

# GRAND AMBITIONS FOR UK LIGHT RAIL

From system expansion to new technology, the UK Light Rail Conference was buzzing with discussion and ideas. Richard Foster rounds up some highlights.

**T**he eyes of the light rail industry turned to Gateshead on 11-12 July 2023 when the town hosted the 17th UK Light Rail Conference. It is the third year that the conference, organised by Mainspring, has taken place in Gateshead – but 2023's event illustrated just what can be achieved in 12 months.

## '555s' alive

Last year, Tyne and Wear Metro operator Nexus invited delegates to inspect the work being undertaken at Gosforth depot in preparation for the arrival of the new Stadler Class 555 EMUs.

Fast forward 12 months and the first trains have arrived and testing is underway. Both Councillor Martin Gannon, Leader of Gateshead Council and Transport North East Managing Director Tobyn Hughes lavished praise on the new stock, especially because they have been designed with the needs of North East people in mind. The region's political landscape has changed too, all having a positive impact on its public transport.

The conference's two halls were chaired respectively by Ian Brown, former Managing Director of London Rail, and David Key, director of Railway and Tramway Engineering. The sold-out exhibition space offered delegates the opportunity to inspect the innovative products and services from leading light rail suppliers and consultants.

The conference featured presentations about tram and light rail systems from

as far afield as Australia, Qatar and mainland Europe. But, at its core, it offered an unparalleled opportunity to learn about the exciting proposals, recent developments and challenges from Britain's leading light rail systems.

Gateshead Council Leader and North East Combined Authority Chairman Martin Gannon offered a welcome with his exciting vision for the North East: extending the Tyne and Wear Metro south over the derelict Leamside Line to connect with Washington, Chester-le-Street and Durham.

He said: "Our ambition is to transform the Tyne and Wear Metro system into a 'North East Metro System' that serves the needs of the entire region and reduces people's reliance on private cars. It will give them a clean, reliable and affordable alternative."

The signing of a GBP4.2bn (EUR4.86bn) devolution deal in January 2023 means that ambitious schemes such as this are no longer a pie-in-the-sky vision. Next May, the people of County Durham, Gateshead, Newcastle, North Tyneside, Northumberland, South Tyneside and Sunderland will vote for a mayor and cabinet to run the North East Mayoral Combined Authority.

Transport North East Managing Director Tobyn Hughes explained that public transport is a key

driving force behind what has been a long-held ambition for the region: "We want to have all our plans and strategies lined up so that that combined authority can crack on with delivery. We're so far behind,

"We're so far behind, we can't spend another year or two thinking about things."

Tobyn Hughes, Transport North East



▲ ABOVE: Ian Brown, event Chairman, and Anne Shaw, Executive Director of Transport for West Midlands - whose presentation on the first day of the Conference argued for light rail as the backbone of the West Midlands' transport revolution.

All images by Neil Pulling



◀ LEFT: Cllr Martin Gannon provided the keynote address to open this year's UKLRC.

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Nexus will continue to exist within that combined authority structure, Mr Hughes said. One of the first priorities is new signalling system on the Metro.

Two key infrastructure programmes have taken place. The most significant is the Northumberland Line service, due to open next year to revive passenger services north to Blyth, Bedlington and Ashington. There will be interchange with the Metro at Northumberland Park, with integrated ticketing.

## Leamside reopening

A smaller, yet still significant project, has been 'Metro Flow', converting single line working on the Metro between Pelaw and



◀ LEFT: Delegates were invited to inspect the new Stadler Class 555 fleet in the depot, as part of a depot tour arranged by Nexus.

▶ RIGHT: Depot traincrew Mark Clements with UKLRC Chairman Ian Brown, aboard the Class 555 as part of the Conference depot tour.





◀ **LEFT:** The Hilton Newcastle Gateshead was the venue for the third year running for this year's UK Light Rail Conference.

▼ **BELOW:** A jam-packed exhibition hall included companies such as Bosch Engineering, Costain, Frazer-Nash, Mott MacDonald, Nexus, Pre Metro Operations, Sabre Rail, Systra, Thales - and plenty more.

▼ **BOTTOM:** Andy Lucas demonstrated Mainspring's new data provision on the Mainspring stand as part of the exhibition.



Bede station to double, boosting capacity by 24 000 passenger journeys/day. Said Mr Hughes: "This involved taking over some Network Rail-owned freight infrastructure and converting it for Metro use. It was very complicated."

Next is the 'Washington Loop', which Mr Hughes said "is one of these towns where the people who live there [say] 'We're the biggest town in the country not to have a railway station'. This injustice needs to be righted because people can virtually see the Metro from it but they can't get on and have to take a bus to an interchange station."

To get to Washington involves reopening a stretch of the Leamside Line, which originally formed part of the East Coast Main Line but was by-passed in 1872. Passenger services ended in 1964 but it remained open for goods and as a diversionary route into the 1990s when it was mothballed and the track was later lifted. The 'Washington Loop' would diverge from the Leamside Line and curve eastwards to reach South Hylton, where the route from Sunderland terminates. The reopening would be for the Metro, not for heavy rail services.

### **Manchester overground?**

Coming soon to Manchester is the 'Bee Network', originally the brand for Manchester's active travel scheme; the worker bee has long been a symbol of the city's productivity but has grown in popularity since the 2017 Manchester Arena bombing.

The brand has been reimagined, said Head of Metrolink Danny Vaughan, as Mayor Andy Burnham's "vision for an integrated transport network".

Said Mr Vaughan: "Light rail and, in particular, the investment in Metrolink, has been a catalyst for a very strong local economy in Manchester and it's doing wonders for the city region. Light rail is at the heart of an integrated transport network. The Bee Network will be an example for other cities to follow."

The first tangible part of the Bee Network will be realised on 24 September when the city takes back its bus franchises for the first time since 1986. Orders have been placed for new electric vehicles, with the aim of a fully-electric fleet by 2032. What's significant is that Metrolink is included in the bus network and timetabling for the first time. A variety of joint ticket options will be available.

Mr Vaughan said that while Metrolink is at the heart of the Bee Network, it's increasingly difficult to expand the system. "We run trams every 90 seconds in each direction through St Peter's Square and it's congested. We need to expand its reach by bringing the Bee Network to life."

The Bee Network will also encompass heavy rail, thanks to the most recent devolution deal signed on 21 March 2023.

Said Mr Vaughan: "This gives us powers now to start to think about the rail network. A few of the railway lines start to look like what could be a sort of Overground:

Wigan to Victoria; Stalybridge, Southport, Glossop and Hadfield to Piccadilly; Rose Hill to Piccadilly; Buxton to Piccadilly; Audley End to Piccadilly."

Mr Vaughan said there are plans to introduce Bee Network tickets (which, like Metrolink, use touch-in, touch-out technology), on some of these rail routes. "It will be very difficult to do," he admitted, "but the ambition will be to have a similar network to London Overground, which has been a great success."

### **Sheffield municipalisation**

Change of a very different kind is coming to South Yorkshire in March 2024, when the South Yorkshire Mayoral Combined

Authority will take control of Sheffield Supertram. It is currently operated by South Yorkshire Supertram, a subsidiary of Stagecoach.

Director of Public Transport Development Pat Beijer explained that the reason behind the move was because the original agreement was almost 25 years old and no thought was given to what happened after it expired. Is there, she said, “an appetite in the private sector to get into tram operation at this stage, post-Covid?”

Sheffield Supertram faces challenges. Demand has fallen from 15m journeys per annum in 2010-11 to 6.7m in 2021-22. Key infrastructure, as well as the fleet itself, requires significant capital investment.

The SYMCA assessed the risks of either offering a new concession or taking the operation ‘in house’, factoring that it doesn’t necessarily have the current resource and experience to do so.

Ms Beijer said: “The decision, ultimately, was that we would take the tram business back into public control but with a lot of the powers remaining within the operating organisation and we’re working

through exactly how it’s going to be divided up between the two organisations.”

The authority now faces the challenge of migrating 350 employees, 48 tram stops, 32 trams and a depot to the new organisation, as well as some 250 operating contracts and agreements, and replacing 170 IT assets. It also has to procure GBP100m (EUR116m) of investments to replace trams and infrastructure by 2027... all by 21 March 2024 in order to ensure a seamless transition on ‘Day One’.

**“Manchester and the Bee Network will be an example for other cities to follow.”**

**Head of Metrolink Danny Vaughan**



## Midlands expansion

West Midlands Metro is currently undertaking three extension projects, worth GBP1.3bn (EUR1.5bn): the Wednesbury – Dudley section of the extension to Brierley Hill; the East Side extension from Bull Street to Digbeth, and the extension to Wolverhampton railway station. However, while light rail and tramways have extremely high ‘green’ credentials, construction of a

new line can have a negative impact on the environment.

Maria Ion, Colas Rail UK’s Project Director for the Midland Metro Alliance, explained

how changes to working practices have helped to prevent 2000t of CO<sup>2</sup> being released into the atmosphere during the construction phase. Ms Ion explained that these measures start at the design stage, including looking at whether buildings affected by construction can be strengthened rather than demolished, to on-site measures, such as using biofuel, solar-powered generators, environmentally sustainable site buildings and low carbon concrete mixes.

Jane Cole, Managing Director of Blackpool Transport, updated delegates on a whole range of exciting developments taking place on Britain’s oldest tram network. Ms Cole confirmed that the new extension along Talbot Street to a terminus adjacent to Blackpool North station should open at Easter 2024.

Phase 1 of a new project that celebrates the historic nature of Blackpool’s tram started in 2023. This is the conversion of Rigby Road tram depot, where Blackpool’s heritage fleet is maintained, into a new museum named ‘Tramtown’. The initial stage included repairs to the roof, gutters and drains, and moving engineering equipment into a new, redeveloped facility. The whole Tramtown project is expected to take five to seven years to complete.

One final innovation is the installation of Alstom’s Collision and Overspeed Monitoring System to the fleet of *Flexity 2* trams. This system, originally developed by Bombardier, also includes the Obstacle

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Detection Assistance System, which will automatically apply the brakes if the driver fails to respond to a warning of an obstruction in the track. Both systems are being installed in response to the Rail Accident Investigation Branch's report into the 2016 incident at Sandilands Junction, Croydon.

London Trams has taken the results of the RAIB report seriously and General Manager Mark Davis explained the various safety improvements, both high tech and low, that have been implemented as a result of the report.

London Trams' pioneering Physical Prevention of Overspeed system has been complemented by the Guardian Device. Ben Groome, Tram Operations Ltd's Operations Director, explained in more detail how this system monitors the driver's face and will send alerts to the cab if it senses that the driver is showing signs of fatigue. It also sends an alert to the control centre. Analysis of the data received by the control centre has resulted in the highlighting of previously undetected health issues with drivers as well as enabling operations teams to change rostering systems to better help drivers cope.

Mr Davies went on to demonstrate low cost safety improvements that have been made. The RAIB report concluded that the driver had become disorientated in the three tunnels on the approach to Sandilands Junction and so London Trams has installed colour-coded cat's eyes in the tunnels as well as reflective chevrons on the approach to tight curves.

### Bigger role for LRT?

Very Light Rail played an important part at this year's conference. Nicola Small, Coventry City Council's Senior Programme Manager, brought delegates up to date with the latest from the city's innovative VLR scheme. West Midlands Combined Authority is to invest GBP72m (EUR83m) in an 800m VLR test track from Coventry station into the town centre. The system will not only comprise new lightweight zero-emission vehicles, with capacity for 56 passengers,



**"Light rail should be a serious consideration in many new and existing parts of the network."**

**Chris Wright,  
Nottingham Trams**

but also a new Slab Track system. This eliminates the need for deep concrete foundations and will not interfere with buried utilities, thus offering considerable savings over traditional tramway construction.

Ms Small told a Q and A session: "My hope for the future is that we'll see a combination of more traditional light rail schemes in conjunction with Very Light Rail. I think this is pivotal. We need to create cities for the future that are attractive places, that have clean air, environments and that support and encourage sustainable transport."

Tim Burleigh from rolling stock leasing company Eversholt gave a detailed description of the Revolution VLR unit, developed by a consortium of six organisations of which Eversholt is a member. The new lightweight car uses hybrid technology. Batteries ensure zero emissions up to 20mph (32km/h) while a low emission diesel engine can power the unit up to speeds of 60mph (97km/h). The body is made using recycled carbon fibre while the interior can be configured for passenger or freight use. Pre Metro Operations, operator of the Stourbridge Town branch, showcased several lines which it considers viable for VLR operations, including Oswestry - Gobowen, Wisbech - March and Ironbridge - Telford.

It was Chris Wright, who, while reflecting on his first year as Managing Director of Nottingham Trams, offered some particularly

thought-provoking ideas. The former Commercial Director of East Midlands Railway asked: "Why is it that we have to raise our standards to meet heavy rail standards? Why do we have to feel like we're going into their environment?"

"I love the concept of tram-train. But why is it not train-tram?"

Mr Wright went on to show that where trams run side-by-side with heavy rail between Hucknall and Bulwell, the tram is two minutes faster than the train. Trams could also deliver passengers from Hucknall into the city centre five minutes faster than heavy rail. He also analysed line speeds on heavy lines throughout the East Midlands, highlighting which routes could be suitable candidates for light rail operation. In particular, he focused on the subject of restoring passenger services on the route between Burton upon Trent and Leicester.

Mr Wright said, "Nobody is talking about light rail for that. Why are we not talking about light rail as the option for that passenger space?"

"Low capital and operational costs mean light rail should be a serious consideration in many new and existing parts of the network. We must educate the wider industry to highlight the advantages of this great industry." **TAUT**

> *Want to know more about Edinburgh's plans for its tram system? Find out in the next issue.*



▲ ABOVE: A panel debate on the second day of the Conference considered one of the hot topics of this year's event: Very Light Rail, and how to move this forward in the UK. Tim Burleigh from Eversholt Rail speaks to a panel that also included Darren Smith (Transport Design International), Mike Smith (Network Rail), David Sexton (Department for Transport), Elaine Clark (Rail Forum), Bridget Eickhoff (RSSB) and Johan Haveland (Asistobe).

➤ RIGHT: The evening dinner/drinks reception by the waterside at By The River Brew was well attended, providing extra networking time for delegates until the sun went down.

