

LRT ENGINEERING EXCELLENCE

TAUT reports from a packed day of activities at Blackpool's LRT Engineering Excellence event.

The inaugural LRT Engineering Excellence day on 5 April welcomed over 60 delegates to Blackpool for a lively day of debate on focused topics of relevance to

those with responsibility for the day-to-day operation of light and urban rail networks.

A range of manufacturers and service providers from across the industry also showcased innovations designed to save money, improve reliability, reduce maintenance time and improve safety.

Supported by Blackpool Transport and UKTram, guests debated best practice at a time of unprecedented expansion and growth in passenger numbers across the UK's systems – in excess of 250m passengers were carried in 2016, covering over 21m miles.

At the end of the day, Blackpool Transport rolled out *Balloon 717* to take delegates on tours of its depots at Starr Gate and Rigby Road.

Colin Kerr, Engineering Manager from Edinburgh Trams, welcomed delegates to the event alongside James Carney, Finance and Commercial Director of Blackpool Transport, and chaired throughout. For more on the Blackpool tramway, see page 208.

LRT design and managing safety

David Key, now an independent consultant following over 20 years at the UK's Railways Inspectorate, gave an insight into maintaining safety in the public domain. In particular he focused on the challenges presented by the interaction between trams, pedestrians and other road vehicles.

Many of the safety incidents are preventable, he argued, presenting European research that suggests that pedestrians account for 10% of all collisions, but 50% of all fatalities, while in North America 80% of all fatalities are pedestrians. A strong focus on safety culture is required, he contended, with research showing that the root causes of 87% of serious or fatal accidents could have been discovered by closer interaction beforehand with operating and maintenance staff.

A proactive approach was suggested, with audits and inspections resulting in preventive actions, faults being dealt with and staff being engaged in a company's safety plans.

Measures to deter road vehicles from track incursions are more widely used in mainland Europe than the UK, he illustrated, such as tram-only gates or bollards that prevent unauthorised access onto tram tracks.

Clive Pennington of Mott MacDonald's fascinating presentation on emerging trends in LRT engineering began with the contention that many systems are not designed with ease of future maintenance and resilience in mind, citing battery charging points, infrastructure drainage, track-related noise issues and flange lubrication as just a few examples.

Considering the confluence of roles of the the engineer and asset manager, many of the issues that affect day-to-day operations could be resolved through more open engagement



▲ ▼ ABOVE AND BELOW: Delegates at April's LRT Engineering Excellence Day had the opportunity to debate best practice with colleagues from across the industry, as well as getting hands-on demonstrations of innovative new equipment and a tour of both of Blackpool's tramway depots. N. Pulling



between constructors, operators, engineers and the supply chain at an earlier stage. More collaborative working with suppliers on reliability issues and common failures could result in a more efficient operation and avoid gold-plating, he concluded. Such thinking could also influence issues of reliability and good asset management, increasing availability and reducing cost.

In the afternoon David Crawley of Xanta Rail asked: what measures could be considered grossly disproportionate when addressing rail safety? He explored what constitutes an appropriate response to any given risk, and whether its implementation undermines the business model of a service. Consistency and common sense in appraising risk and implementing safety strategy is key, he argued.

Mr Crawley looked at railings and platform edge doors, and whether their application and cost was proportionate to the risks posed to passengers without them. He finished with a brief analysis of the fatal October 2016 Sandilands accident on London Tramlink, considering some responses that might be disproportionate, including the possible introduction of automation to trams. **TAUT**

► Details of future LRT Engineering Excellence events can be found at www.mainspring.co.uk/engineering-day/

TALKING TECHNOLOGY...

A range of technical presentations were given from key industry suppliers, including:

Rene Fueler from Strabag showed how milling can be a preferential solution for track maintenance – creating fewer hazards and being more respectful to the urban environment while creating a better result, with a real focus on the benefits of milling as a treatment for rail and switches.

Lars Grüner from Vossloh examined the application of high-speed rail grinding and mini milling machines, as well as a detailed look at switch maintenance that considered sources of defects in switches and crossings such as wheel burns, impacts and spalls. He concluded by looking at defect measurement techniques such as ultrasonic testing and how the captured data is applied to preventative maintenance regimes.

Christopher Johnson from RS Clare gave a detailed overview of rail lubricants and their applications, with particular consideration of temperature stability and the changes in viscosity caused by temperature fluctuations.

Mike Mustard of Findlay Irvine presented on the challenges of maintaining a rail system despite often extreme changes in weather. Aspects of weather monitoring were considered, including a discussion of a prototype developed by Findlay Irvine that measures ice on the contact wire which has been installed on Manchester Metrolink; as well as a wireless rail temperature sensor that was installed on Tramlink's track.