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The home of transport insight and opinion

Jan/Feb 2017

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Congestion charge or connected cars?

The London Assembly transport committee's dramatic intervention this week looks set to reignite the congestion charging debate.

Congestion has been rising again on the streets of the capital, fuelled by increasing numbers of delivery vans and private hire vehicles, and reallocation of road space for bus services, cycling and walking.

The flat rate congestion charge is too blunt an instrument, the committee says. It calls on the London mayor to reform the charge to reflect more closely when and where congestion occurs, and calls on him to begin planning in the long term to introduce a city-wide road pricing scheme.

Congestion is certainly a cause for concern. Rising bus patronage, one of London's big successes of recent years, has gone into reverse in the face of slower bus journeys.

In addition to its comments on road pricing, the committee makes a number of other strong suggestions for tackling the problem.

Outside London, of course, congestion charging has been seen as politically off-limits since referendums in Edinburgh and Manchester rejected charging proposals.

In London, where Ken Livingstone consulted but then acted boldly to introduce the charge in the face of opposition, the charge has been accepted. Indeed, a survey by the transport committee indicates that 50% of road users would back road pricing with only a fifth against, and 63% would switch to driving at less congested times of the day if the charge reflected this.

The response from the mayor's office has been lukewarm, however. The committee has asked for a formal response, but the signs are that Sadiq Khan believes TfL is doing enough to combat congestion and has little appetite for reopening the question.

> **Few politicians want to do anything to alienate motorists**

There are other signs congestion is rising up the agenda, though. In the *TT* Bus Supplement this month, Go-Ahead managing director for bus development Martin Dean argues that support could be gained for differential pricing, made possible by new technology, perhaps if revenue were recycled back into transport to avoid accusations of a stealth tax. In this issue, Jim Steer identifies the challenge of managing growth in freight traffic without harming productivity. And last week, 50 potential entrants met for a briefing on the Wolfson Economics Prize, which is seeking proposals for a reformed system for paying for roads.

Few politicians, though, want to do anything to alienate motorists. It may be that the National Infrastructure Commission was on the right lines when it asked for views, in last autumn's call for evidence for its national infrastructure assessment, on what opportunities the advent of mobility as a service creates for road user charging. It is possible that user charging will remain politically impossible until mobility as a service, in which users pay a single subscription for travel in all its forms, becomes widespread.

What, then, about another possible solution – driverless cars? One of the main arguments put forward by advocates of autonomous and connected vehicles is that when cars are able to communicate with each other and regulate their own speed, they will be able to travel safely closer together at high speeds, smoothing traffic flow and unlocking extra capacity on the road system. Atkins has put this to the test in a microsimulation modelling exercise for the DfT.

On motorways and A-roads the results are disappointing. Autonomous vehicles, the study predicts, will not have a significant effect on reducing journey times and delays until somewhere between 50% and 75% of the fleet is capable of at least some autonomous behaviour.

In urban areas the story is different. The simulation suggests delays could be reduced by 21% in congested towns with only a quarter of the fleet having some degree of autonomy.

On the face of it this could be a breakthrough. Should the Government, the automotive industry, and anyone with an interest in transport be doing all they can to speed up the development and introduction of AVs?

Unfortunately there is a snag. When truly driverless cars become available, it is likely there will be a considerable "induced demand" effect. If your car will take you seamlessly from your home to your dental appointment, say, why would you bother to wait for a bus? Presumably you won't even need to have a driving licence.

This effect was outside the remit of the DfT study, but it seems that it is at least possible that AVs could exacerbate congestion rather than reduce it.

In which case road pricing will be even more necessary, not less.

David Fowler, editor
Transport Times

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‘Too blunt’ congestion charge reform, says London Assemb

by David Fowler

London’s congestion charge is a “blunt instrument” which should be reformed with varying charges to reflect areas and times of day when congestion is most severe.

A new report from the London Assembly transport committee, *London Stalling*, says that in the long term the mayor should introduce a London-wide road pricing system, and it calls on the Government to devolve vehicle excise duty to the mayor. It also encourages London boroughs to introduce workplace parking levies.

The ideas drew a lukewarm response from the mayor’s office and from the Treasury.

The report notes that congestion in London has been worsening since 2012. The fundamental cause is increasing traffic on London’s road network. “This is not primarily because of an increase in private car usage, which has fallen,” the committee says. It is because other types of traffic have increased, particularly delivery vans and private hire vehicles. At the same time, road space has been reallocated away from private motor vehicles to help improve the provision of bus services and encourage cycling and walking. Measures such as the congestion charge, bus priority measures, lane rental for roadworks and encouragement for active travel “are no longer having the desired effect”.

Transport committee chair Caroline Pidgeon said: “Something dramatic has to be done about the enormous congestion problem on London’s roads. Transport for London is doing a lot to tackle congestion, but not enough. Road pricing would be a fairer approach, as road users would pay according to how much they contribute to congestion.”

In the short term, the congestion charge daily flat rate “should be replaced with a charging structure that ensures vehicles in the zone at peak times, and spending longer in the zone, face the highest charges”, says the report. For the longer term, the committee calls on the mayor to start now to develop proposals for replacing the congestion charge term with a more sophisticated city-wide road pricing scheme. This would charge vehicles according to the extent, location and timing of their road use.

The mayor should consider including private hire vehicles, which are exempt from the congestion charge, within the scope of the reformed charge. He should seek devolution of vehicle excise duty, which could be incorporated into and replaced by road pricing. The committee calls on the mayor to set out plans for congestion charge reform and the introduction of road pricing in his forthcoming transport strategy.

The committee also recommends that the mayor and TfL should encourage bids from boroughs interested in piloting a workplace parking levy and should offer to support such a pilot. They should encourage more delivery consolidation, working with large construction schemes and retailers, through Business Improvement Districts, and promote consolidation to new developments. TfL should work with London Councils to reduce restrictions on night-time deliveries.

TfL should also “pilot a ban on personal deliveries for staff”, which could be extended to all GLA premises, and should promote this practice to other large employers. Extension of click and collect deliveries should be considered at Tube and rail stations.

The committee says that TfL should continue with schemes such as Cycle Superhighways and Quietways but calls on TfL to report on how their construction “can be planned more effectively to minimise congestion”.

In a survey conducted by the committee, half the road users who responded said they would support road pricing, with a fifth opposed. The proposal appears to have potential to change behaviour, with 63% of respondents saying they would

Reallocation of road space to create cycle superhighways is one factor in increasing congestion

e needs
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Val Shawcross (top) and Caroline Pidgeon

drive at times of the day when charges were lower, and 48% saying they would switch to a different form of transport.

The committee asks the mayor and TfL to respond to its recommendations by the end of April. In its initial response mayor's office welcomed the report but was lukewarm on charging reform. Deputy mayor for transport Val Shawcross said: "We welcome any report that seeks to grapple with the crucial issue of congestion on our roads. There are some innovative ideas here that we will look closely at."

She added: "We're already taking practical steps to tackle congestion, including coordinating roadworks better and providing better information for road users. Being smarter in how we organise commercial traffic and working with business to introduce more consolidation centres is also something we're looking at as part of our long term plan."

A response from the Treasury rebuffed the proposal of devolving VED. It said: "Vehicle excise duty is a national tax which supports the country's entire road network."

Driverless cars have greater potential to reduce delays in cities – study

Driverless vehicles will not significantly reduce delays on motorways and A-roads until they make up a large proportion of the overall fleet, new research has found.

But on urban roads, autonomous and connected vehicles could make a much greater difference, especially to journey time reliability, with a proportion in the fleet as low as one in four.

These are the findings of a study carried out by Atkins for the Department of Transport. The study used Vissim 8 micro-simulation to model traffic flow.

It was able to test the impact of characteristics including different car-following behaviour, different lane-changing and gap acceptance behaviour, different rates of acceleration and deceleration and different levels of market penetration of autonomous vehicles.

Four levels of capability were defined. Level I was no automation, representing the existing fleet. Level II, driver assistance, included speed and throttle control. Level III, partial to high automation, added automated control of longitudinal and lateral behaviour, such as lane departure control and control of following distances.

Level IV was full automation, in which the driver has no input.

It was recognised that an element of user preference is likely to be applied to how cautious or aggressively an autonomous vehicle behaves, which could prevent the full theoretical benefits of automation being achieved. This was applied to vary behaviour in Level III. It was also assumed that vehicles would be able to communicate with each other and could be configured to behave differently in different situations. For example, an autonomous car could be programmed to leave a bigger gap when following a "legacy fleet" car than when following another autonomous vehicle.

Atkins configured two road networks, one representing strategic motorways and A-roads and the other an urban network. They included common elements of the UK road network such as motorway intersections and merges, and for the urban network traffic lights, pedestrian crossings and dedicated public transport infrastructure.

Different levels of market penetration were modelled, from a base case with no autonomous vehicles, rising in 25% increments to one in which all vehicles had at least level II automation. A fleet of 100% level IV vehicles was also modelled to give a theoretical "upper bound" to performance.

On the strategic network a potential for reducing delays by almost 40% was revealed, assuming a fleet entirely of fully automated vehicles. But the results for lower proportions suggest that "a high penetration of connected and autonomous vehicles is required to achieve significant benefits". With AVs making up around 25% of the fleet, "benefits are negligible".

For the urban model, results show a much greater improvement with low levels of autonomous vehicles. At 25% of the fleet, average delay was reduced by 12%, average journey time by 21% , and journey time variability by 78%. Further modelling showed that the improvement was greatest where congestion was high. In a low congestion model, reliability improved by 30%.

The study says that in high speed, high flow situations as on the strategic network, at low market penetrations, automated vehicles are limited by the behaviour of other vehicles and are not able to make use of their capabilities. There may be a "tipping point" when they reach 50%-75% of the fleet. In urban areas the benefits are gained from better control of speed, maintaining spacing and reducing unnecessary acceleration and deceleration, rather than being able to travel faster and more closely.

Commenting on the study, transport minister John Hayes said: "This study shows that driverless cars could vastly improve the flow of traffic in our towns and cities, offering huge benefits to motorists including reduced delays and more reliable journey times."

New group backs hydrogen for transition to clean energy

Alstom's hydrogen-powered Coradia iLint train will go into service this year

Alstom is one of 13 international energy, transport and industry companies which have come together to promote the role of hydrogen technology in the transition to a clean, low-carbon energy system and in decarbonising intensive energy-using sectors such as transport.

The 13, also including BMW, Daimler, Honda, Toyota and Royal Dutch Shell, launched the Hydrogen Council at the World Economic Forum at Davos last week.

"Hydrogen is a versatile, clean, and safe energy carrier that can be used as fuel for power or in industry as feedstock," and which produces zero emissions at the point of use, the council says in a report *How hydrogen empowers the energy transition.*

Hydrogen technologies and products have significantly progressed over past years and are now being introduced to the market, the council says. The gas can be used to generate power or heat in fuel cells, combined heat and power units, burners and modified gas turbines.

The council plans to work policymakers, business and hydrogen players, international agencies and civil society. At the launch,, members confirmed their ambitions to accelerate investment in the development and commercialisation of the hydrogen and fuel cell sectors.

Last September Alstom launched the Coradia iLint train, powered by a hydrogen fuel cell. Alstom is marketing the train as an alternative to diesel power for sections of the rail network where electrification is not economic. The trains will first go into service in Germany, on the Buxtehude-Bremervörde-Bremerhaven-Cuxhaven line in Lower Saxony, in December this year.

The council says hydrogen has a role to play in overcoming a number of barriers to the transition to cleaner energy. Increasing use of intermittent renewable energy supplies will result in a mismatch between supply and demand. Using electricity produced when supply exceeds demand, hydrogen can be produced by electrolysis and stored, or used in industry or transport. Similarly hydrogen could replace fossil fuels in providing a strategic buffer for the energy system, to be used to absorb supply chain shocks and rectify imbalances between supply and demand.

It could be used in sectors that are hard to covert to electric power for technological or economic reasons, especially in transport. These include heavy duty goods transport, non-electrified trains, overseas transport and aviation. In addition there are sectors such as light-duty vehicles where electrification does not always meet performance requirements.

Hydrogen could be combined with captured carbon to create hydrocarbons to replace fossil fuel feedstocks in processes such as the production of plastics.

However, production of hydrogen must itself be decarbonised. It is currently produced in two main ways, through steam methane reforming (the most economic, but which uses a fossil fuel feedstock), and electrolysis.

It can be produced without producing carbon emissions if renewable energy is used in electrolysis or if steam methane reforming uses biomethane or is equipped with carbon capture and storage.

Alstom chief executive Henri Poupart-Lafarge said: "In Europe, the transportation sector is now the second biggest producer of emissions. Rail transportation is the cleanest and safest form of mass transportation and needs to become even cleaner. I am proud to be part of the Hydrogen Council to develop further this technology that will change the face of transportation."

Grayling starts procurement process for HS2 trains

Transport Secretary Chris Grayling last week launched the procurement process to supply trains for High Speed 2.

Up to 60 trains capable of 225mph will be ordered in a contract estimated to be worth £2.25bn.

Mr Grayling published the official notice advising of the formal start of the process in spring. He said: "Launching the hunt for a manufacturer of these trains is a major step towards Britain getting a new railway which will carry over 300,000 people a day. Hundreds of jobs will be created in building and maintaining these trains, representing a great opportunity for British-based businesses and suppliers."

HS2 Ltd managing director of railway operations Chris Rayner said: "We are looking for a supplier capable of delivering and maintaining some of the world's most advanced rolling stock, with designs putting the passenger at their heart to ensure seamless, accessible, fast and reliable journeys."

The trains would be required to "the highest standards internationally for passenger experience, noise reduction, and environmental sustainability, while maximising skills, employment and growth opportunities." The successful bidder will maintain the fleet from a rolling stock depot planned for Washwood Heath in Birmingham. The site will also be home to the HS2 network control centre.

An industry event will be held on 27 March where interested companies will be able to find out more about the bidding requirements and process. This will be followed by the launch of the pre-qualification questionnaire pack which will provide further details of the specifications for the trains. Bidders will be then shortlisted, and the formal invitations to tender issued in 2018. The contract award will be announced at the end of 2019. The trains are due to go into service in 2026.

The DfT also issued a prospectus giving more details of the West Coast Partnership, the new rail franchise which will combine the existing Intercity West Coast services with the development and introduction of services on High Speed 2.

The franchise, announced in November, will run services on the West Coast main line from 2019 as well as collaborating with HS2 to design and then run the initial high speed services for three to five years from 2026.

Chairman of HS2 Ltd Sir David Higgins said: "The partnership will be central to developing an integrated operating environment for future HS2 services – one that works with the existing network."

Meanwhile the hybrid bill for the construction of phase one of HS2 received its report stage debate in the House of Lords on Tuesday, following publication of the report of the House of Lords select committee on the bill and the Government's response. The bill still has to undergo its third reading in the Lords, followed by consideration of amendments by both houses, before Royal Assent.

Glasgow Subway to pilot mobile phones as ITSO smartcards

The Subway pilot will start around mid-2017

SPT is to be the first customer for Rambus Ecebs' host card emulation technology, which allows a mobile phone to act as a smartcard.

Passengers on the Glasgow Subway will be able to load pay as you go tickets to their phones in a pilot which is due to start later this year.

The announcement came at this week's Transport Ticketing Global show where the company launched an HCE ticket wallet and a configurable ticketing app, combining the smart ticketing platform developed by Rambus Ecebs and the cloud-based payments technology developed by Rambus Bell ID.

The ticket wallet securely stores and manages virtual smart tickets on the phone, while the ticketing app provides an interface to buy and fulfil tickets.

It enables travellers to load smart tickets to their phone at ticket vending machines. By adding Remote Ticket Download software, which complements the app, smart tickets can be delivered immediately to a smart phone without the user needing to go to a physical ticket machine.

Both the HCE Ticket Wallet Service and Ticketing App are compatible with existing ITSO-based infrastructure.

Rambus Ecebs MD Russell McCullagh said the company was in discussion with several potential customers among transport operators and expected to be running HCE trials "throughout 2017".

He said: "Some operators may have their own app supplier for ticket purchase and our HCE app will integrate with that. But others asked us to provide a ticketing app." The ticketing app is a "white label" product which can be customised with the customer's branding.

Mr McCullagh said the company hoped to add more services such as real-time information, journey planning and loyalty programmes to the package in due course.

He said that the developments had come about since the acquisition of Ecebs by Rambus last year, which had been followed by significant investment and also allowed synergies with Bell ID, another subsidiary.

First multimodal ticketing app unveiled

Ticketing system specialists Evolvi Rail Services and Penrillian demonstrated what is said to be the first mobile app to provide multimodal ITSO ticketing services at the TTG show this week.

The system allows passengers to plan journeys and buy and download tickets for a complete multimodal journey.

In the collaboration Penrillian provided its Voyager journey planning/ticket purchase app. Evolvi, which provides train ticketing services to the business travel market, supplied a back office capable of making payments to train operators in accordance with the Rail Settlement Plan. The RSP is the mechanism by which ticket revenue is divided between operators.

With the addition of fare information from bus operators, the app makes it possible to select a journey using different modes of transport and buy tickets from the phone in one operation to cover the whole journey. The tickets can then be downloaded from the phone to an ITSO smartcard using near field communication.

If the traveller's plans change, for example if they decide to go by bus instead of train for one leg of the journey, the phone app can also be configured to use EMV to allow seamless purchase of a ticket for that leg using the customer's chosen payment card.

This also means operators will be able run ITSO and contactless ticket systems in parallel.

Penrillian worked closely with the Rail Delivery Group to make sure the app complied with Rail Settlement Plan standards.

Penrillian chief executive Joanne Thompson said: "It is clear that mobile ticketing is the future and there are a number of organisations and operators that have made huge strides, but the big issue still to be addressed is seamless integration across ticketing services operating in individual silos. We believe that we have made a major breakthrough, for the first time bringing rail together with all other modes of public transport to provide passengers with the ability to plan, buy and download ITSO tickets for their entire journey."

Leeds submits plan to double bus use

Leeds City Council will invest £180m in the city's bus services under a new transport strategy. The strategy, submitted for DfT approval early in January, sets out £270m of transport improvements to the city. It aims to double bus passenger numbers within 10 years and improve air quality.

Leeds has £173.5m of government funding to invest before the end of 2021. The sum earmarked by the DfT for the city's planned trolleybus service, which was scrapped by Transport Secretary Patrick McLoughlin last year.

The funding will be used for schemes that are in line with West Yorkshire Combined Authority's aim of supporting economic growth and the creation of jobs in the city region, developing an integrated transport network and improving health through more active travel and better air quality.

First West Yorkshire has pledged to invest £71m to provide 284 new state-of-the-art buses for its Leeds fleet by the end of 2020. This means the city's entire high frequency bus network would be operated by Euro VI or zero-emissions buses, reducing NOx emissions from the fleet by 87%. The city council is in talks with other bus operators about additional investment in their services.

Under the strategy over 90% of services on the core bus network would run at 10-minute frequency. There would be additional bus priority measures on main corridors. A new park and ride site would open at Stourton with an express bus serving the city centre. The current Elland Road park and ride service would be expanded and linked with other parts of the city. Smart technology would be used for ticketing and real-time information. Bus stops across the city would be improved, with real-time information at 1,000 more stops.

In addition three new rail stations are planned, a parkway on the Leeds-Harrogate-York line serving Leeds-Bradford airport, and two more serving the White Rose Shopping Centre and Thorpe Park to the east of the city.

City council leader Judith Blake said the council and its partners were continuing to consider options for a mass transit scheme for Leeds, but this would require significant additional investment and would not be achievable by 2021.

Fall in satisfaction on Southern and ScotRail

Transport Focus's latest National Rail Passenger Survey shows satisfaction with punctuality has declined significantly on Southern, ScotRail and Great Northern services. In Scotland, passenger satisfaction with punctuality has fallen six percentage points.

The watchdog's analysis shows that satisfaction is significantly lower for passengers who travel into London during peak hours. Transport Focus highlighted some particularly low scores for punctuality, value for money and dealing with delays for peak time passengers, with Southern scoring only 30% for satisfaction with punctuality and 12% for dealing with delays, and Gatwick Express scoring 12% for satisfaction with value for money.

It said these figures reflected a turbulent period affected by industrial action, reduced service levels and poor performance.

Transport Focus chief executive Anthony Smith said: "The results around the country are disappointing. Scottish passengers and those travelling in peak hours in London and the South East are bearing the brunt of poor performance.

"The timetable on parts of London and the South East's railway can be a work of fiction. Southern, Thameslink, Gatwick Express and Network Rail must continue to collaborate to produce a more robust timetable."

Over 29,000 passengers contributed to the survey. The organisation is undertaking further analysis on peak commuting outside London and the South East.

The new trains will have walk-through interiors and level access from train to platform

New trains for Merseyrail

Merseytravel has awarded a contract for a new fleet of trains for the Merseyrail network to Swiss manufacturer Stadler, following a 15-month procurement process, after Liverpool city region leaders approved the £460m project.

The 52 four-car trains will enter service by the end of 2020, replacing the current 40-year old fleet. They will be owned by Merseytravel and will be designed specifically for the network.

Capacity will be 60% greater, though the number of seats will be the same, and journey times will be cut by 10%. It is planned that the trains will eventually be able to run beyond the network's current boundaries to Skelmersdale, Wrexham and Warrington.

Internally the trains will have a "walk-through" design with no dividing doors. In a first, there will be almost level access from train to platform through a combination of the train body design and platform improvements.

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Scottish Transport Minister

Valerie Shawcross CBE,
Deputy Mayor of London
for Transport

Martin Griffiths,
Chief Executive,
Stagecoach

David Brown,
Chief Executive,
Go-Ahead

Laura Shoaf,
Managing Director,
Transport for West Midlands

Leon Daniels,
Managing Director Surface
Transport, Transport for London

The third annual UK Bus Summit will be held in London at the QEII Conference Centre, Westminster on 9th February 2017 and once again is supported by the Department for Transport.

Following its resounding success in 2015 and 2016, the UK Bus Summit has become the central platform for a national policy discussion on issues facing the bus sector. Discussion will focus on the crucial role that buses play in supporting society and stimulating the economy; the range of successful technologies available for tackling pollution; and, the scope for improved ticketing and information to enhance the passenger experience. The event will also provide a forum to analyse and debate the strengths and weaknesses of the contrasting delivery models.

The Summit is a must-attend event for anyone who wants to be up to speed with all the latest developments in the bus industry.

Additional confirmed speakers include:

- Dr. Manfred Rudhart, Chief Executive, Arriva
- Giles Fearnley, Managing Director - UK Bus, FirstGroup Plc
- Prof David Begg, Chief Executive, Transport Times
- Anthony Smith, Chief Executive, Transport Focus
- Claire Haigh, Chief Executive, Greener Journeys
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Low-carbon vehicles: why we need a bold approach

Active government support for low emission transport will improve air quality and health as well as encouraging a successful industry, says **John Hayes**

In the long run we are all dead, wrote John Maynard Keynes. He meant that long term history didn't really matter, and he was wrong. The implication that government should attend to the present at the expense of the future is unworthy. If, as Edmund Burke argued, society is a partnership between the dead, the living and the unborn, then governments have a responsibility to the past and future, as well as to the present.

It is the Government's ascription of value to the future, as well as the present, that motivates much of our support for low-carbon vehicles. Every year the evidence grows of the harm that is done by fossil-fuel engines, harm to people's everyday wellbeing. Without action, that injurious trend will continue.

It is true that, thanks to the efforts of manufacturers and legislators, air quality has improved significantly in recent decades, but there is much more to do, particularly to reduce levels of nitrogen dioxide. That is why since 2011 we have committed over £2bn to measures to reduce pollution from transport, and the rate of investment continues to increase. In the 2015 spending review we announced £600m to support the electric car industry, and the autumn statement saw a further £270m to support greener buses and taxis and the continued development of a charging infrastructure.

This funding is contributing to the biggest transformation of the automotive sector since the repeal of the law that cars must be preceded by a man waving a flag. In 2013, there were just 3,500 electric cars on our roads. Today there are at least 80,000. Next year there will be many more still, and our plan is that by 2040 all new cars and vans sold in our country will produce no exhaust emissions.

Charging an electric car should be as easy as filling up with petrol or diesel. Happily, in some parts of the UK there are already as many charge-points as petrol stations, and across the country as a whole there are over 11,000 of them, the largest rapid charger network in Europe. Provision is increasing all the time.

But while the government can support automotive change through new funding and legislative requirements, it can neither wholly engineer the change we need, nor take credit for the change when that occurs.

The pressing need to tackle the emissions which pollute and poison is important for the common good. So we must be bold. And in this country, both manufacturers and their customers are exactly that. The world's most popular electric car, the Nissan Leaf, is made in a Sunderland plant that recently made more cars in a year than all Italy managed. So far the plant has produced over 50,000 Leafs, which have driven over 1.1 billion emission-free miles Last year, more electric vehicles were sold in the UK than in any other EU country.

> **The world's most popular electric car, the Nissan Leaf, is made in Sunderland**

The UK's low emission vehicle industry is a huge success and a strength in our economy. Following the vote for Brexit, in the autumn Nissan made a commitment to building two new models at the Sunderland plant, securing thousands of jobs. China's Geely is investing £300m in a new electric vehicle plant in Coventry, and British bus maker Alexander Dennis has signed a deal with China's BYD to make electric vehicles, potentially worth £2bn.

This focus on electric vehicles should not obscure the reality that the greening of our transport requires a diversity of fuel types. Heavy lorries, for example, will require liquid fuels far into the future. The concept of an all-electric aeroplane doubtless stretches the imagination of even the most futuristically minded engineers. So alongside our commitment to electric vehicles, we are investing in biofuels, with a focus on encouraging those made from materials which would otherwise be discarded.

Already, biofuels supply around 3% of our total transport energy, and we've seen biofuels deployed under our Low Carbon Truck Trial, where one operator used waste cooking oil to power its fleet. Gaseous fuels are also being deployed in freight by retailers such as John Lewis.

I want to encourage investment in sustainable aviation fuels produced in the UK by making them eligible for renewable transport fuel certificates. And in the autumn statement we announced that a further £20m would be made available for the development of alternative fuels for both heavy lorries and aeroplanes.

Yet in considering the way that transport is being transformed, I am reminded that the future is not predetermined. The cleaner, greener transport future we want must be chosen, fought for and won. We cannot take success for granted.

The poet Ezra Pound wrote that when you cannot make up your mind which of two evenly balanced courses of action you should take, choose the bolder. I am certain that in turning with vigour to low-carbon vehicles we are taking the bold road – and heading in the right direction.

John Hayes is Minister of State for Transport and MP for South Holland and The Deepings

Wanted: a way to manage growth in freight traffic

Traffic is rising fastest among lorries and vans rather than private cars, a result of retail and consumer trends. The problem is how to limit the increase without harming productivity

Road traffic just keeps on growing, just like in the cheap oil price years before 2006. Then it reached what looked like a limit, and several years of decline followed. Fuel prices rose, and demand levels stayed down. With trends in Sweden appearing to show the direction the UK was heading, the hot topic became "peak car".

But now there is a turnaround. The 320 billion vehicle miles travelled on Great Britain's roads in the year ending September 2016 were not only 1.4% higher than the previous year, but 1.8% higher than the pre-recession peak of 2006/7. Traffic is at an all-time high, having increased in each of the last 15 quarters.

This creates a stable policy environment for highway investment, which is proceeding at a pace not seen since the mid-1990s, following the battle for the Newbury bypass.

Volume is growing most strongly on motorways, at 2.5%, while minor road use remains largely unchanged. Motorway traffic growth is partly a response to the programme of managed motorways with additional lane capacity; over the last year, traffic speeds and delays on the strategic road network have held pretty constant.

Focus groups will report back public support for road-building. But ministers, if they seek advice, will be told that road network capacity expansion cannot keep up with demand growth.

Still, that might look like a problem that can safely left to successors, what with the excitement of hi-tech solutions like lorry platooning and autonomous vehicles, to which proponents, mistakenly I suspect, attribute a capability to reduce congestion.

It's only when attention turns away from the transport sector that increased road use is seen to have really awful consequences: poor air quality, with increasing non-compliance with statutory targets, contributing to multiple poor health conditions; children walking less and less – an obvious factor in the obesity crisis; and over the last five years, road accident casualty rates no longer diminishing each year as had been the established trend. So there are still around 25,000 killed or seriously injured road users of all types, part of the huge strain on the NHS's accident and emergency services.

You don't have to be an expert to make these connections. We'd get better outcomes if DHSS took over highways policy.

We can't build enough road capacity to solve the road traffic growth challenge partly because of the high level of suppressed demand that gets promptly released ("induced") whenever traffic conditions ease. And because of the wider health and environmental consequences, a fresh look at mechanisms to manage demand is needed.

> **It's only when attention is turned away from the transport sector that increased road use is seen to have really awful consequences**

Indeed, at the Highways Agency a decade ago, before the upsurge in road-building budgets, attention had turned to effective management of a substantially unchangeable network. This led to turf wars with developers keen to open business parks, retail centres and the like, many to be handily connected at motorway/trunk road intersections. The developers often won – and the legacy is queueing at key junctions.

One of the gentlest of the then available management measures was an obligation on developers to produce and abide by travel plans – especially at workplaces. For major new developments, showing in particular how peak journey-to-work car travel would be managed became an essential hurdle to gaining planning consent.

But travel plans are now merely tick-box exercises, with little fear of enforcement. Outside the unitaries, enforcement falls to district councils, which are not the highway authorities, and unsurprisingly, with massive budget cuts, their priorities lie elsewhere. And in any event, it's not car travel that is growing strongest: it grew by just 0.9% annually, according to the most recent DfT statistics.

No, it's HGV traffic, which grew by 3.4%, and LGV (van) traffic, which grew by 3.8%, to reach record levels in both categories. So it could be logical to try to manage the fastest-growing traffic sector, which is freight/logistics, not private car travel. The challenge will be to do so in a way that improves rather than harms productivity, as the Government's industrial strategy will surely intend.

Nationally, HGV and van traffic is affected much more by consumption patterns than by industrial activity. Rapidly evolving and highly competitive retail sector trends, with ever-shorter delivery times and free returns, are a key factor behind growth, at least for van traffic. So there is an important consumer angle, and the impact of high levels of van traffic will be felt at local, community, levels.

Current delivery patterns are probably not sustainable financially, and have poor environmental consequences; this has led to attempts to find ways of consolidating deliveries, for instance to large multi-user buildings.

It's surely better to try to manage van traffic than to face a deluge of drones.

Jim Steer is director and founder of Steer Davies Gleave.

Louise Ellman

Is the maritime sector equipped to compete?

The Government's Maritime Growth Strategy set out recommendations to make sure the sector remained internationally competitive. The Transport Committee is about to evaluate progress

There is no doubt that the UK has a proud maritime history, and maintains a central role in the global maritime sector, including shipping and ports, the growing cruise industry and a wide range of associated maritime business and training services. The vital importance of maritime to the UK economy is clear. It supports around 500,000 jobs and contributes over £22bn to the UK's GDP.

Growth in UK maritime is particularly important in the current economic and political situation – it brings substantial inward investment to the UK and makes a positive contribution (nearly £2bn) to the UK's balance of trade. A competitive and vibrant UK maritime sector is likely to become even more important to the UK after Brexit.

The sector has never been promoted sufficiently to reflect its importance. This must change.

It is anticipated that global seaborne trade will double by 2030. The UK will only benefit from this expansion if it competes effectively with overseas maritime centres, including those emerging in south-east Asia and Africa.

All this is well understood by the UK maritime industry. In late 2015, following an in-depth consultation and analysis of the UK maritime sector conducted by Lord Mountevans and his team of experts – the first such analysis for nearly two decades – the Government published the Maritime Growth Study. The important report represented an alarm call for the sector and policymakers. It contained 18 recommendations for action, under headings including leadership, skills, and marketing.

The Department for Transport took some initial steps about a year ago to improve its work in the maritime sector, establishing a cross-departmental ministerial working group for maritime growth. The working group was to act as a single point of contact for inward investors, and a mechanism for coordination and development of government policy.

For its part, the industry has broadened its representative body, Maritime UK, bringing together the UK's shipping, ports, marine and business services sectors, to "drive forward an ambitious agenda for growth, to promote the UK as a world-class maritime centre and to unite the maritime community in meeting the challenges of tomorrow."

The Government and industry have both recognised the importance of increasing the size of the UK Ship Register,

> **The sector is likely to become even more important to the UK after Brexit**

and promoting and enhancing commercial expertise and culture within the Maritime and Coastguard Agency.

Key skills recommendations included the development of an overarching maritime skills strategy and the establishment of a Maritime Skills Investment Fund. The study identified the need to more clearly establish the UK's longer term requirement for seafarers and the adequacy of current training schemes; extend maritime apprenticeships; and introduce maritime themes into primary and secondary education, raising awareness of the maritime industry among the young.

In relation to marketing, the study identified the necessity for an industry-wide strategy, including advertising campaigns and a single maritime careers portal. Opportunities to promote UK maritime through campaigns and Department for International Trade delegations and embassies must be pursued and awareness must be raised among financial institutions of investment opportunities in the UK maritime sector.

How far have these proposals progressed in the last year? To what extent have specific recommendations been implemented? Is the UK's maritime sector successfully positioning itself to maintain its place as a world-leading maritime hub, and compete with emerging maritime nations for future global growth? Does it now have a coherent vision, effective leadership and a solid and growing skills base?

That is what the Transport Committee is keen to find out. Just before Christmas, the committee announced an inquiry, principally intended to assess the implementation of the Maritime Growth Study's recommendations, and also to consider the likely implications of Brexit for the maritime sector and how the strategy may need to evolve.

It is vital that a wide range of people and organisations with an interest in the sector contribute to our work: if that includes you, please take a look at the terms of reference available on the Transport Committee's webpages at www.parliament.uk/transcom – your thoughts and ideas are very welcome.

We want to ensure that momentum is maintained, and help the sector to forge ahead. We will be hearing oral evidence, and will publish our conclusions and recommendations, later this year.

Louise Ellman MP is chair of the House of Commons Transport Select Committee and Labour MP for Liverpool Riverside.

Making the road network work for users

Research from Transport Focus discovered that road users accept that disruption is unavoidable if improvements are to be made to the road network – but only up to a point

Is there a typical user on the strategic road network? Probably not, considering the number of people using it every day and the multiple reasons people need to use motorways and major A-roads.

So let's imagine one type of user – let's call him Ron. Ron is a lorry driver, mainly travelling between parcel distribution centres up and down the country throughout the night. Will Ron care about how our road network is run? Will he care about the Government's plan for future investment in our roads?

As the watchdog for roads over the last 18 months or so, Transport Focus has been out and about speaking to road users finding out what people like Ron think about the major roads in England. We strongly believe that these views should inform the key decisions that are taken about planning and managing the road network.

Highways England now has a long-term investment plan. The user view should be at the heart of this investment. We have been using what road users have told us in our contribution to the forthcoming Route Strategies that will inform the post-2020 road investment strategy period.

Drivers have indicated that the majority of their journeys on the network are satisfactory, although many have experienced problems over the past year. Road users told us quite firmly that their long-term wish for improvement is to see congestion reduced and traffic flow improved.

We asked about satisfaction in order to pinpoint some specific improvements. The worst problems on the network, perhaps unsurprisingly, were found to be on the A3 or M3 to Southampton, with more recent issues due to the roadworks while the smart motorway is built. One driver highlighted the problem with congestion there: "The traffic is at a crawl driving northbound towards Guildford on A3. Congestion usually starts just before Milford junction and adds at least 30 minutes to my journey to work every weekday."

But of course with so much investment happening at once on the network, there has to be a certain level of disruption that users need to put up with. So what do people like Ron make of it? They have strong views about disruption from planned roadworks. Our recent piece of research on roadworks and incidents looks at this in detail.

Our research shows that, overall, drivers are quite pragmatic, accepting that there will be some short-term pain for long---term gain – to a point. Road users have concerns that these regular delays have a cost to the wider economy. They want to see work done in shorter lengths or done in sections. They also want to see lots of activity when passing through the works, 24 hours a day. Ron, and other users like him, want to see Highways England getting on with the job in hand.

> **Road users' long-term wish is to see congestion reduced and traffic flow improved**

The freight industry is vital to our economy and roads are crucial to their operation. Therefore Highways England needs to work more closely with the sector to ensure that roadworks, road closures and diversions are well communicated to lorry drivers and their employers.

And then we come to unplanned incidents such as collisions. Drivers show empathy for those involved. However, such incidents can result in roads being closed for a long time with drivers trapped in stationary traffic. We were told that problems can arise for people who are pregnant, have a disability or if young children are involved.

Being freed from this situation as quickly as possible is the imperative. This might include providing welfare for those stranded such as food, drink or even blankets. It requires a concerted effort by Highways England to manage the situation.

A key ingredient to help users when incidents arise is the quality of information provided to them. People need good, clear, helpful information while they are travelling, from fixed and electronic roadside signs.

Information must be thought through from the driver's point of view. Any information should explain the cause of the delay, how long it is likely to go on for and what drivers can do instead. It should be in easily understood language. And why not explain to people what the benefit of their pain will be?

Some disruption – whether planned or not – cannot be avoided if the network is to be improved, to minimise that congestion in the longer term. By putting the user view at the heart, with some thought, changes are possible that could make people's journeys easier.

Back to Ron, then, and the question of whether he cares about how the road network is run. I believe he does care – as do the thousands of people like him making journeys on the roads every day. It's important that we listen to road users, to be sure that issues are addressed and that overall satisfaction and road users' experience is improved.

For more details see:
Road to the future: what road users want from Highways England's 2020-25 Route Strategies, November 2016
Incidents and Roadworks: a road user perspective, November 2016

Anthony Smith is chief executive of Transport Focus.

Derek Halden

More urgency is needed in reforming planning

The latest proposals to coordinate development and infrastructure provision in Scotland must be matched by a different mindset if long-sought objectives are to be achieved

Early in January the Scottish Government published its latest proposals for the planning system, promising what it calls an "infrastructure first approach". It makes sense for new homes, offices and shops to be built in the places that make best use of existing transport infrastructure, but too often development proceeds in locations where infrastructure is already stretched. The taxpayer is then left to pick up the bill for investment to keep the country moving. Will the proposed new system be fairer and more efficient?

An infrastructure levy is proposed, learning lessons from the community infrastructure levy in England and Wales. This would stand alongside existing site-specific section 75 consents to help fund essential infrastructure. In principle, the new levy could provide a fairer way to ensure that new development pays for its supporting infrastructure. However, support for the new policy depends on building confidence about what choices will be made for additional investment.

The new proposals have a helpful level of urgency. To speed things up, a national infrastructure and development delivery group is proposed. It is suggested that this new group will be able to prioritise infrastructure spending, broker solutions, contribute to detailed proposals for an infrastructure levy, and consider how developer contributions could work with wider funding and finance solutions to secure investment. If this is achieved, the new group will have met goals that have eluded planners for at least 25 years.

The difficulties in gaining consensus should not be underestimated. The uncertainty surrounding the on/off policies for the Glasgow airport rail link illustrates this well. When the current National Planning Framework was published to offer certainty about strategic infrastructure, the certainly lasted for less than two months before the government changed its mind. If any developer made investment choices around Glasgow airport on this basis, it would have lost out to developers that did not trust government plans.

Planning systems need a new mindset. In the fast evolving and restructuring economy, transport change is inevitable. Rather than seeking only to provide greater certainty, development frameworks must also do more to help manage uncertainty, with more explicit treatment of performance, risk and reward.

At a UK level, the broadly supported National Infrastructure Commission still has much to do to demonstrate its effectiveness. The proposed Scottish infrastructure and development delivery group will also be welcomed. The Scottish Futures Trust has been developing innovative ways to fund transport projects, but its remit also falls well short of establishing the certainty investors need.

> **For all the resources invested in the planning system, development has often not matched aspirations**

The new consultation paper honestly states: "Plans must lead to development on the ground. In practice this has proved challenging." The stark reality is that for all the resources invested in the planning system, the development that has resulted has often not matched aspirations. Over the last 20 years, the greatest profits from land development have tended to be made by the developers which minimised their transport investment. Planning authority expectations of developers, and developer expectations of planning authorities, must change for the new approaches to succeed.

A more functional planning system depends on better deployment of skilled staff. More attention is needed to the details of practice, not just to the intentions defined in frameworks. In daily practice, critical decisions about investment in the bus network, parking at new developments and street design are often left to inexperienced staff who lack the influence and skills to secure mutually beneficial solutions.

New types of partnership are needed to lock in commitments from all parties. Although such partnerships may at first appear more complex, the logic is to strip out time spent preparing strategic plans and instead invest staff time in partnership working.

A fairer, more collaborative future will depend on sharing the benefits of profitable growth in public transport patronage and sharing the pain of failure, with higher spending on infrastructure to maintain transport performance. However, with no current, clear or effective framework for future transport provision, it is optimistic to think that the new housing promised for this parliament will benefit much from the new approach.

The latest planning proposals are a step in the right direction but the pace of change seems glacial. If the proposals for consultation go through, they may finally succeed in implementing approaches that many have been recommending since the 1990s. Much more needs to be done, and quickly, to offer greater certainty, manage uncertainty and to nurture partnership delivery processes.

Derek Halden is a director of DHC Loop Connections and is secretary of Scotland's transport think tank STSG

The digital railway debate must widen its horizons

Autonomous vehicles could rival rail in providing a comfortable and safe travelling environment, and backers of the digital railway need to factor this into their thinking, says **Gavin Devine**

Over the past few years the idea of a digital railway has become voguish in the upper echelons of the British rail industry. Senior managers at Network Rail, among others, have spent a lot of time enthusing about a world in which trains, tracks, signals and stations are transformed thanks to the power of big data, cloud computing and the internet of things. And in his recent autumn statement Philip Hammond gave £450m to kick-start the digital revolution.

The chancellor's money is intended to improve signalling, but that is not the limit of what the digital railway might be. It may include smart systems telling passengers waiting at stations ahead which carriages are less busy, or sensors in the track or trains which anticipate failures and so limit the number of delays, or simply opening up existing data to improve information flow. All these and many more seem likely to be part of a new and better digital future.

There have been several critiques of the digital railway craze. The least persuasive is that it is a distraction, and that Mark Carne and others should focus instead on running the railway of today – rather like urging the senior management of Kodak a few years back to focus on film because digital cameras wouldn't add up to much.

A more interesting criticism is the opposite: that railway executives and policymakers should just get on with it. Lots of industries are being transformed by technology and data, and don't feel quite the same need to opine about and inquire into the subject. Instead they are embracing it and changing fast. With luck, the new £450m will lead to action rather than words.

The best criticism of all is that we are not thinking big enough: that proponents of a digital railway are not paying sufficient heed to what is happening across the transport sector, and the dramatic impact that developments elsewhere might have on rail.

A recent article in *Advertising Age* asked how to market and sell an autonomous car. After all, sexy, speedy motors will eventually be a thing of the past, replaced by a safe cocoon travelling at a constant speed in which drivers are liberated to watch TV. How do you sell that?

The answer is in the same way that you sell a train journey. You talk about outcomes: seeing friends and family, going on holiday, economic development. You talk about the comfortable and safe travelling environment. You talk about how you can get on with other things as you travel. In short, you take the Rail Delivery Group's recent advertising campaign and repurpose it for the car.

> **If your car journey so much resembled a rail journey, why would you ever catch a train?**

But then if your car journey so much resembles a rail journey, why would you ever catch a train? If you can get into a pod outside your door, which navigates seamlessly and without delays to a trunk road, where you join a steady stream of other pods travelling exactly 2m apart at a uniform 60mph into town, where your pod detaches itself from the "train" and delivers you exactly where you want to go… why would you ever need trains at all?

There is one issue with this, of course: capacity. The roads are full. Autonomy and intelligent systems will help get more out of the road space we have, but we might one day need more. Where will available corridors of land be found, wide enough to take significant numbers of vehicles, with limited gradients, going to and from the places people want to go? Oh, hang on…

This is what the digital railway debate ought to focus on: not so much what the railway will look like in 10 years, but what it will be in 50 years – or whether it will even exist. Probably there is a role for rail – particularly perhaps high speed rail – in the long-term. But rail won't have a future at all if we don't start thinking big now.

Gavin Devine is chief executive of Newgate Communications

Gavin Devine: "Autonomous cars could be marketed like trains"

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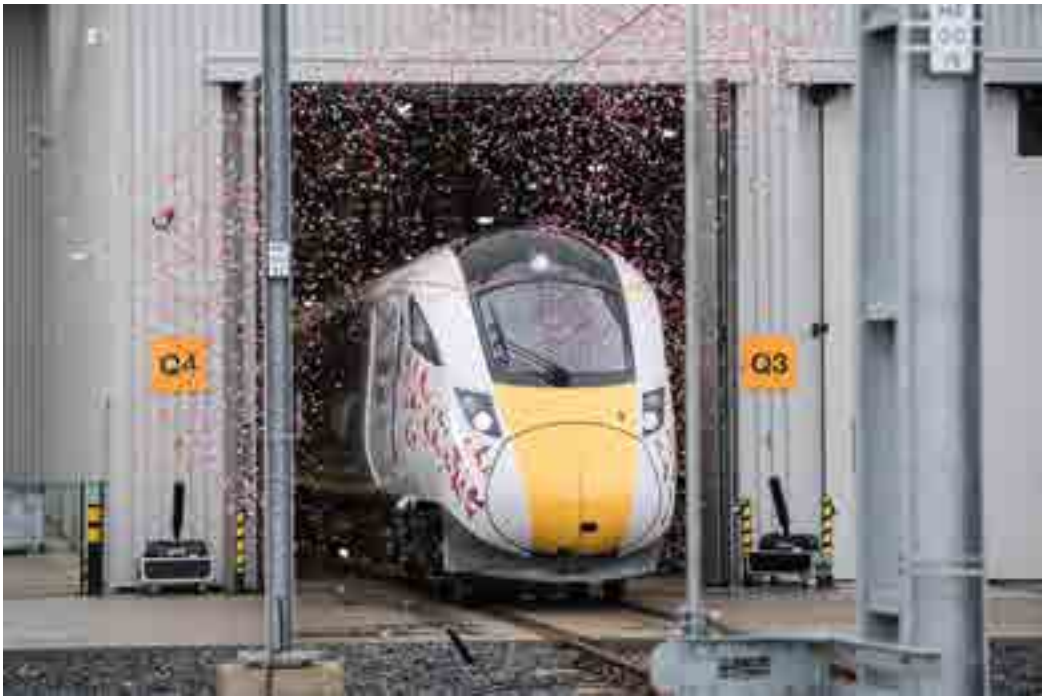
Rail skills return

Hitachi Rail Europe's Newton Aycliffe plant is bringing rail engineering and manufacturing knowhow back to north-east England. **Jeanette Bowden** reports



Hitachi's roll-out in December of the first train for the Intercity Express Programme to be produced in its Newton Aycliffe plant in County Durham was an important milestone in the regeneration of rail manufacturing in the north-east of England – a region that, through locally born "father of railways", engineer and locomotive exporter George Stephenson, was instrumental in giving railways to the world. Now it appears the process is being reciprocated, as Hitachi couples Japanese bullet train engineering with British manufacturing.

Speaking at the Newton Aycliffe event, Hitachi railway systems business unit vice-president and executive officer Kentaro Masai said: "It is my greatest pleasure to be here today to celebrate the completion of the first Hitachi IEP train manufactured in the UK. It was 90 years ago in 1926 that a senior Hitachi engineer first visited the North of England to study the leading edge railway technology of the time. Today, we have a modern intercity train built in the North East by combining the best of Japanese technology delivered with the best of British manufacturing. "

Hitachi opened its manufacturing site in Newton Aycliffe in September 2015 to support the £5.7bn Intercity Express programme, under which 122 new Class 800/AT300 trains will go into service on the Great Western and East Coast main lines.

At the time that Hitachi was awarded the contract, Bombardier Transportation's Derby site was the only remaining train manufacturing factory in the UK, solely responsible for flying the flag for rolling stock engineering and manufacture in Britain, despite an increasingly serious dearth of new talent in the sector. The UK rail industry was failing to attract sufficient new graduates and apprentices, particularly among women, or from diverse backgrounds. Hitachi Rail Europe managing director Karen Boswell is acutely aware of this imbalance and advocates the benefits of skill diversity in the workplace. Speaking at the Rail Study Association annual conference in 2016 she said: "A lack of diversity means that too many people from a variety of different backgrounds with relevant skills simply feel they don't belong in rail, and rail doesn't belong to them. But the lack of diversity in our industry isn't just confined to gender. It relates to backgrounds, skills, ethnicity and age.

"We should have a diverse industry because it is the right thing to do. But every bit of available evidence suggests that diverse teams and organisations work better. Fundamentally, they produce better business outcomes.

"The Newton Aycliffe plant's workforce is set to increase to 900 by spring"

Clockwise from left: the first UK IEP is unveiled in December; Hitachi has also received orders for AT300s from Hull Trains; the Newton Aycliffe plant; a class 800 at Paddington on the GWR's 175th anniversary last June

We want more young people to be inspired to take up a career in engineering. To fill the industry's skill gap – and be the future of rail."

The rebirth of rail manufacturing in County Durham has facilitated a shift in this regard. Hitachi's plant at Newton Aycliffe currently employs 700 people – set to increase to 900 by spring, with 50 new apprentices. In addition, maintenance facilities are being created in Doncaster, Bristol, Swansea and London, with the company committed to employing 2,000 people at 14 UK sites by 2019.

In order to encourage interest in the rail sector among the younger generation it seeks to attract, Hitachi has engaged in initiatives such as becoming a co-founder and business sponsor of nearby university technical college UTC South Durham. The UTC opened last September, the first of its kind in the North East, specialising in advanced mathematics and engineering coupled with practical work experience. When it achieves full capacity there will be 600 students aged from 14-19; Hitachi is committed to working on a number of projects with the students, regularly hosting visits as well as attending classes to offer expert knowledge.

Additionally, the Newton Aycliffe site runs a term-long programme of activities with a local primary school which involves maths, history and language skills, its principle being to promote the merits of science, technology, engineering and mathematics subjects to students in primary schools in a bid to inspire the next generation of rail workers.

The philosophy of long term skill development is espoused by Japanese culture and was expressed by the Japanese ambassador, Koji Tsuruoka, at December's roll-out. He alluded to the parallel automotive example of Nissan in Sunderland where 39,000 jobs have been created over a 30-year period.

Although the first 12 pre-series trains for the IEP were built in Japan, the remaining 110 trains, from a total order of 122 (866 carriages) will be assembled in the UK. Hitachi has stressed its commitment to local sourcing of equipment with 70% of equipment being sourced within a 50-mile radius.

Hitachi's commitment to a skills legacy in the UK is echoed at the National College for High Speed Rail in Doncaster, where, alongside Hitachi's new £70m rail maintenance facility, other rail industry names such as DB Schenker and Volker Rail also have bases. The college hopes to address the skills gap in an industry that has identified a requirement for 100,000 new people over the next 10 years.

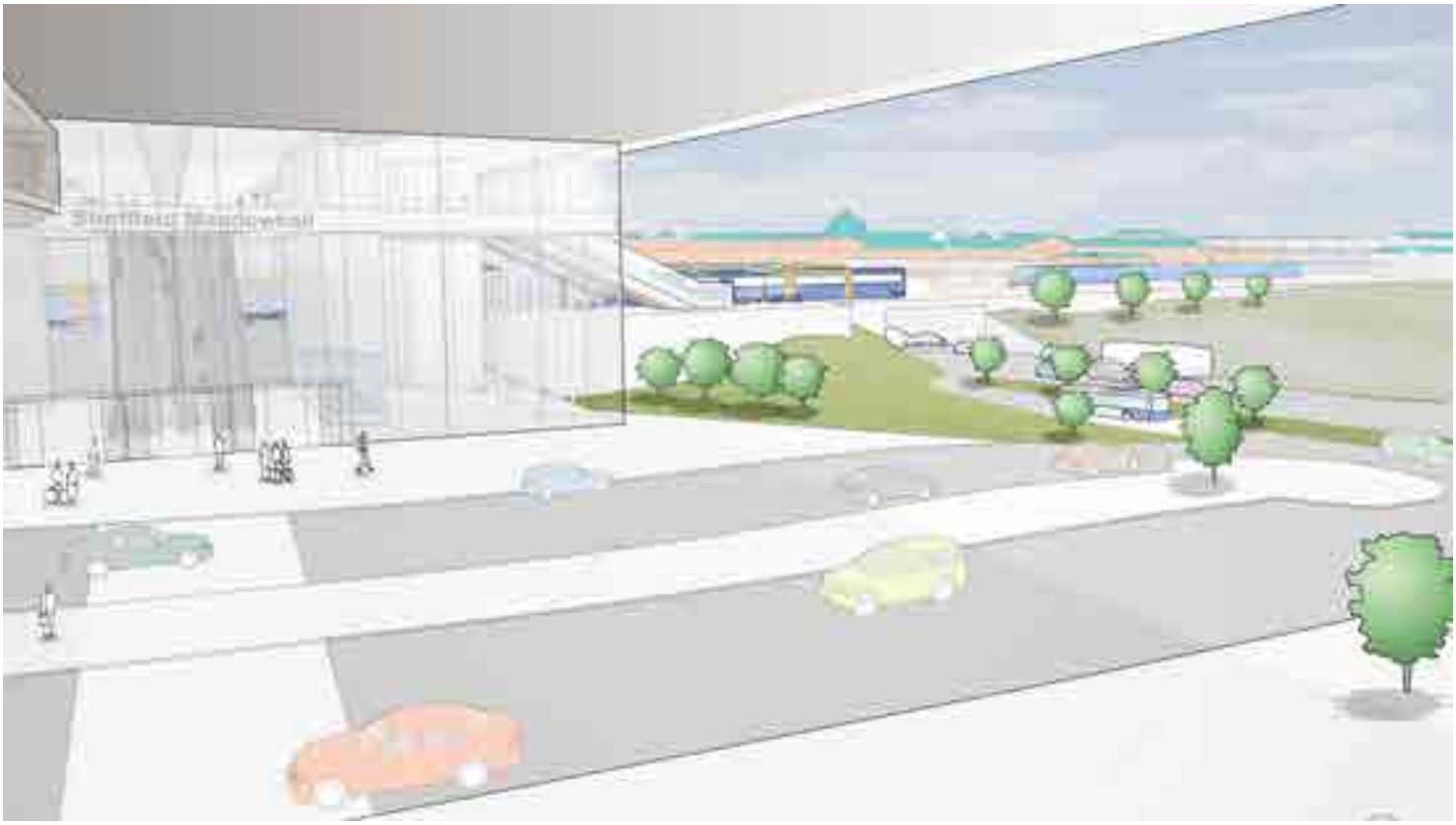
Bi-mode technology

The IEP programme marks a technology first: trains introduced on the Great Western route this autumn will be the first passenger services to use bi-mode technology, capable of operating under diesel or electric power. Great Western Railway managing director Mark Hopwood says: "The new trains will provide a step change in passengers' experience on the Great Western network, and will result in more frequent and faster journeys, and an increase in the number of seats available."

Hitachi's bi-mode technology appears to be proving attractive as a solution on routes where the business case for full electrification cannot be made, or where electrification has not yet been introduced on the network.

Hitachi has received contracts to supply 19 five-car AT300 bi-mode trains for the new TransPennine Express franchise and five for Hull Trains, both operated by First Group. On the latter route, when the new trains come into service in 2019 they will operate under 25kV 50Hz AC on the East Coast main line between London and Doncaster, switching to diesel mode on the unelectrified line to Hull and Beverley.

At the time of the contract award last November Hull Trains head of engineering Jon Plowright said: "These bi-mode trains will bring the benefits of electrification to our region, ensuring that Hull and the East Riding remain competitive and connected to the capital in the long term."



The Government appears to favour the proposal to serve Sheffield city centre directly, rather than via a station at Meadowhall

The pace accelerates

As HS2 enters a year of intense activity, the focus is changing from the design of the line to the nature of the services that will use it, writes **David Fowler**

The second phase of High Speed 2 to Leeds and Manchester could be completed three years earlier if the Government were prepared to allow the budget to be spent more quickly, HS2 chairman Sir David Higgins has told MPs.

He told a one-off session of the Transport Select Committee in December, convened to consider progress and next steps on the project, that phase 2b could be opened by 2030 rather than 2033 without an increase in the overall budget.

The HS2 chairman's remarks followed a period of intense public activity for the project.Late last year, the Government published a command paper announcing its preferred route for phase 2b and started a consultation on route refinements, and three contracts were awarded for enabling works for phase one, which are mobilising to start this spring (*TT*, December).

Activity will rise to a new pitch this year. The House of Lords select committee for the phase one bill finished its work, paving the way for the bill's third reading in the Lords and Royal Assent.

This in turn will allow phase one construction contracts worth £9bn to be let. Later this year, the hybrid bill for phase 2a, from Birmingham to Crewe, is expected to be submitted to parliament, and in September the National College for High Speed Rail, in Birmingham and Doncaster, will take in its first students.

The start of procurement for HS2 rolling stock was announced last week. And tenders will be invited later this year for the new West Coast Partnership franchise, which will run from 2019. The franchise will combine current intercity West Coast services with the development and introduction of High Speed 2 services, with the winning bidder collaborating with HS2 Ltd to design, launch and operate services for the initial years of operation, and on the transition of the timetable on the West Coast main line as it is revised to take advantage of the extra capacity provided by HS2.

This development has been welcomed by high speed rail lobby group Greengauge 21. It said the Government command paper "marks a welcome shift in emphasis from new infrastructure to what can be achieved with it", adding: "The focus must increasingly be on the links with the existing network and the pattern of services that will actually use HS2, as well as on how train services on the West Coast, Midland and East Coast main lines will be reconfigured post-HS2."

It called the announcement of the West Coast Partnership highly significant. "This is where the specification and design of the initial high speed services for the first three to five years of HS2 operations will be set." The process will finalise commitments for HS2 services running partly on existing lines to serve towns and cities such as Liverpool, Warrington, Preston, Lancaster, Carlisle and Glasgow.

Sir David Higgins told the transport committee: "We are very supportive of the department's recent announcement about combining the early years of phase 1 operation of HS2 with West Coast, which will give us a chance to plan the early commissioning of HS2." He added: "It brings to HS2 private sector expertise as to marketing and planning from 2019 onwards, well before we would be able to go out and realistically get a franchise operator."

Sir David's remarks about speeding up phase 2b came in response to a question from Manchester MP Graham Stringer about the project's spending profile. Mr Stringer recalled that at the start of the HS2 project, "the then Secretary of State said that HS2 would have roughly £2bn a year

spent on it. Presumably the spend profile will not be [as even as] that?"

Sir David said maximum spending would occur around 2022-2024, when phase 2b would start "ramping up", the Crewe section would be under way and phase 1 would be "well into the main construction and early commissioning". He added: "You can deliver stage 2b by 2030, if you do not put cash constraints on the delivery. The 2033 date is based on cash-limiting."

The question was what was most efficient "from a resource point of view", he continued. There would also be "a big call on resources from Highways England at around the same time. There is about £14bn of resource expenditure work going through that period." The decision would be "a matter of sensible planning of resources and cash flow" for the Government.

He said that early completion "would certainly bring the benefits further forward… because if you can deliver it quicker, you should be able to reduce the overhead costs."

Sir David did not anticipate that HS2 would find itself competing for limited funds with projects such as Crossrail 2 but added: "It is more the legislative timetable in the House that will be the challenge. You will have three or four different major projects that require a hybrid bill. At the moment, custom and practice has one hybrid bill at one time." Even if one bill is in the Lords, it is not customary to be considering another hybrid bill in the Commons.

Meanwhile, the DfT has asked Network Rail to develop proposals for investment at the existing Crewe station to create a Crewe Hub. This would be additional to the existing HS2 scheme and budget, and a decision will be made this year.

HS2 has been asked to carry out more detailed work on train planning for options to serve Stoke and Macclesfield via a connection to the conventional network. Greengauge 21 called this a "welcome move", but added that options to run beyond Macclesfield to Stockport and Manchester Piccadilly should also be considered.

There are more options still to be decided on the eastern limb, the biggest concerning the route through Sheffield and South Yorkshire. The command paper indicated that the Government favours last year's Higgins proposal to drop plans for a parkway station at Meadowhall. Instead a spur would allow services to run on existing track directly to Sheffield Midland and Chesterfield, while the main HS2 route would run further east, close to the M18 (*TT*, July).

Sir David said: "Sheffield has been, without a doubt, the hardest of any solution. The more work we did on the proposed Meadowhall route, the more difficulties we found. It was a huge structure, 4km long, 25m up in the air and 60m wide in places. A lot of people started to criticise the size of the structure and the impact it would have on the environment and the community. The more we did the traffic calculations, the more complicated the area became."

The biggest market for high speed services in the area was southern Sheffield and northern Chesterfield. "Not only the local authority but the business community consistently said that they did not support Sheffield Meadowhall at all, because it was not Sheffield city centre, so that caused us to look at schemes again."

A high-speed line through the centre of Sheffield in tunnel was ruled out on the grounds of flood risk, but HS2 went back to earlier work and re-examined the M18 route. This was £900m cheaper, made possible faster journey times to Leeds, and allowed Sheffield city centre to be served via the spur.

The spur would make possible an 85-minute journey from Sheffield to London and would allow connections with east-west services at Sheffield Midland. A northern connection back to the main HS2 route to complete a loop opens up the potential for a half-hour service from Sheffield to Leeds, meeting one of Transport for the North's aspirations.

Greengauge 21 points out that this would expand the benefits of building HS2. Whether the spur should be extended into a full loop is among questions posed in the consultation document, and whether funding and construction of the northern part of the loop, and any upgrade of Sheffield Midland station, would fall within HS2's remit or that of TfN or Network Rail will probably not become clear until the Government responds to the consultation, expected in the autumn.

Greengauge 21 also notes that "once it is acknowledged that the solution might in part at least consist of upgrading existing lines, it might be that there are HS2 options with Sheffield on the line of route that have been overlooked".

A parkway station is being considered on the M18 route to serve the catchment further east, but Greengauge 21 points out: "Such an arrangement in Cheshire has been wisely rejected in favour of a new rail hub integrated with the existing station at Crewe. So why not consider a similar approach on the eastern side centred on Doncaster, which like Crewe has excellent onward rail connectivity?"

Sir David stressed his support for Northern Powerhouse rail, pointing out that his first report as HS2 chairman in 2014 emphasised the importance of east-west as well as north-south connections. Transport for the North had since been created, and would be producing its transport strategy in spring. He said the two bodies worked closely together. "Provided we understand what Transport for the North's plans are before the end of 2017, we can plan all that in the design of stage 2b when preparing the hybrid bill."

He added that the redesign of Leeds station, to form a T-shaped structure integrating high speed services with the existing station, "is all about east-west. We [initially] had a station that was 500m from the existing station. Everyone was unhappy. We listened and moved the stations together."

He added that HS2 and TfN "are working very closely on Manchester Piccadilly" and "have done the design work on upgrading Liverpool to Manchester, for both passenger and freight, using some of the new line."

A final point raised by Greengauge 21 is that the eastern limb of HS2 also has implications for the future configuration of the Cross Country franchise, by providing a new route to Birmingham from Yorkshire and the North East.

"A southward-facing connection from HS2 to the existing railway at Birmingham – as long sought by the West Midlands authorities" would allow the eastern limb of HS2 to be used by cross-country services operating between, for example, Edinburgh and Bristol (via Newcastle, York, Leeds, Sheffield, Toton and Birmingham).

It appears that the possibilities of HS2 and the places it will serve, both directly and via the existing rail network, will increasingly come under scrutiny in 2017.

"The more work we did on Meadowhall, the more difficulties we found"

Sir David Higgins: working closely with Transport for the North

Making roads work: no longer driving blind

Collaboration between Elgin and TomTom to make possible real-time and predictive analysis of the effect of roadworks on traffic could bring a transformation on the scale of Uber, says **Shane O'Neill**

Traffic volumes are set to increase by 43% by 2040. It is estimated that 100 million working days will be lost by that date in diminished productivity and time costs because of congestion. A major cause of congestion is roadworks – over 3 million annually with no sign of diminution.

Ministers, however, are determined that during the lifetime of this parliament something really practical will be done. The autumn statement announced billions in road improvement schemes and additional investment to reduce congestion; and significantly, in its wake there has been a succession of important policy initiatives which show that this time, real change may be on its way. Ministers have announced a major review of how statutory notices for roadworks are provided (or "noticed" in the office parlance), and Transport Secretary Chris Grayling has articulated that there will be an increased focus on how information, data and technology can help.

"With Uber planning a world of flexible public transport – with driverless multi-passenger vehicles assembling routes and collecting passengers as they go – we should be doing the same: looking at how technology can improve transport, gathering real time information about demand and shaping services accordingly… The technology exists to give drivers vital information on their journeys – quickly, efficiently and safely," he told the audience at the National Transport Awards last October.

> **Huge areas of the network remained in an information blind spot**

By looking to the private information & technology sector to help provide solutions, the Government is aiming to square the circle of how to do more with less and to call on the new world of technology to usher out old-world ways of doing things.

The recent announcement of the collaboration between Elgin, provider of the national roadworks database at roadworks.org, and international satnav systems provider TomTom marks a groundbreaking change in roadworks communication. Elgin's "Real-Time Roadworks" service combines data from both organisations, validating statutory roadworks information against unusual patterns of congestion, taking into account live and historic traffic flow and behaviour information. This identifies which roadworks are causing high levels of congestion and which road closures are actually in force, resulting in a live "map dashboard" displaying only those works causing a significant impact on the road network. This then allows traffic managers to focus resources on managing those works that are having most impact on road users.

The significance of this is obvious. Unless traffic cameras are aligned to the exact position of roadworks and supported by expensive urban traffic management and control systems, huge areas of the network remain in an information blind spot, where the actual impact of individual roadworks on traffic flows remains inferred.

Now answers are possible to such to questions as: what is the precise impact of this major work on actual traffic speed? How does this compare to the speed of normal traffic flows (at that location, time of day, time of year and benchmarked against historic traffic flow data?) What interventions can traffic managers take that will make a difference? Can we at least communicate this information more effectively and equally in real time?

But the potential impact does not stop there. How about being able to take a decision as you plan your roadworks in the light of the knowledge that if you begin your excavation next month instead of next week, you will have significantly less impact on traffic?

Elgin and its satnav partners are working on predictive roadworks algorithms which could, in the very near future, be embedded within new statutory notice systems – compelling the sort of coordination and planning that ministers have been demanding for a generation.

Further planned collaboration includes the integration of TomTom historic traffic data and Elgin roadworks archive data to make possible analysis of the cost of roadworks to road users and evaluation of the effectiveness of traffic management design and planning. Combined with the availability, for the first time, of years of national roadworks data, this is a major step for an industry which has been hitherto driving blind for the lack of national data analytics. It makes the possibility of data-informed policymaking and local decision-making a reality.

Five years ago, Uber did not exist, and yet it has utterly transformed taxicab journeys in major cities. The practical implementation of data and information technologies to the national roadworks sector can have an equally significant and positive impact on congestion, both locally and nationally.

Shane O'Neill is chairman of Elgin

The man who paved the way

Mention Isambard Kingdom Brunel, George Stephenson, or James Watt and for most people an image comes to mind: the majestic Clifton suspension bridge or the *SS Great Britain* perhaps; Stephenson's Rocket; a mighty Boulton & Watt steam engine.

Thomas Telford is different. Many people would recognise the name of another pioneering engineer; they might be aware that the Shropshire new town is named after him. But of his works most people would have little idea.

This appears baffling. Telford predates the well-known Victorian masters and to a great extent paved the way for them. His career defined the role and set the template for the modern profession of civil engineering. Why is he so little recognised?

One reason, offers Julian Glover in his new biography *Man of Iron*, is that Telford's life is hard to sum up. "He did so much over such a long time that it is a struggle to sharpen the focus. Paradoxically, he might be better known now if he had died younger or done fewer things and left less of a tangled story over many decades and places."

Telford himself, describing a career spanning over 60 years, listed among the things he had done, "architecture, bridge-building, road making, inland navigation, drainage, the construction of docks and the improvement of harbours".

He pushed the use of iron in construction to new limits, and was recognised in his own time as having overseen the construction of the finest bridges and roads since the Romans.

Telford was the son of a shepherd in the Scottish borders who was apprenticed as a stonemason before becoming an architect and engineer.

Numbered among his achievements are the London-Holyhead Road, which formed the basis of the modern A5, and the 580-ft span Menai suspension bridge which spans the straits between the Welsh mainland and Anglesey. A stunning achievement at the time, it remains in use today – as do most of Telford's works.

He built numerous canals, and was responsible for the vertiginous Pontcysyllte Aqueduct, which carries the Ellesmere canal over the River Dee in north Wales, as well as (with William Jessop) the Caledonian Canal which allowed Scotland to be crossed from coast to coast. His dock and harbour works include St Katharine Docks, adjacent to Tower Bridge in London. He built over 1,200 miles of roads and over a thousand bridges to open up the Highlands of Scotland.

He was the architect of three churches in Shropshire and 32 in Scotland, worked on water supplies for four major cities and improved the navigation of four major rivers.

But despite being relentlessly driven, ambitious and ingenious in his work, as well as personable and charming, he was also extremely private, caring little for accolades, restless, never settling.

To an extent, Telford was fortunate to be born into the time he was. "A century before, and the boy who was sent to the hills to guard sheep would have stayed there. A century later, and civil engineering was becoming (not least through Telford's own efforts) the bastion of more educated, professional men, and Telford would not have found it so easy to rise so high or so fast," says Glover.

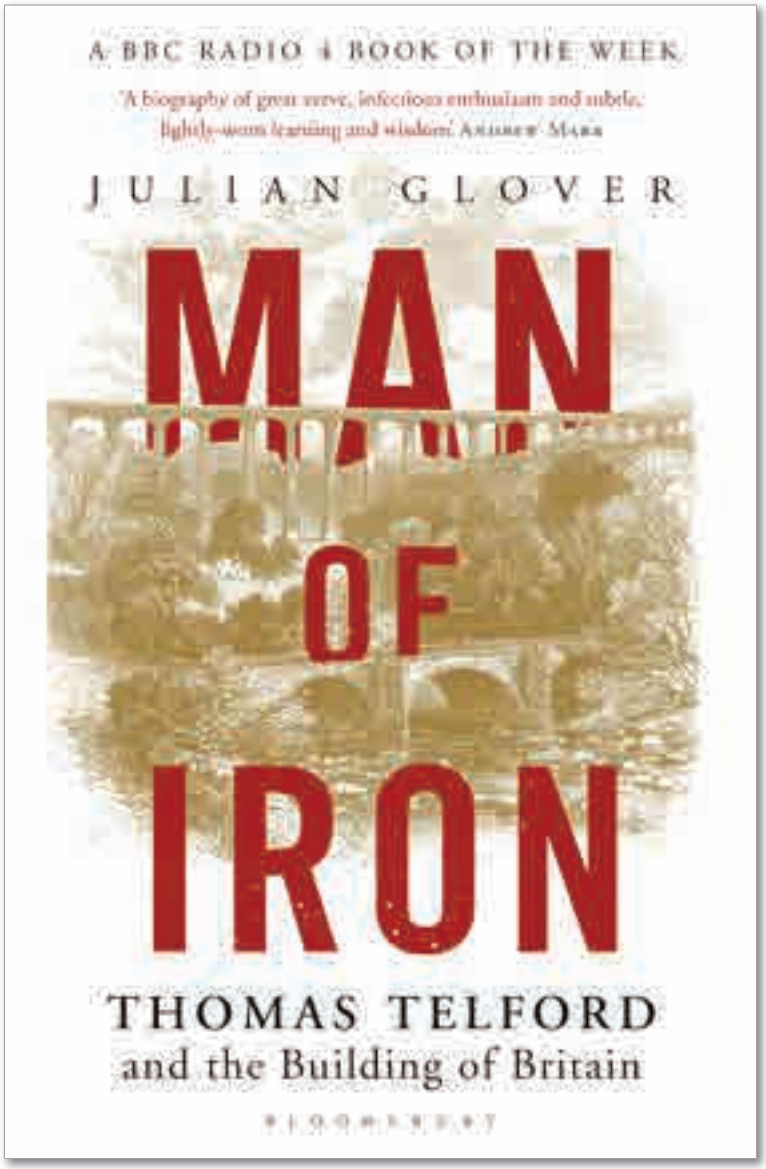
In the years after his death in 1834, Telford's achievements became eclipsed as the era of canals gave way to a new technology – railways. But, Glover points out, he matters to our age: "He knew that what we now call 'infrastructure' shapes lives and nations. His life was made solid by the structure he built: the – to him – conscious physical embodiment of Great Britain. He built things not for private gain but for progressive purpose, with the clear intent of creating a stronger and more united kingdom."

There are lessons to learn from him today. Creation of infrastructure is always a political as well as a commercial act, says Glover, who acted as a political adviser on HS2.

The economic crash of 2008 refocused the attention of certain of Britain's politicians on the need for a modern infrastructure system. "There is a new level of ambition for an interest in infrastructure and it has been prompted in part by a respect for what we have inherited and an understanding that we have stretched that inheritance to its limits," Glover writes.

"Things that Telford believed in have come alive again. It is not too large a step from the way Telford worked to the High Speed 2 project or the debate about how to expand London's airports or whether to charge for roads." Telford would have "insisted on innovation and elegant design and known how to work the parliamentary system" – in fact he would have recognised HS2's hybrid bill procedure from that which authorised almost all his large schemes.

Glover, a former columnist on *The Guardian* and speechwriter to David Cameron before becoming a special adviser in the DfT in 2012, has produced the first modern biography of Telford and makes a persuasive case for him as the greatest engineer Britain has ever produced.



***Man of Iron: Thomas Telford and the Building of Britain* by Julian Glover, Bloomsbury Press, ISBN 978-1-4088-3746-7, £25.**


Alex Hynes


Tobyn Hughes


Mark Cutler


Stewart MacPherson

Alex Hynes leaves Arriva to head troubled ScotRail Alliance

Arriva Rail North managing director **Alex Hynes** is to become managing director of the Scotrail Alliance, which brings together franchise holder Abellio and Network Rail. He will join the Alliance later in the year.

Mr Hynes has been managing director of Arriva Rail North since last April, where he was overseeing a £1bn rolling stock investment programme. He had held the same role with the previous franchise holder Northern Rail, a joint venture of Abellio and Serco, and moved to Arriva Rail North when the franchise was transferred. During his three years with the Northern franchise it achieved its best ever customer satisfaction scores.

ScotRail is also in the process of introducing a fleet of 70 new trains, due in December this year, for the lines electrified under the Edinburgh-Glasgow Improvement Programme. It has come under criticism recently for failing to meet punctuality and reliability targets, leading to calls for the franchise to be privatised.

Phil Verster, the current Scotrail Alliance managing director, is moving to become Network Rail managing director for the East West Rail project. The project will define how the East West rail programme, linking Oxford, Milton Keynes and Cambridge, should be structured and operate.

Last month, Transport Secretary Chris Grayling announced the creation of East West Rail to accelerate "one of the most strategically important rail projects". Its main task will be to attract private sector partners to design, build, operate and maintain the line.

Mr Verster will take up the post in the spring.

Sir David Higgins became chairman of Gatwick Airport from 1 January, replacing **Sir Roy McNulty**. Sir David has been executive chairman of High Speed 2 since March 2014. He was chief executive of the Olympic Delivery Authority from 2005-2011 and chief executive of Network Rail from 2011-2014. He will continue as chairman of HS2 while a new chief executive to replace Simon Kirby is found. Sir Roy, who joined the board of Gatwick Airport in April 2011, will remain as deputy chairman.

Tobyn Hughes, managing director of transport operations for the North East Combined Authority, is the new chair of the Urban Transport Group. He succeeds **Dr Jon Lamonte**, chief executive of Transport for Greater Manchester. Chairs serve for two years. Mr Hughes welcomed the Tees Valley Combined Authority, which has joined the group as an associate member.

Balfour Beatty Vinci has announced the appointment of **Mark Cutler** as managing director for its HS2 joint venture.

- **Sir David Higgins becomes chairman of Gatwick Airport**
- **Tobyn Hughes to chair Urban Transport Group**
- **Balfour Beatty Vinci appointments Mark Cutler HS2 MD**
- **Will Norman to be London's walking and cycling commissioner**
- **Stewart MacPherson named SSE Enterprise Rail head of business development**

Mr Cutler has extensive experience in the UK infrastructure market spanning a 26-year career. He rejoined Balfour Beatty last year as director of strategic projects, having previously led the group's UK regional construction and civil engineering businesses. He had previously been chief executive of Barhale and managing director of Morgan Est. His early career was with Carillion, where he oversaw major projects on the West Coast upgrade and High Speed 1.

The joint venture is currently shortlisted for four of the seven HS2 main civils works packages valued at over £4bn in total.

London mayor Sadiq Khan has appointed **Will Norman** as London's first full-time walking and cycling commissioner. He will work closely with the mayor in helping to achieve his pledge to get more Londoners active by making cycling and walking safer and easier in the capital. This will include pushing forward with the mayor's Healthy Streets programme, and investing a record budget of £770m on infrastructure and initiatives to promote cycling up to 2022.

Mr Norman is currently global partnerships director at Nike, where he specialises in increasing levels of physical activity and participation in sports around the world, working with a range of international organisations.

Before joining Nike in 2013, he set up a successful social research consultancy and was also director of research at the Young Foundation, where he was responsible for multi-million pound European programmes and established a youth leadership organisation.

Stewart MacPherson has been appointed as head of business development (infrastructure projects and regional transport) for SSE Enterprise Rail. Mr MacPherson joins from Network Rail, where he worked for 19 years, most recently as a route delivery director responsible for overseeing all rail infrastructure projects in Scotland. He has extensive experience in running a portfolio of large capital investment programmes comprising many engineering disciplines, including track, signalling, electrification and power.

SSE is one of the UK's leading energy supply companies. SSE Enterprise entered the rail market in 2015.

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