you can also measure the effectiveness of mitigations and identify where fatigue may have played a role in incidents or near misses.

Using the mitigations and planning rosters with the intent to reduce fatigue can also support reducing absences, alongside the associated reduction in risk.

For example, through an effective FRMS, fatigue reporting and near miss data may indicate that there is elevated fatigue on consecutive early shifts, or at the end of night shifts, despite planning according



Summary outline of the nine stages

Stage	Summary	
1	Identifying those safety critical workers affected	Identify those people carrying out safety critical work who are liable to be or could become fatigued when carrying out such work.
2	Setting standards and designing working patterns	Identify, set and adhere to appropriate standards and good practice for working hours and working patterns, observing any relevant working time limits that apply.
3	Limiting exceedances	Ensure that any standards and limits that have been identified and set are only exceeded with your prior approval and only on an infrequent basis and in exceptional circumstances.
4	Consulting with safety critical workers	Consult with safety critical workers and their safety representatives on the arrangements needed to manage fatigue and when standards and limits are to be changed.
5	Recording the arrangements	Maintain a record of your arrangements for managing the risks arising from fatigue in safety critical workers.
6	Providing information to safety critical workers	Provide all safety critical workers under your management, supervision or control with clear and relevant information on risks to health and safety owing to fatigue and your arrangements for managing fatigue.
7	Monitoring	Monitor the arrangements for managing fatigue to assess how effectively you are controlling the risks arising from fatigue.
8	Taking action when safety critical workers are fatigued	Ensure, so far as is reasonably practicable, that safety critical workers who report for duty where they are clearly unfit owing to fatigue, or who, through the course of their work shift become clearly unfit owing to fatigue, do not carry out or continue to carry out safety critical work.
9	Reviewing the arrangements	Review your arrangements for managing the risks arising from fatigue when you have reason to doubt the effectiveness of the arrangements.

Source: Office of Rail Regulation | January 2012 | Managing Rail Staff Fatigue

A Rail Accident Investigation Branch report into the buffer stop crash at Kirkby in March 2021 included a recommendation to operator Merseyrail in relation to its Fatigue Risk Management Systems. RAIB.

to the fatigue factors, and using the HSE:FRI.

Mitigations then need to be implemented to reduce the risk, such as adjusting the shift pattern, shortening shifts, or adding breaks to ensure fatigue risk is controlled to an As Low As Reasonably Practicable (ALARP) position.

However, if the reports or incidents are from a small number of individuals, mitigations may also be applied at an individual level - such as providing support or discussing alternative shift patterns.

Irrespective of the origin of the reported fatigue, feedback and ongoing monitoring of the controls put in place are essential and form part of the Auditing and Reviewing element of the FRMS.

Operating companies in both heavy and light rail in the UK have used FRMS principles for many years, given how long the requirement to manage fatigue has been in place.

However, there is still further work to do to ensure that the FRMS is effective, that fatigue is truly being managed, and that companies and the workforce can reap the benefits of effectively managed fatigue.

Both ORR and RAIB are calling for improvements to be made. As an operator, are you comfortable with your current approaches? ■

■ Sarah Booth is Senior Manager of Fatigue Risk Management at Baines Simmons, specialising in the integration of key data streams into the FRMS, working closely with operators to implement effective, data-rich fatigue reporting systems, and to identify barriers to reporting.

■ Dr Cristina Ruscitto is a Senior Researcher in the Fatigue Risk Management Team, specialising in the psycho-behavioural predictors of fatigue through the development of fatigue surveys and survey analysis, development of fatigue investigation process, and review and recommendations of procedures. ■

Behind the mask... Bessie Matthews

PAUL CLIFTON fires the questions at social media sensation, the author and illustrator of children's railway book *Arlo's Adventures*, and now trainee driver with GB Railfreight

When you were growing up, what did you want to be?

My dad is a guard. Growing up, I watched him coming home happy every night, with fantastic stories. So I became a guard - lived it, loved it. Then I thought: what next? Every day is still a 'pinch me' moment.

Why a freight driver?

On freight, every day is different. Different locomotives, different freight, different routes.

How's the training going?

We are five weeks in. Today we've just sat our Interim Rules Assessment. I passed. I'm buzzing, excited, terrified, all at once!

Why did you write *Arlo's Adventures There And Back*?

It came from training to be a shunt driver at Freightliner. It was scenario-based learning, and I thought it would be fun for kids to learn that way.

How many copies are there?

More than 100,000. It's been wild, it's been mind-blowing.

You have a huge following on X. What do you make of that?

It's surreal. And humbling. I've done it since I was a guard. I've seen people follow me, then come to the railway for a career. Social media is so beneficial.

What are you most proud of?

Not giving up. I've been knocked back a few times, but I've tried and tried again.

Greatest achievement?

Keeping myself happy. I am exactly where I want to be.

Who is the person who has influenced you most?

My dad.

What is top of your bucket list?

I want to drive a little Class 153 single-carriage train.

Best piece of advice you've ever had?

Look after your feet. Look after whatever you sleep on. Best shoes, best bed, you'll be in best condition.

Career high point?

Passing out as a guard, and working my first train all on my own.

Career low point?

Not knowing what I wanted to do, when I was ready to change from being a guard. I was lost for a while.

If you could make one change to the railway, what would it be?

I've met a lot of people who would like to be in my position, but they're excluded for reasons out of their control.

Last time you shed a tear?

Today, out of relief, passing the exam!

What most annoys you?

People who are cruel to animals.

Favourite food?

I love Ramen noodles.

What's your most prized possession?

My lion toy from when I was a little girl.

Something you want to do in the future?

I want to be a fluent Welsh speaker. I'm learning it, but I'm terrible.

If you were stranded on a tropical island, what two things would you want with you?

Pencil and unlimited paper, so I could draw.

First record you bought?

It was a Busted album. I was obsessed with the song *Year 3000*.

Favourite film?

Swiss Army Man. It's ridiculous, but brilliant.

Introvert or extrovert?

Both. I love being with people, but I love being in my own space. I do well in my own company.

Saver or spender?

Spender.

Cats or dogs?

I love all animals, but I am obsessed with dogs.

Beer or wine?

Beer.

What book are you reading?

The Rule Book. I'm not reading anything else at the moment, I am so focused on the training. Is that a cop out?

What car do you drive?

I have a 2005 Suzuki Jimny. It is offensively ugly, bright pink, with pink carpet. I love it!

Favourite place in the UK?

Wales. Especially Lake Bala.

How would you like to be remembered?

As someone who could make other people happy.

The most important question: Will there be another Arlo book?

Yes! I have so many ideas. Arlo has an adventure coming.





PAUL CLIFTON

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