

HIGHSPEED

RAIL

FREE
16-page
Special

SEE INSIDE FOR:

- High speed rail in the post-Brexit world
- Putting passengers' interests first
- Maximising the economic benefits
- PLUS insight from SYSTRA, Friehtliner, AECOM and Siemens

JACK BOSKETT

HITACHI
Inspire the Next



PAUL BIGLAND

EXPERIENCE
HITACHI
WORKING
FOR YOU

At Hitachi, high speed trains are in our DNA. From our extensive delivery record in Japan to our Class 395 Javelin™ fleet operating across HS1, we understand how important it is to connect cities and people using innovative solutions that work out-of-the-box. We are delivering new trains across the UK network, find out more here:

hitachirail-eu.com HitachiRailEU

Welcome

2017 will be the year in which HS2 took two of its most significant and irrevocable steps closer to reality.

No longer an abstract concept open to parliamentary debate or further public consultation, legal powers for construction of the line's first phase between London and Birmingham have now been given after the necessary Act of Parliament was granted Royal Assent earlier this year.

The companies to be tasked with delivering these works will soon be announced, with HS2 Ltd expected to award its main construction contracts for Phase 1 imminently. Trains are due to begin running over this section in 2026.

Meanwhile, last month's Queen's Speech has firmly committed the newly-formed Government to passing similar legislation for Phase 2a, to ensure that HS2 is delivered to link with the West Coast Main Line at Crewe.

In this 16-page supplement we hear from Sir David Higgins (p44-45), the man charged with leading HS2 Ltd through these vitally important early stages.

Next up is Transport Focus' chief executive Anthony Smith, who tells RAIL how passengers' interests are being safeguarded in the planning process (p48-49), while Richard Clinnick reflects on how local leaders are positioning the West Midlands to achieve optimal benefits from the arrival of HS2 services in less than ten years' time (p52-53).

We also hear from four major players in the rail industry, all hoping to form part of the delivery works of Phase 1.

AECOM tells RAIL how Virtual Reality technology could be used to good effect for stakeholder engagement (p46-47), and we take a look at the extensive role played by SYSTRA in building one of Europe's newest high-speed lines that runs between Tours and Bordeaux (p50-51).

Freightliner focuses on the importance of finding the right heavy-haul partner for the millions of tonnes of aggregates and spoil that will need to be moved for the project (p56), plus Siemens outlines its commitment to helping HS2 Ltd create an enduring legacy in skills and diversity (p54-55).

PAUL STEPHEN
Assistant Features Editor, RAIL

EDITORIAL
Managing Editor: Nigel Harris
Assistant Editor: Richard Clinnick
Contributing Writer: Paul Stephen
Production Editor: Mike Wright
Art Editor: Charles Wrigley
Sub-Editor: Richard Hampson
Managing Director: Tim Lucas

ADVERTISING
Account Director: Julie Howard

CONTENTS

44 HS3 and beyond
HS2 Ltd Chairman Sir David Higgins stresses the increased importance of high speed rail projects to the UK in the post-Brexit world.

46 Positive outcomes
Dr Mark Raiss tells RAIL how AECOM is supporting HS2.

48 A user-friendly HS2
Anthony Smith from Transport Focus places passengers' interests first.

50 SYSTRA aims high
SYSTRA's senior high speed rail management team demonstrate a wealth of global experience.

52 Not just a railway
RAIL discovers how the West Midlands can maximise the economic benefits presented by HS2.

54 Future investment
Siemens' HS2 Rolling Stock Bid Director Jo Hensher talks about ways to secure an enduring legacy for HS2.

56 Big mover
Freightliner's David Israel outlines how the challenges of HS2 construction can successfully be met.



To HS3 - and beyond

HS2: Transforming Britain

Despite an uncertain economic future, HS2 is a pillar of hope and progress. And post-Brexit Britain will need it more than ever, says HS2's Chairman **DAVID HIGGINS**



HS2 Ltd Chairman David Higgins told the NRC that HS2 will be vital to the UK in a post-Brexit world. PAUL BIGLAND.

years, around 1,400 people were trained, of which 85% were completely new to the rail industry. 95% of employees were local Moroccan nationals.

The company's Midland Alliance has a strong focus on local job creation and engaging stakeholders in the development of their communities. Its academy has established partnerships with local colleges, the Department for Work & Pensions, as well as regional councils and Local Enterprise Partnerships.

The aim? To create a sector-based work academy for the programme. This is the type of legacy that HS2 and Higgins wants to leave.

Higgins is all too aware of the battle ahead. "We have to show how vital HS2 is in a post-Brexit world," he told NRC delegates.

He then moved on to what else the project can do: "Why should we do HS2? Because it offers capacity and resilience. Having been CEO of Network Rail, I was aware of what it took to keep it going - that amazing 170-year-old network."

He said that the aim of HS2 is to take people into the heart of the cities it serves: "HS2 must be a new spine for the UK."

The vision of a spine, and of the legacy, is akin to the French model that Higham described at the NRC.

He explained how 'Strategy and Vision', which underpinned the SNCF Master Plan for high-speed rail in France, was formulated in 1976. Five years later LGV Sud-Est was introduced. It enabled trains to run between Paris and Lyon in two hours, a distance of 409km (254 miles) with a design speed of 300kph.

Much like the thinking behind HS2, LGV Sud-Est was needed to alleviate congestion. The line has since paid for itself, and took a mere 12 years to do so. The network has evolved, and now there are lines across France as well as routes into other European countries. Passengers travelling along HS1 on Eurostar will use one, whether they are travelling to Brussels or Paris.

Higham says that in Spain, the issue of legacy is best explained by the business hub in Zaragoza. High-speed rail arrived there in 2003, and since then the city's economy has grown by 15%.

Looking at these projects, Higham says that HS2 could be the UK equivalent of Paris-Lyon. And in a rallying call, he says that we, as a nation, must not stop there. "We need HS3 - and beyond."

The industry leaders overseeing HS2 and the contractors constructing it all share the same ambition and aims for the high-speed network in the UK. They share the vision of leaving a lasting legacy for future generations. And that will be its defining feature, many years from now. ■

"HS2 is thriving." HS2 Ltd Chairman Sir David Higgins' words are confident and assured. The £55 billion project is one of the few things in the UK not affected by recent political events. Indeed, it has backing from all parties.

Speaking at the National Rail Conference in Birmingham on June 15, hosted by RAIL, Higgins also confirmed that work was in place regarding the next phase of the project - Phase 2a, the extension of the route north of Birmingham to Crewe. He was hopeful that this would be placed in Parliament within a month; it was mentioned in the Queen's Speech on June 21, some six days after his presentation.

While there was considerable opposition to HS2 Phase 1 (opposition that now appears to be dying away), there has been little to no

outrage regarding the next phase.

Higgins has been in the role for four years, having previously been chief executive at Network Rail. Before that he was instrumental in ensuring that London's 2012 Olympic Games was a success. Managing massive infrastructure projects is something he does very well.

Reflecting on our country's previous railway triumphs, he says: "We look back at the Victorian era and how they put the West Coast Main Line together, and we are doing that with HS2 at the same rate. HS2 is a marathon, not a sprint, and it will be open to Manchester and Leeds in 2033. However, we do need to keep reminding people what HS2 is for."

Later at the NRC, Steve Higham (Managing Director, UK Engineering at SYSTRA) reiterated the headline benefits

of high speed rail - reduced journey times between cities, a national and local catalyst for economic growth, and more capacity on a congested network. Finally, he highlighted how HS2 will be a sustainable and viable alternative to air travel.

HS2 already has an aura of success. Birmingham is already feeling the benefits of a project (see pages 52-53) that won't even carry any passengers to the city for another nine years.

Higgins says the next achievement must be the delivery of the scheme, and that includes keeping the costs under control. Fail to do that, he warns, and public support for the project will evaporate. "That battle could so easily be lost," he adds.

One of the most common criticisms seen on social media, for example, and from less informed commentators, is that the money

allocated to HS2 is being taken from other projects, and that the money could be spent on other railway schemes or on other public services. That's not the case, but were costs to overrun at a time when the country is facing economic uncertainty, then questions would most certainly be asked.

The achievement that Higgins sees as the most important is that HS2 must keep delivering for generations. This will be achieved through increased connectivity for passengers and better training for employees. He told delegates that the National College for High Speed Rail will be opened for students working in HS from this September, at two locations - one in Birmingham, the other in Doncaster.

The legacy aspect is something that Colas Rail Executive Development Director Iain Anderson is keen to endorse. His company is

key to HS2, as it operates the Midland Metro Alliance on a ten-year deal - this includes constructing routes that will serve HS2, such as the link to Curzon Street.

Colas has 35 years' experience in building high-speed railways in other countries, and also worked on High Speed 1 in the UK. The company is also currently building the first high-speed line in Africa, from Tangiers to Kenitra in Morocco (RAIL 823), and within that scheme the legacy is paramount.

Colas has also developed links with local schools and colleges in Morocco, and has established its own training school. In three

“ HS2 is a marathon, not a sprint.”

David Higgins, Chairman, HS2 Ltd



ACHIEVING POSITIVE OUTCOMES

PAUL STEPHEN speaks to AECOM's Engineering Director Civil Infrastructure DR MARK RAISS

There's no doubting that AECOM has already established itself as a major player in the delivery of High Speed 2.

By providing environmental and engineering services under framework agreements with Mott MacDonald and Arup, AECOM has worked extensively on aspects of Phase 1 of the line including route selection, preliminary design and environmental impact assessment.

Its other key contracts include advising HS2 Ltd on ecology, carbon footprint modelling, and facilitating enabling works ahead of construction beginning later this year. AECOM was also heavily involved in completing the designs for the Phase 1 Hybrid Bill that gained Parliamentary approval and then Royal Assent earlier this year.

This Bill grants the legal powers necessary to begin construction on HS2's first section

between London and Birmingham. Subsequently, AECOM has now been appointed by the Fusion joint venture comprising Morgan Sindall, BAM and Ferrovial, which is bidding for some of the £8.6 billion worth of main construction contracts. Winning bidders are expected to be announced imminently and, if successful, the Fusion JV will ensure AECOM is significantly engaged in this next phase of the project.

Leading the international company's current and potential contributions to HS2 is AECOM's Engineering Director Civil Infrastructure Europe, Middle East, Europe and Africa Dr Mark Raiss. A fellow of the Royal Academy of Engineering, Raiss is AECOM's programme director for HS2 in the UK, and also the company's engineering director for the construction of Riyadh Metro lines one and two. With extensive experience in major transportation infrastructure projects, Raiss was AECOM's programme director for Crossrail, which remains Europe's largest construction project until HS2 gets into full swing over the next decade.

He tells RAIL: "Because AECOM is such a large and wide-ranging business, we have fingers in many HS2 pies, and it's wonderful to be able to give so much support to this great project. We can draw on our wide experience delivering high-speed rail projects globally, such as Spain's high-speed network and other projects in more than 20 countries around the world.

"One of the big benefits of working for AECOM is having this huge range of internal expertise, so if we're putting together these big multi-disciplinary contracts, we can call on people to do just about anything we want. We've had to bring in one or two specialists, but in principle we have access to a massive pool of resources. That might make it sound like we are a jack of all trades, but we are, in actual fact, a master of many of them."

Raiss says that one discipline where AECOM is an exemplary practitioner is stakeholder engagement. Helping to achieve positive outcomes, it extensively deploys Virtual Reality technology, consisting of headsets with feed-in 3D engineering models as holograms.



Collaboration

In addition to AECOM's technical, design and engineering prowess, collaboration is one of AECOM's core values, and is placed at the heart of each of its HS2 contracts.

Says Dr Mark Raiss: "It's very easy to say, but in this case it is true. Collaboration has to be something you want to do, and it's an exciting way to work as we can teach each other things as part of a team, and not just as a contractor or sub-contractor."

"In the Phase 1 work with Fusion, we would have a co-located office for the decision makers and the key interfaces. We think it's very beneficial to the project if communications are open and it means people working on it will get more satisfaction. If everything is done by email and phone calls it can lead to a reduction in trust, and a loss of desire to help solve each other's problems and to work together."

"It all sounds a bit trite but it's absolutely true."

This technology has not only given AECOM's designers and engineers greater clarity during design reviews, it has also been used to enable passengers and other end users to interact with virtual models, giving them a better idea of what benefits will be delivered by disruptive works.

AECOM has used this technique at Waterloo station, which will undergo a partial blockade during August to lengthen four of its platforms and increase capacity. And the potential is obvious for HS2, which will eventually link (but initially disrupt the lives of) citizens in eight of the UK's largest cities.

Raiss adds: "VR has become an essential tool in what we do. We've been doing stuff in 3D for some time. For example, we've used it to help clients who don't fully understand technical drawings to better visualise certain concepts. VR is the next step on from that, and gives us the chance to make sure both technical and non-technical people can 'see' what is being proposed.

"If you don't help stakeholders understand

then they are more likely to be negative towards the railway and building projects, until you explain the benefits.

"There is a huge desire from HS2 Ltd to do Building Information Modelling [BIM] and VR properly, and contractors were required during the tender stage to prepare BIM models. As VR was not available during the tender stages for Crossrail, HS2 will be the first time this will be deployed on this scale.

"Safeguarding is one of our key principles, and if we can build a station on a computer first, that must also be of significant benefit to overall safety."

Station design is also one of AECOM's principal specialties and, as AECOM's programme director for Crossrail, Raiss led the detailed design of two of the route's major underground interchange stations beneath central London.

These specialties will now be applied to HS2's Old Oak Common station, where a team led by AECOM has won the contract to plan the station and the £26 billion regeneration of a 650 hectare surrounding area of north west London, including 24,000 new homes.

"There is a slight distinction with

Commuters were given an opportunity to try out AECOM's Virtual Reality headsets at Waterloo station, where the company is working as part of an alliance to increase capacity at Britain's busiest station. NETWORK RAIL.

Crossrail, which is a pure transportation project and not just about getting people about, so station design is very important.

"One difficulty with building big stations is that they can physically divide a place in two, so they need to be permeable, and that changes the station layout. Done well, they can help regeneration. But done badly, they are a blot on the landscape. That is why lots of light rail projects abroad are in tunnels or elevated so they don't disrupt ground level communications.

"We have worked on lots of the stations in Riyadh, but the stations on HS2 are so much bigger and can more easily disrupt the environment. Therefore, far more care needs to be taken, and AECOM will ensure this is done." ■



“It might sound like we are a jack of all trades, but we are, in actual fact, a master of many of them.”

Dr Mark Raiss,

Engineering Director Civil Infrastructure, AECOM

A user-friendly railway

While HS2 will bring huge economic benefits, the passengers will be its ultimate judges. Safeguarding their interests is Chief Executive of Transport Focus **ANTHONY SMITH**

High Speed 2 will revolutionise the UK's railways. It will connect cities and create new opportunities for growth.

Jobs will be more accessible, journey times will be reduced, and despite what doom-mongers suggest on social media, the likes of Birmingham, Manchester and Scotland will benefit as much as London.

Already, business leaders in the Midlands suggest the region is benefitting from HS2, and work has only just started on a railway that will begin operating in nine years' time. Indeed, preparatory work has only just begun, and the major civils work doesn't start until 2018. Yet the terminus of Phase 1, in Birmingham, is already having a positive effect as businesses such as HSBC move their operations to the area ahead of the arrival of the railway.

But what do the passengers think? This is an area that we have yet to hear much about. After all, they are who the railway is being constructed for.

HS2 increases capacity. The West Coast Main Line is the most congested in Europe with 14 trains per hour, not including freights. HS2 will create space on the WCML for better commuter services (and freight), and yet will need to be of sufficient quality to attract passengers onto the new railway.

Anthony Smith is the Chief Executive of Transport Focus (TF), the independent watchdog that monitors what passengers want on rail (as well as road transport) and publishes its findings regularly.

TF is influential. Its National Rail

Passenger Survey (NRPS) is used to determine the award of franchises, while the watchdog is also engaged in what passengers require for new trains.

Speaking at the National Rail Conference, organised by RAIL, in Birmingham on June 15, he tells delegates that crowding is an issue on WCML passenger services. He questions also what will happen to the space created by the transfer of passengers and services to HS2.

He was speaking on the day that bidders for the West Coast Partnership franchise were due to be announced, but which was delayed by the recent General Election. The eventual winner of the West Coast Partnership (WCP) deal will operate not only the current Intercity West Coast franchise (ICWC) but also trains on HS2 for the first four years of operation.

Smith looks at the NRPS overall journey satisfaction statistics for Virgin Trains, which operates ICWC currently. His data is from Autumn 2016 and shows that while satisfaction has dropped, it remains higher than overall long-distance passenger services.

Of all the ICWC routes, London to North Wales is the most satisfactory. TF broke the figures down into what drives satisfaction and dissatisfaction. Punctuality/reliability was the biggest factor, he reveals, with 32% of those questioned saying that their train arriving and departing on time is the most important, followed by 'other' (23%) and the cleanliness of the inside of the train (19%).

What increases dissatisfaction most, Smith highlights, is how VT deals with delays (27%). This, he says, is no different to the rest of the UK. 'Other' reasons account for another 27%, followed by connections with other train services at 17%.

He points out to specific areas that were identified for improvement on VT. Feedback

on ticketing, he says, needs to focus on greater transparency in terms of pricing, while clear and simple rules are needed. A seamless ticketing process is also needed, he adds. On the train, the issues of luggage, toilets and WiFi need to be addressed, he adds.

At stations, the feedback suggests more visible presence of staff with a clear customer service remit is required, as are free, clean, smarter toilets, while the retail/food and drink choices need to be expanded. Finally, the issue of boarding at London Euston needs to be addressed. Smith himself calls the WCML terminus "well, well past its sell-by date."

Being involved in the WCP process, Smith says that TF has made a number of recommendations for the ICWC services. There should be an "absolute focus on the fundamentals", these being: value for money, punctuality and reliability, capacity and provision of information. He says that this should be supplemented by improvements to other areas of the journey experience, including seamless ticketing, on-board improvements and station enhancements.

There needs to be an embedding of a genuinely customer-service focused culture at all levels and the provision of a personalised, rewarding passenger experience, according to the high-level recommendations which also highlight the need to plan for and manage disruption associated with HS2 developments along the route - especially at Euston.

But what of the impact of HS2? Smith tells delegates: "The image of HS2 was negative, but once it was explained to people they were blown away." Some people TF engaged with even asked how they could get jobs on the project.

He says there is a vision of positive change that surrounds the railway, and this will impact the rail industry as a whole. And that vision of change, he adds, goes beyond rail travel.

HS2 should lead with pride, according to a TF workshop in June last year. The vision and ambition appeals to consumers across many elements, including customer focus, consideration of overall customer experience and door-to-door service.

However, as far as WCP and HS2 are

A Virgin Trains Class 390 stands at London Euston. The West Coast Main Line terminus is "well, well beyond its sell-by date", according to Transport Focus Chief Executive Anthony Smith, who says improvements are needed here as part of the HS2 project. JACK BOSKETT/RAIL.

concerned, he says the overall priorities for customer service should be to: fix the basics before trying to aim higher (but do aim high); that simplicity and clarity should underpin all initiatives; that the 'human touch' should not be lost; that technology should be used as an enabler to provide a personalised experience, and not used to replace people. He also says that proactive communication throughout the journey is key, and that comfort and the quality of the experience are as important as speed.

Smith tells delegates it would be interesting and helpful to get experience from overseas high-speed operators.

He says that the freeing up of capacity on the WCML is both "exciting and useful", but questions the thinking behind the current procurement timetable for the trains. The Government launched a bidding process for the first tranche of HS2 trains earlier this year, with up to 60 classic-compatible sets to be ordered in 2019. "Designing trains... we

don't design but we are involved," he says. "We were involved in the Intercity Express Programme and the Merseytravel fleets, and we are hopeful that we will be involved in the HS2 trains. But how on earth do you design trains now for 2026?"

He highlights the row over the Thameslink Class 700 fleet, where the lack of sockets and tables has caused consternation. The fact that the new TL fleet was specified in 2009 is not lost on TF's Chief Executive.

"Passengers' needs change," he says, highlighting how rail users today demand charging sockets for their smartphones, laptops and tablets, something that was not the case eight years ago.

In a question and answer session, Smith says of HS2: "Frequency will drive HS2. I think it will be full on Day One."

He speaks highly of HS2, but as the leader of Transport Focus, Smith will have a keen interest on how WCP delivers the service on HS2. ■



“ How on earth do you design trains now for 2026? ”

**Anthony Smith,
Chief Executive, Transport Focus**

SYSTRA AIMS HIGH



PAUL STEPHEN catches up with SYSTRA's senior high-speed rail management team to find what the international transport planning, consultancy and engineering provider can offer to the successful delivery of high speed rail in the UK

SYSTRA prides itself as a company that lives and breathes high speed rail like no other. Having been at the forefront of large inter-city rail projects across the globe, it has been involved in over half of the world's high-speed lines.

This includes HS1, currently the UK's only high-speed line. SYSTRA was a founding member of Rail Link Engineering (RLE), alongside partners Bechtel, Arup and Halcrow. SYSTRA had a 14% share in RLE, which successfully designed and engineered the channel tunnel rail link (CTRL).

HS1 helped SYSTRA demonstrate its credibility of delivering major infrastructure in the UK and since then the company has been working on Crossrail. SYSTRA along with Bechtel and CH2m are project delivery partners for Crossrail - together they are integral to the Crossrail management team, responsible for managing the development of detailed design, construction and

commissioning. SYSTRA now has more than 400 staff in the UK and Ireland working in 16 offices, and hopes to play a central role in ushering in the next era of high speed rail in the UK.

Despite the global reach of the company, SYSTRA recognises the bespoke challenges of building a new generation of high-speed infrastructure in the UK. Julie Carrier, SYSTRA's Programme Director for High Speed Rail, points out that the company is incredibly agile and will adapt its offer to suit each country's characteristics.



“ Developing a high-speed network will strengthen our growing economy.”

Julie Carrier, Programme Director, High-Speed Rail, SYSTRA

“Having cut our teeth on three decades of high speed rail projects in France, we have successfully exported our expertise around the world, and become adept at tailoring solutions to specific client needs, local markets and stakeholders,” she says.

Carrier explains, “For many years, we've been designing for the safe, whole life operation and maintenance of high-speed rail projects. What our clients tell us is that, they like the ability to take our ideas, blend them with local ideas and together we can create something even better.

“Our strategy is that there is by no means a one-size-fits-all approach for high-speed rail around the world. What might work in California, for example, may not work in the UK.

“Safety is a priority in the UK as well as value for money and, importantly, a diverse and inclusive workforce. For me and my team, we will respond to the UK's priorities and will adapt our processes to suit.

“One of the challenges in the UK will be recruitment. The National College for High Speed Rail is a strong statement of intent, and we are fully supportive. In fact, we have already begun the process of recruiting apprentices and will work with the College to share our knowledge through training apprentices here and with our international teams working on live projects. One project that's worth learning from is the recently completed Tours-Bordeaux (or SEA) high-speed line.”

SEA (Sud Europe Atlantique) is a 300km

SYSTRA's high speed rail record

On April 3 2007, a TGV achieved the current world rail speed record of 357mph on the LGV Est high-speed line in France, before the line's official opening two months later.

The speed trials were run to gather data on the effects of higher speed running on train, rail and catenary, and were conducted jointly by French

national rail company SNCF, TGV manufacturer Alstom, line owner Réseau Ferré de France, and engineers from SYSTRA.

The trial found the higher speeds were not possible due to transverse waves caused by the pantograph where it connects to the contact wire, causing a loss in contact between the two.

A French TGV train on the Rhine-Rhone route, which SYSTRA planned, designed and engineered, before then overseeing the construction. PASCAL LE DOARE.

(187 miles) high-speed line between Tours and Bordeaux, in France. Reducing journey times between Paris and Bordeaux to under two hours, the line was inaugurated in May, and will enter service at the start of July.

It is also the latest example of SYSTRA demonstrating its high-speed credentials, after it played a role in four of the five joint ventures contracted to design and build the line. It is also part of the MESEA joint venture tasked with maintaining the line during its operation, and ensuring a demanding availability of 99.98%.

SYSTRA's Project Director for High-Speed Rosario Barcena says that a requirement for SEA was that contractors had to increase the local value of construction contracts by hiring locally. She points out that at its construction peak, more than 9,000 people were trained and recruited for SEA, including 2,000 in local contracts. Each employee was required to be trained in at least one new skill.

“On par with high-speed investment throughout the world, the lasting legacy of the SEA line will be a significant boost to the local economy of those cities served by the line,” she says.

“Business confidence will grow and it is expected tourism will blossom. To me, the UK can go further still and work towards another Government priority of bringing north and south communities closer together.

“In the UK, I feel that railways often suffer from poor image, which may come from a history of closures and delays. We must dispel this image and show that new railway lines are worth it.”

Carrier agrees that SYSTRA can certainly help promote the positive messages, showcasing its thorough knowledge of high-speed projects among the community.

She adds: “There is a lot less opposition to high-speed rail in France and on the continent, perhaps because they have been more effective at engaging with communities, and people have seen how these mega projects can deliver benefits to their lives. We have developed some

innovative techniques to help clients engage with stakeholders, but we still have work to do to convince people in the UK this is the case!

“There was a sense of pride in France when they built their first high-speed line in 1981, a feeling of achievement of pioneering new technology. The French love railways and have seen first hand the benefits that living near a high speed route will bring. I'm personally enthused to be playing my part in the next generation of high-speed in the UK.”

As well as providing effective stakeholder engagement, SYSTRA's ace card will be its unrivalled ability to innovate and push technological boundaries, argues Director of Innovation Pierre-Etienne Gautier. By continuing to develop new concepts for high speed, Gautier and his team aim to shape a more positive future for high-speed rail by making it faster and more affordable to build, and easier to maintain.

This includes innovative use of BIM technology to engage with stakeholders and maximizing efficient use of resources and materials through clever solutions.

“We have a tool which allows us to create a full digital replica of the construction of the line, to allow people to experience what it will feel like to live near a high-speed railway. They can engage with our designers in proposing noise mitigation measures for example, or express an opinion on the choice of cladding for a bridge.

“We have used our innovation workshops to look at all solutions that will reduce the cost of high-speed rail and new ways of installing signalling and track. We are trying to bring solutions to market that can reduce costs, in some cases by 10% -20%, but rightly Governments throughout the world want proof that these solutions will work before they invest.

Carrier concludes: “There is no doubt that the investment in high speed rail is significant. The UK began its high-speed rail chapter over a decade ago. All the evidence from our neighbours - Germany, Spain and France - show that following their first major investment in city to city high-speed rail connectivity, the benefits are so great, that developing a network is necessary. Creating a high-speed rail network in the UK can only be a catalyst for growth.” ■

More than just a railway

The West Midlands is poised to wring every opportunity out of HS2 and create an enduring legacy for the region, writes **RICHARD CLINNICK**

The construction of HS2 is designed to leave a legacy for the country and the regions it will serve. That legacy is not just an improved railway, better business links and more capacity but more opportunities, afforded through regeneration, the creation of skills academies and the ability to attract businesses.

At the National Rail Conference, organised by RAIL and held in Birmingham on June 15, various parties and organisations such as HS2 Ltd, Systra and Colas Railfreight gave their perspectives regarding how the railway, and the various contractors, will leave a lasting legacy for the country for many years to come. 'This railway is not just for now, but for generations to come', was the overall theme.

Councillor Bob Sleight OBE is the Deputy Mayor of West Midlands Combined Authority and the Leader of Solihull Metropolitan Borough Council.

His region will benefit from the first phase of HS2, when it arrives in the city in 2026. The £55 billion railway will bring faster journey times to a city and region that is already enjoying the benefits of the project.

"HS2 will contribute massively to the economy," he says. "We have seen an increase in investment in anticipation of HS2."

Sleight points out that analysis by the WMCA and other stakeholders suggests that the HS2 Growth Strategy can deliver



enormous economic benefits for the region. He says that 104,000 jobs will either be created or safeguarded. 10% of all jobs will be for local residents who are currently unemployed. He said that regarding skills, 36% of the local population are qualified to a minimum of NVQ Level 4. There will be 2,000 apprenticeships provided via the National College for High Speed Rail, he says, while 700 businesses will be supported nationally as a result of HS2 arriving in the West Midlands.

Sleight says the economic value of all this totals a massive additional £14 billion increase in the Gross Value Added for the UK.

Curzon Street is something he is very proud of. The site of the first long-distance passenger service from London is being developed as part of a much larger regeneration - the Curzon Street Masterplan. This includes what is described as an 'iconic' station, a

metro link via the Midland Alliance, the development of Station Square and the Moor Street area. The aim is to create an area served by a fully integrated transport system and an additional £1bn for the region's economy.

The key objectives WMCA have highlighted for the people of the region include a need to ensure that locals are able to benefit from the investment, and employment opportunities are created or enabled by the construction and opening of HS2. These objectives are to be achieved through the creation of training and development pathways to support the uplift of skills, as well as providing access to job opportunities.

For businesses, WMCA says that the key objectives are to develop a blueprint for how to engage with local businesses, building capacity and capabilities, to capitalise on the delivery of HS2 and to generate significant economic growth in the region's local supply chain, and to create new jobs in the businesses supporting that supply chain

across the West Midlands.

Transport for West Midlands Managing Director Laura Shoaf is equally as optimistic as Sleight when it comes to the arrival of HS2 in the region.

Also speaking at the National Rail Conference, she says: "There is confidence here on the back of HS2. We have seen the development of Snow Hill 1 and 2. Businesses are confident about coming here and that is bringing change to the area."

While this change, she says, is positive, it must deliver. She says: "If it does not work for local people it doesn't work at all."

She highlights some logistical problems facing Birmingham. "We have a real challenge. Its population will grow by 450,000 people over the next 20 years. That is the same as a city the size of Liverpool. Birmingham is also the youngest city in Europe, in terms of population. We need to work out how people will get around. We need to be known for having a world-class transport network here." She says HS2 will help that, as well as the extensions to the

Midland Metro that are under way, some of which will eventually serve and support HS2. She says that in time, two million of the 2.8 million residents in the region will have access to a station through the connectivity plans. "We need the infrastructure for interchanges and multimodal transport," she says.

The challenge, says Shoaf, is making all the required infrastructure work for the region.

She says that the experience gained by the city is available to others. "We are happy to share the experience with other cities too."

"We are ambitious and that is how it should be. We are grateful for HS2 and the route. It has given us a fantastic opportunity to change the region and its infrastructure."

"Most importantly, it presents change opportunities for people here."

Patrick Twist is chairman and partner of GBS Business Transport Group. He says of HS2 in the region: "It will bring the country back together again. Senior people are coming to the region."

Passengers wait at Birmingham New Street for their commuter train home. The local transport system is to be transformed ahead of the introduction of HS2 services in the area as local authorities plan how to deal with a growing population and the opportunities that will be created by the arrival of HS2. JOHN STRETTON.

"We have seen that cities and regions that plan for High Speed will pick up the benefits."

Sleight adds: "We didn't want the railway to pass us by."

National Rail Conference Chairman and former Transport Minister Steven Norris says: "HS2 is not just a railway, it is about unlocking potential. HS2 is not just a big project, it reinvigorates big cities. There is a 100-year benefit in this."

Birmingham, and the West Midlands, are already reaping the benefits of HS2, and the railway is some nine years away from delivering trains to the region. When it does start, however, you can be sure that the West Midlands will have everything in place, and that Birmingham will be ready for HS2. ■

“ If it does not work for local people it doesn't work at all.”

Laura Shoaf, Managing Director, Transport for West Midlands.



INVESTING IN THE FUTURE

Few things will be more emblematic of High Speed 2 than the rolling stock chosen to run on the route from 2026, when Phase 1 is due to open.

To decide which train manufacturer will be tasked with building these new trains, HS2 Ltd initiated its formal procurement process for a first batch of around 54 trainsets in April, with the winning bidder expected to be announced in December 2019. Future contracts would then add to this initial fleet to run over Phase 2 once it is completed seven years later.

The tender for this opening rolling stock contract is worth almost £3 billion.

The successful bidder will become a key partner in the successful delivery of HS2, its subsequent operation and, just as importantly, in securing its legacy.

This legacy will be felt long after the first trains start running on HS2 metals and what will become Europe's largest construction project thus far has been brought to a close. Having taken this mantle from Crossrail, mobilising a workforce of around 25,000 to build HS2 hands the entire supply chain an unrivalled opportunity to enrich the UK's indigenous skills base, while increasing the scope of the workforce's membership to include under-represented gender and ethnic groups.

Siemens HS2 Rolling Stock Bid Director Jo Hensher explains: "HS2 is a fantastic opportunity to really change the rail industry in terms of quality and the breadth of skills available, but also diversity and the makeup of people who work in it."

"It has huge potential to drive change through its size and spending power, and for companies like Siemens it gives us the certainty to invest in our existing workforce and for the industry to become more diverse and inclusive. This project not only commands the attention of our industry but also wider society, enabling us to attract skilled people from other sectors and, other new entrants."

For Siemens, this is not merely an aspirational goal but is already firmly entrenched in the company's day-to-

Siemens HS2 Rolling Stock Bid Director Jo Hensher outlines the company's unswerving commitment to helping ensure HS2 leaves a strong and enduring legacy in terms of people, skills and diversity

day operations, as demonstrated by an impressive track record in opening up the rail sector to young talent, and appealing to an increased demographic range.

An example of this is The Curiosity Project, a programme started in 2014, under which Siemens supports a number of science and related festivals across the UK that are targeted at parents, teachers and students to promote STEM (science, technology, engineering and maths) subjects.

Hensher adds: "There are a number of ways we're already heavily involved in school engagement. This is a big area for Siemens because children will go on to be the entry level workforce for HS2 delivery over the next decade and beyond."

"We therefore have The Curiosity Project, which is a very big investment for Siemens involving the equivalent of £4.5 million and 14,500 work hours being invested in the last financial year in volunteering time from members of our teams."

"All the evidence suggests that girls, especially, turn away from STEM subjects and related careers early, so it's vitally important for companies like Siemens to take positive action early."

Siemens has also held a number of open days for local schoolchildren at its depots and train care centres, including those at Southampton, Acton, and on October 14 this year as part of Rail Week, at Three Bridges. These open days serve to dispel some of the myths surrounding a career in railway engineering, by providing access to modern and welcoming facilities and serving members of staff.

"Parents probably have an old-fashioned

view of depots being dirty, noisy and not somewhere for their children to go, but we know these open days have proved successful in combating that image from the feedback we've gathered. They allow us to not only show what a career in rail is really like, but also to talk about our apprentice graduate schemes, and the fact that we are rated a UK Top 100 graduate employer."

For those aspiring to enter the Siemens ranks, they would be following in the footsteps of more than 600 apprentices that the company already employs. 45 of these apprentices work in its rolling stock business, where Hensher reports that 13% are female.

Siemens' commitment to upskilling both its own workforce and that of the wider rail industry is demonstrated further by a £3.5m investment it made in the company's National Training Academy for Rail (NTAR), which opened near its train care facility at Kings Heath in Northampton in October 2015.

Under a co-funding agreement with the National Skills Academy for Rail (NSAR) and the government departments for Business, Innovation & Skills (BIS) and Transport (DfT), 50% of the academy's capacity is used for Siemens' own employees, and the remainder made available to the wider supply chain to try and tackle the sector's well-established skills shortage.

The new National College of High Speed Rail is also expected to play a crucial role in addressing the skills shortage. Due to open in Birmingham and Doncaster in September, the college will provide higher apprenticeships in high speed rail and is already working with NTAR to ensure training offers are complementary, giving taxpayers the best value for money. Siemens anticipates sending learners on the college's Systems Engineering apprenticeships from January.

But Siemens also recognises that increasing the size of the workforce and its diversity cannot be simply quantified with numbers alone. Hensher says it is equally important to provide equal access to those who often feel disadvantaged in the labour market.

It has therefore embarked on an innovative pilot programme with Transport for London, and charities Women Into Construction and



Gingerbread, to give women a helping hand into employment.

She explains: "We're working hard on the Women into Construction and Transportation pilot scheme which will hopefully be replicated. Under the programme, we've identified a number of placements in London and then worked with the charities to identify women interested in careers in engineering and the rail sector, but who need added support."

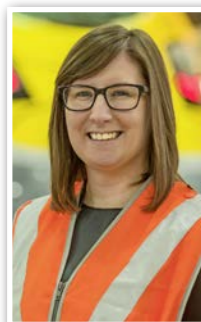
"We've given nine women two-week

Siemens employs a variety of methods to encourage school leavers to consider a career in railway engineering, and join a projected workforce of over 25,000 that will be required to deliver HS2. These include open days at its UK depots. SIEMENS.

placements, from which one has been offered a permanent job, and several placements have been extended."

Given Siemens' pedigree in recruitment, up-skilling and encouraging greater diversity, Hensher is confident that the future legacy objectives of HS2 can not only be achieved but surpassed. She

concludes: "There's a big appetite for creating apprenticeships and widening the appeal of the industry, not just in our own organisation but across the whole supply chain, so I'm optimistic that we can build on the legacy of existing projects such as Crossrail, and take it to the next level." ■



“ Girls, especially, turn away from STEM subjects and related careers early - it's vitally important for companies like Siemens to take positive action. ”

Jo Hensher, HS2 Rolling Stock Bid Director, Siemens.

BIG MOVER

PAUL STEPHEN speaks to Freightliner's Commercial Director **DAVID ISRAEL** about how the firm is uniquely positioned to meet the challenges of HS2's construction



This summer, all eyes are on HS2 Ltd and the award of its seven main construction contracts for Phase 1 of the route. Expected at the end of July, this announcement will determine which tier one contractors are to lead the building of 140 miles of new railway between London Euston and Birmingham.

From these contracts will spring many more indirect opportunities for the supply chain to engage with the delivery of what will become Europe's largest construction project, not least the bulk haulage of millions of tonnes of building materials and aggregates to the worksites, and the removal of spoil.

One company hoping to fulfil this vital function is leading rail freight provider Freightliner, which can already count on plenty of experience in successfully operating within major infrastructure projects throughout the country.

Freightliner operates 200 bulk trains per week, moving 12 million tonnes of bulk freight annually, while providing engineering haulage services for rail infrastructure maintenance for a variety of high-profile clients, including Network Rail.

Freightliner's existing fleet of Class 66 and Class 70 locomotives can haul loads of more than 3,000 tonnes, which is helped by the

company's access to several hundred 102-tonne open-topped box wagons, strategically placed around the network.

Meanwhile, Freightliner also offers a valuable intermodal service and road fleet via its own fleet of 242 tractor units and 456 trailers, to provide a logistics service away from railheads.

Commercial Director David Israel says that Freightliner is fully committed and prepared to invest further in its resource base, should it be given the opportunity to support HS2.

"We've seen the headline tonnages for aggregates coming onto site for HS2, but the point that is really eye-opening is that all these contracts will have to be fulfilled simultaneously.

"We've already started the planning over what level of resource base we can commit, and we're also looking at how we can adapt other parts of our business. As we know, the coal industry has been severely diminished, so we have already repurposed some of our coal hoppers to box wagons, and we are making inroads to make sure we have adequate manpower.

"We know that HS2 is a huge boon for the construction industry and for rail, but it also carries benefits for the road industry. With the best will in the world, rail can only take freight to the consolidation centres, but we

Freightliner is proud to be the only freight operator entrusted to haul Network Rail's High Output Ballast Cleaning Trains, worth some £24 million each. FREIGHTLINER.

offer a seamless link to places rail cannot go."

Israel outlines what clearly sets Freightliner apart from its competitors. This includes not only the company's extensive involvement in other large infrastructure projects, but also the new standards it sets in flexibility and reliability, such as offering just-in-time deliveries to enable customers to change their orders at later stages and better meet demand.

Israel says that Freightliner can also offer a greater level of security of supply, by dedicating virtual driver depots to each customer operation, and rostering its drivers exclusively to site operations, either for spoil removal or the supply of aggregates. The company also supports each project with a contract manager, and an operational management and planning team to liaise with customers, Network Rail and outside agencies, in order to ensure smooth and efficient train operations.

He concludes: "For HS1 we were the largest haulier on many sections. This gave us a lot of experience, including the delivery of more than 800,000 tonnes of ballast. The main lesson we learned from HS1 was to make sure we maximised flexibility.

"Our USP has always been that we will fulfil our contracts to the letter, and the key to that is to maximise productivity from assets, and the effective planning of the deployment of resources." ■



“ Rail can only take freight to the consolidation centres, but we offer a seamless link to places rail cannot go. ”

David Israel, Commercial Director, Freightliner