

LRT ROLLING STOCK EXCELLENCE

Operating a light rail system efficiently is a daily challenge. Some of the UK and Ireland's senior figures met in London in February to share their knowledge - and some secrets. Howard Johnston reports.



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Only a decade ago, the managers of the UK's light and urban rail systems were virtual strangers. Now, they work as a close-knit team, discussing best practice and sharing innovation, and solving problems by talking openly about their successes and challenges.

The outcome is a more co-ordinated industry that better serves the 313 million passengers that are carried each year. This impressive ridership figure is rising year-on-year, matched by customer satisfaction levels that most sectors would give their right arm for.

In the latest of a series of one-day events supported by UKTram, held in London's Docklands on 15 February, those with responsibility for the procurement, management and operation came together to discuss topics surrounding rolling stock.

TAUT Editor and event chair Simon Johnston said: "These days are vital in understanding the everyday challenges within the industry. We are here to encourage openness and honesty from our speakers with their presentations and need to be asking often difficult questions of each other."

"Light rail is a success story in the UK, but within this culture we can still improve and offer even better services. However, this naturally results in some potentially sensitive information being expressed behind closed doors which cannot be fully revealed."

Wire-free in the West Midlands

There is a growing demand for wire-free running through Birmingham's streets. Trials with retrofitted onboard energy storage systems (OESS) have been successful at the factory in Spain, but these systems are now facing a very different climate and operating conditions on the streets of the West Midlands, said Colin Robey, Midland Metro's former Head of Operations and current OESS Project Sponsor for Transport for West Midlands.

It has been confirmed that sections of the system's next wave of extensions will be worked by CAF trams with SAFT batteries that can run up to 20km (12.5 miles) on a single charge and have a projected life of seven years. The first modified vehicle (18) is currently undergoing dynamic testing from the line's Wednesbury depot and, it is hoped, will carry passengers soon. Others will be retrofitted in the UK, and any future vehicles for the rapidly-expanding system will have OESS capability fitted as standard.

Tyne & Wear is braving it out

A brand new fleet cannot come soon enough for the Tyne & Wear Metro, because it is a daily burden to turn out enough of the current 40-year-old fleet for the 450 daily services, said Metro Services Director Chris Carson. With distances between faults now as low as 7000km (4350 miles), the near 40-year-old Metrocars are the worst performing comparable fleet in the UK, he explained.

Reliability is an increasing problem despite extensive refurbishment, and the challenge is to hold on during the procurement process; the UK Government confirmed its GBP3337m (EUR385m) contribution at the end of 2017. A great Christmas present for the region.

The specification is for 42 two-car dual-voltage sets (to replace the existing 90 two-car units) which will have longitudinal seating and can run without catenary, coupled with a long-term maintenance deal. The contract is due to be awarded in November 2019, with the vehicles in

▲ The first nine-section Citadis 502 ran on Dublin's Green line on 7 February, just days before the LRT Rolling Stock Excellence Day. Delegates heard of the challenges in bringing some of the world's longest trams into the city's tight streets. TII

service within 25 months. Alongside this investment, the current 100-year-South Gosforth depot (described as unfit for purpose) will also be replaced.

A challenge of magnitude

Bedding in 55m Alstom Citadis 502 vehicles - for a brief period the longest trams of their kind in Europe - into the Irish capital of Dublin is making good progress, said Ciarán Mac Samhráin, Rolling Stock Manager, Transport Infrastructure Ireland.

The success of Luas and the opening of the 13-stop cross-city connector to link the previously independent Green and Red lines last year has required a complete reorganisation of the fleet, and significant modifications to structures, platforms, and substations, and also crew familiarisation. All of this in a very tight city centre environment.

As well as these 'super-trams' (introduced into passenger service at 07.47 on 7 February), plans are also in progress to extend 26 existing Citadis 402 trams for the Green line to the '502 spec', as well as expanding depot and maintenance facilities at Sandyford.

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Operational tram-train lessons

Four Stadler tram-trains have been in daily service with Stagecoach Supertram since last November, after a complex programme to integrate them into the standard fleet to run through the centre of Sheffield, said IT and Major Projects Manager Dr Rob Carroll, Stagecoach Supertram.

There are now over 100 drivers trained on the new cars, and they have to be fully compliant before they can venture over the heavy rail route north to Rotherham this autumn, a 26-minute journey with a three times an hour frequency. The changeover from 750v DC to 25kV overhead power collection needs to be fully understood, along with a complex range of alternative signalling, safety and communications systems. Compared to the Siemens tram fleet, the tram trains' rail profiles are significantly different, although very similar to that seen on Manchester Metrolink.

Passenger and staff reaction has been positive so far, although teething issues with software systems, the vehicles' air

suspension, differing pantograph carbon and OLE wear and couplers have seen the Citylink units modified a number of times. Modifications have been carried out in Sheffield's Nunnery depot with "the support of a very good team from Stadler," Carroll explained.

Docklands gets to grips

Keolis Amey has been running London's Docklands Light Railway since 2014, and already made its mark with wide-ranging innovations in the management of its rolling stock to meet the needs of its 380 000 passengers every weekday. It is experiencing 13% annual growth, and is now the sixth-busiest UK rail operator.

Delegates were given a detailed explanation of the successes and challenges faced with a fleet that is well through its design life by Programme Manager Arran Rusling of Docklands Light Railway Limited and KeolisAmey Engineering Director Dave Smale, as well as the options for reliability improvements and the car replacement procurement programme.

The system has gone about as far as it can to optimise the timetable through signalling upgrades and careful scheduling, both DLR presenters explained; to cope with the expected patronage increases (which could reach 160m passengers in the next decade as development continues apace along the lines) a new fleet is the only option.

Transport for London's Rolling Stock Replacement Programme is therefore "the foundation for all of our plans to meet growth, as it provides 35% additional capacity and allows up to 34 more trains to be purchased," Rusling explained. This is in addition to the base 43-train order to replace B90/B92 stock. With capacity for 800 passengers/train, the new fleet will be a step-change. The specification is demanding, he explained, with "out of the box reliability" a key factor and the expectation of 30 000km between service intervals.

Both Rusling and Smale also detailed the plans for the expansion of the principal maintenance facility at Beckton. Despite some clear challenges, service reliability stands at a remarkable 99%-plus.

Making tramways safer

Following the publication of the UK's Rail Accident Investigation Branch report into 2016's fatal Tramlink accident at Sandilands, the UK is already advanced in improving its safety standards for trams, said David Keay, Director of Railway & Tramway Engineering and formerly HM Deputy Chief Inspector of Railways at the Office of Rail and Road.

Industry trade body UKTram has just published the first edition of its TPG (Tramway Principles & Guidance) document, which is recognised by the Government's Office of Rail and Road, and after consultation with operators, a revised version will follow in September.

From now on, there will be uniformity on vehicles' structural integrity, CCTV cameras for drivers, lighting, cab controls, fire safety, and braking. Driver vigilance devices are also likely to become a standard feature. After Sandilands, when car windows shot out causing fatalities, rules need to be devised on vehicle glazing, what happens with side impacts, vandalism, emergency evacuation and weight, and also cost, he reported, inviting the industry to feed into UKTram's work. TAUT

➤ Mainspring's LRT Rolling Stock Excellence Day was held at the Museum of London Docklands on 15 February. For information on further events, contact Mainspring on +44 (0)1733 367600.



▲ ABOVE LEFT: Arran Rusling explaining the procurement process for the DLR's new fleet that will offer a 35% capacity increase when introduced. L. Blyth / TAUT ▲ ABOVE RIGHT: Nexus Metro Services Director Chris Carson gave delegates an honest insight into the issues of maintaining services with a tired fleet. L. Blyth / TAUT