BUILDERS PREPARE FOR POLISH TRAM BONANZA

30 years of the Docklands Light Railway

El Paso Streetcar
Bringing trams back to the border city

TMZ anniversary
Zürich museum group marks 50 years

NY Subway in ‘state of emergency’
Ottawa light rail funding boosted
Auditors reveal tram-train overspend
Topics and themes for 2017 include:

- Rewriting the business case for light rail investment
- Models for procurement and resourcing strategies
- Putting light rail at the heart of the community
- Street-running safety challenges
- Next-generation driver aids
- Using Big Data to improve safety and resilience
- Tram-train: Current schemes and new perspectives
- Traction energy optimisation and efficiency
- Cyber security – Responsibilities and safeguards
- LRT solutions for tight urban environments
- Digitisation and real-time monitoring
- Managing obsolescence
- Wire-free solutions
- Composite & materials technologies
- Rail and trackform innovation
- Major project updates

Confirmed speakers include:

- Geoff Inskip – Chairman, UKTram
- Danny Vaughan – Head of Metrolink, TfGM
- Allan Alaküla – Head of Tallinn EU Office, City of Tallinn
- Tobyn Hughes – Managing Director (Transport Operations), North East Combined Authority
- Ana M. Moreno – General Manager, Tranvia Zaragoza
- Peter Jones – Project Director, MPT Consortium
- David Favest – Marketing Director, STIB-MIVB
- Ben Gilligan – Director of Public Transport, SYPTE
- Jane Cole – Managing Director, Blackpool Transport
- Paolo Carbone – Head of Public Transport Capital Programmes, Transport Infrastructure Ireland
- Andres Muñoz de Dios – Director General, MetroTenerife
- Alejandro Moreno – Alliance Director, Midland Metro Alliance
- David Favest – Marketing Director, STIB-MIVB
- David Hand – Divisional Director and LRT Group Practice Leader, Mott MacDonald
- John Krause – Executive Director, Chicago Street Renaissance
- David Sidebottom – Passenger Team Director, Transport Focus

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“Once again your team have proved your outstanding capabilities. The content was excellent and the feedback from participants was great.”

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Andrew Braddock looks to the future.

Many happy returns to LRTA, TMZ and DLR!

This month marks a number of significant anniversaries. Firstly, LRTA Patron Geoffrey Claydon outlines the first eight decades of the Light Rail Transit Association. Formed to campaign against the closure of UK first-generation tramways, it has seen the fall and rise of street-running light rail and Geoffroy’s overview looks at how the Association has grown into a body of worldwide standing that is just as relevant in 2017 as it was in 1937.

Meanwhile, Mike Russell turns his experienced eye to Switzerland for the double anniversary year of the Verein Tram-Museum Zürich. Established in 1967 to preserve the city’s tramway heritage, TMZ enjoys outstanding relationships with the city undertaking, speaking volumes for the appreciation this city has for its transport.

Another light rail system that is inextricably linked to its surroundings is the UK’s Docklands Light Railway. The subject of this month’s special focus, east London’s ‘funny city undertaking, speaking volumes for the appreciation this city has for its transport.

Elsewhere in the issue we have comment from industry leaders on the importance of the human face of transport and also on how LRT can be a ‘no-brainer’ in the battle for clean air as cities struggle to meet ever-more stringent climate change challenges. Recent automobile industry declarations suggest that major manufacturers are finally ready to start the long farewell to the combustion engine. While a good start, that won’t solve issues of congestion or safety; this is where efficient electrified urban rail comes into its own – holding true to the aims of a few bold Londoners some 80 years ago...

> The Systems Factfile on BOGESTRA will now appear in the next issue. Simon Johnston, Editor
Bremen chooses Siemens as collaboration rumours intensify

One of the most interesting LRV contracts of the year so far came on 29 June, when the north German city of Bremen announced the placement of an order with Siemens for 67 Avenio 100% low-floor trams, with an option for a further 10-17 cars, at a cost of around EUR200m. Delivery is planned for spring 2019, permitting the replacement of ADtranz/Kiepe GT8N cars delivered in 1993-96. These 77 trams were considered for a mid-life overhaul, but their poor condition, mainly due to corrosion, and the difficulty in sourcing spare parts, led to the alternative decision to buy new.

The four-section Siemens Avenio trams will be 37m long and 2.65m wide, with space for up to 259 passengers. They will be equipped with LED lighting, air conditioning and regenerative braking, with a wheelchair lift for stops without platforms; 90% of the product will be recyclable according to Siemens. The Bremen order was keenly contested by both Bombardier and Alstom/LHB. Siemens had been short of orders for its new Avenio design, with deliveries to just München (Munich) and Den Haag, plus niche orders for Ulm and Doha. Confirmation of the Bremen deal was delayed due to protests from Bombardier, which supplied the city with its last trams in 2005-12.

Intriguingly, just days after the announcement sources close to the matter told the financial media that Bombardier and Siemens continue to explore a closer working relationship (see TAUT 954). The latest plan is thought to involve two joint ventures, one for rolling stock (controlled by Bombardier) and one for signalling (controlled by Siemens). Both companies have seen their share price fall in recent months, and both have announced redundancies in their workforces. The two rail giants have significant, overlapping rail operations in Europe, making any potential tie-up more complicated, likely requiring political backing and clearance from antitrust authorities, and facing potential opposition from unions.

In May Siemens outlined plans to downsize its operations in Krefeld by 300 workers, while Bombardier Transportation will make cuts of as many as 2200 jobs in Germany by 2020 under its previously-announced plan to cut 7500 positions worldwide.

Ottawa Stage 2 LRT receives federal funding

Stage 2 of the Ottawa O-Train Confederation light rail line has received a firm commitment of CAD1.15bn (EUR783m) in federal funding. Canadian Prime Minister Justin Trudeau made the announcement on a 16 June visit to the Belfast Rail Yard – where the current batch of 34 Alstom Citadis Spirit low-floor LRVs are being assembled and will be maintained and operated from when services begin in 2018 – saying: “It’s a project that will create jobs, nearly 1000 full-time jobs, for people here in Ottawa.” Provincial Infrastructure Minister Bob Chiarelli reiterated his government’s commitment to the CAD3.6bn (EUR2.45bn) project, the biggest transport scheme in the city’s history.

The second stage of the Confederation line will extend the route 12km (7.5 miles) further east and 15km (9.3 miles) to the west, placing 70% of the city’s residents within 5km (3.1 miles) of the completed line. Initial works have already started, with major construction due to begin in 2018 for completion in 2023. The project includes a link to Ottawa-MacDonald International Airport, with the airport authority financing a new station. Travel between downtown and the airport will take approximately 40 minutes and require two transfers, at South Keys and Bayview.

A week after the funding announcement, Alstom confirmed a CAD300m (EUR203m) order from Rideau Transit Group for a further 38 Citadis Spirit trams for the project’s second stage, joining the 34 cars of this type that will start carrying passengers on the first 12.5km (7.8-mile) section next year. Like the original order, the new batch will be assembled at the Belfast Rail Yard which employs 120 Alstom staff. The manufacturer has a 30-year contract to maintain both the light rail line and the 72 trams.

The Ottawa operator, Transpo, is about to start training 80-90 operators and 15 controllers for stage 1, most being re-trained bus drivers.
Paris T11... and new transport branding

French capital opens its latest tram-train service

Saturday 1 July saw the opening of the 10.6km (6.6-mile) orbital tram-train line T11 Express that connects Épinay-sur-Seine and Le Bourget using 15 Alstom Citadis Dualis cars. Free rides were given all weekend. The seven-stop line offers interchange with tramline T8 at Épinay-sur-Seine and Villetaneuse-Université and also offers connections with 'Train' lines B, C, D and H. Next year service should be extended from Le Bourget to Noisy-le-Sec. The line is operated by Transkeo, a subsidiary of SNCF Transilien and Keolis, and is forecast to carry 60 000 passengers per day.

The 15 Citadis Dualis cars for T11 were ordered on behalf of Île-de-France mobilités (formerly STIF) by national rail operator SNCF in 2007. Alstom

UK light rail on the up

A record number of journeys were made on light rail systems in England (UK) in 2016-17, following a 6.2% increase over the year before. Vehicle mileage was also at its highest levels of the modern era, having risen by 2.9%. Comparable records have been gathered since 1983.

England recorded 267.7m journeys in 2016-17, and 21.6m vehicle miles (42.8m vehicle km).

London dominated the figures, with the Docklands Light Railway (seeing 122.3m passenger journeys in the year to March 2017) and London Tramlink (29.5m) together accounting for 57% of all journeys.

Of the systems measured, only the Tyne and Wear Metro recorded a decrease in passengers (-6.5% to 37.7m), some of which can be attributed to closures as part of the system’s ongoing Metrol: all change modernisation works. At the other end of the scale, journeys on Nottingham Express Transit rose 35% to 16.4m in the first full year since the system added two new lines as part of its Phase 2 expansion.

On Midland Metro, which recorded the next highest rise, the figure climbed 29% to 6.2m. Much of this can be attributed to the Birmingham City Centre extension that opened in 2016 and a move to smart payments.

Compared with 2015-16, light rail/tram revenue rose 5.3% in real terms to GBP362.4m (EUR413.1m). Average tram/tram revenue has risen GBP94m (EUR106.7m) to GBP2.67bn (EUR3.03bn).

The Department for Transport says the rise in passenger figures over time have not all been due to an increase in the population: figures show that 15.5 journeys per head were made in 2016-17, compared to 11.5 journeys in 2006-07. The majority of this is ascribed to a 65.9% increase in passenger journeys per head on the DLR over that period.

On the London Underground, journeys were up by 29m to 1.378bn over the period (an increase in daily journeys more than making up for a decrease in season ticket use), passenger miles were up by 211m and revenues have risen GBP94m (EUR106.7m) to GBP2.67bn (EUR3.03bn).

Figures for Scottish urban rail systems are measured separately, but the outlook is similarly positive for Edinburgh Trams which has seen another year of growth. Passenger journeys rose half a million to 5.8m in 2016-17, while fare revenues have jumped 12.5% to GBP11.2m (EUR12.7m).

Delivering a pre-tax profit of GBP252m (EUR286m), these returns wouldn’t be seen until the DLR over that period.

Passenger journeys rose by 29m to 16.4m in the first full year since opening in 2016-17, while fare revenues fell GBP1.8m (EUR2.0m); although like the Tyne and Wear Metro, the Subway is also undergoing a major modernisation programme.

Core findings from the latest Tram Passenger Survey undertaken by Transport Focus show passenger satisfaction of 93% across the six networks measured: Blackpool, Edinburgh, Manchester Metrolink, Midland Metro, Nottingham Express Transit and Sheffield Supertram. Highest ranked was Edinburgh Trams, with 99%, but the biggest improvement was recorded on Midland Metro, which rose to 92% from 81% (the latter at a time when network improvement was taking place, though an increase is also shown from before work started). Only Sheffield Supertram saw a statistically significant decrease, to 91%. The others were Blackpool (95%), Manchester (90%), and Nottingham (97%).

Fieldwork was carried out in September-December 2016. See https://www.transportfocus.org.uk/research-publications/research/tram-passenger-survey/

Brussels trams’ 150th anniversary plans

Extensive preparations are being made to mark the 150th anniversary of tramway operation in the Belgian capital. On May 2019 there will be a large tram parade, and many unrestored trams from Woluwe museum will be restored to operating condition between now and then.

NEWS IN PICTURES

Zhuhai tramway begins revenue service

Revenue service on the 8.9km (5.5-mile) east–west tramline in the Chinese city finally began on 6 June, from Haitian Park to Shangchong. The line uses the Tramwave surface current collection system from Ansaldo STS, while AnsaldoBreda produced ten five-section Sirio trams in a joint venture with CRRC Dalian.

Zhuhai Sirio 01051 5 between Shangchong, Xiaozhen and Hongya Mingyuan on 18 June. Howard Pulling
**Network Rail ‘401% over tram-train budget’**

*National Audit Office report identifies key causes of delay to the South Yorkshire pilot scheme*

A critical report into the UK’s tram-train pilot by the National Audit Office has revealed that the programme to modify national rail infrastructure is currently more than 400% above its original budget.

The pilot to introduce tram-train service between Sheffield Supertram and Rotherham was approved in May 2012 as Network Rail (NR) agreed to make efficiencies to cut its original GBP18.7m estimate to GBP15m. Passenger service was to begin in December 2015.

A key objective of the pilot was also the provision of technical and operational lessons; some of these ‘learning outcomes’ have already been shared with promoters in Greater Manchester, West Yorkshire and the Welsh Assembly. Network Rail has also been contracted to provide support to the Glasgow Airport Access Project.

The NAO report, published on 4 July, suggests that more complex technical challenges, inadequate early design work, differences to vehicle characteristics from the agreed design assumptions and poor project management are amongst the key drivers of the delays, allied to worse than expected conditions of existing heavy rail assets. It also states that the Department for Transport (DfT) twice reassessed the scheme’s validity and senior civil servants’ recommendations to abandon the project were overruled by ministers.

It was recognised by HM Treasury in 2012 that significant risks lay within the pilot, approving it on ‘an exceptional basis’. A ‘low’ benefit-cost ratio (BCR) of 1.0 was given upon its approval, based upon perceived local transport benefits. Wider industry and economic benefits were considered ‘very uncertain’.

The latest revision suggests a BCR of 0.31 – based solely on the local public transport case – downgrading the project to ‘poor’ under the DfT’s standard ‘Value for Money’ criteria.

The expected cost for the NR programme of modifications is now predicted at GBP75.1m (EUR84.9m); this includes adaptations to Supertram infrastructure, depot upgrades and the purchase of seven Stadler Citylink vehicles.

Another addition was the 2012 DfT announcement that the Midland Main Line rail line would be electrified to 25kV ac after 2019, asking NR to extend its project’s scope at an estimated cost of GBP5m.

In June 2016, the DfT’s Permanent Secretary recommended cancelling the pilot. Many of the lessons had already been learned, it was argued, but then-Rail Minister Paul Maynard authorised the project to continue – although without increasing an earlier GBP45.3m DfT funding cap – based upon the need for data from a fully-completed pilot.

NR agreed to meet the shortfall, allocating funds from its wider renewals budget.

This approach was endorsed by the Minister in March 2017. At the DfT’s request, industry body UKTtram conducted a review of the pilot in 2015, recommending a series of programme improvements. The NAO report claims that NR did not see this report until summer 2016, contesting some of its findings. Additionally, operator Stagecoach Supertram had a GBP2.5m (EUR2.8m) claim for loss of revenue related to delays in implementing the service settled with the DfT in May 2017.

As of June 2017, NR had achieved 19 of the 26 significant construction milestones, including completion of track, points and crossings (including the Tinsley Chord) to connect the tramway to the rail network; installation of more than 85% of electrification equipment and a new signalling power supply. Work continues to raise College Road bridge in Rotherham to allow sufficient clearance for the service’s overhead power lines.

Service is now scheduled to start in summer 2018 and NR has said it is committed to preparing an ‘Industry Learning Report’ by 2021, once operational lessons have been evaluated.

NR’s Rob McIntosh said: “Costs and timescales have moved as the project itself has grown in scope and complexity and has had to incorporate more significant infrastructure changes than originally planned. Good progress is being made and a new project team is now in place and driving the service to its conclusion.”

NY Subway ‘state of emergency’

At 10.00 on 27 June a southbound New York Subway A train derailed as it approached 125th St station in Harlem. Passengers on this train and three others had to be evacuated through the tunnels to the nearest station; 34 on the derailed train were injured. The cause of the derailment was found to be an unsecured siding to the south.

Governor Andrew Cuomo declared a state of emergency for the system, citing poor maintenance and outstanding repairs. The past 18 months have seen a rising number of mechanical and power failures; delays have increased from 28,000/month in 2012 to 70,000/month in 2017.

On 21 June authorities in the Norwegian city of Bergen approved plans for a second tramline, 10.8km (6.7 miles) from the city centre (a temporary stop at Kaigata), just short of the existing line 1 terminus) to Fyllingsdalen (Speihagen) in the south, using in part old rail alignments; 39,000 passengers/day are expected to use the new line.

The northern section will branch off line 1 at Lungegårdskaien and includes a 1.4km (0.9-mile) subway serving an underground station at Haukeland hospital. The new line will pass under existing line 1 to Åsane, including a section along the city’s historic Bryggen waterfront. This section remains controversial, hence the decision to proceed with the Fyllingsdalen line as the next priority. The existing line 1 stub terminus at Byparken near the city centre does not have sufficient capacity to host a second service, hence line 2 cars will reverse on a new siding to the south.

Bergen trams are managed and administrated by Skyss, which also provides the city’s trolleybus and bus services, and bus services across the Hordaland region.
De Lijn confirms CAF order

Bombardier’s challenge is rejected, but De Lijn hints suggest co-operation

Last year Belgian operator De Lijn announced CAF as preferred bidder for 146 new trams and at the time it was feared this decision could affect the future of the Bombardier rolling stock facility at Brugge, which has traditionally built cars for Belgian tramways; earlier this year the firm announced 160 lay-offs at the plant.

After a Bombardier appeal De Lijn was obliged to re-evaluate the tenders on the basis of both whole-life price and quality.

On 13 June the De Lijn board approved the order with CAF for up to 146 trams, starting with an initial 24 worth EUR56.3m, for the coastal tramway linking Knokke, Oostende and De Panne, followed. If exercised, six further options would take the value of the order to EUR295m.

In 2014 De Lijn said it required 62 trams for the coastal line, 66 for Antwerpen and 18 for Ghent.

A report to the board said a re-evaluation of tenders showed the total cost of ownership of CAF trams was 5% lower than the offer from Bombardier, while quality was close between the two bids.

De Lijn Director General Roger Kesteloot said postponement had created opportunities for possible collaboration between CAF and Bombardier, but did not elaborate how this co-operation might work in practice. It is reported that Bombardier has lodged a further appeal to the decision.

Delivery of the first new tram is expected in mid-2019.

Braunschweig extends Tramino order

Braunschweig (Germany) has extended its order of 1100mm-gauge Tramino 100% low-floor trams, placing a firm order for a further seven single-ended 35.7m four-section cars from the Stadler/Solaris joint venture for EUR18.9m. Delivery of the complete batch is expected in 2019.

Braunschweig bought 18 Solaris Traminos in 2014-16. The new vehicles will be delivered under the new joint venture arrangements announced in September 2016 (for more on the Polish rolling stock market, see pages 294-298).

UK appoints new light rail minister

The UK’s new minister with responsibility for light rail is Jesse Norman MP. The Conservative politician was appointed Parliamentary Under-Secretary of State for Roads, Local Transport and Devolution on 14 June, following the country’s General Election.

Mr Norman has previously been Parliamentary Under-Secretary of State, Minister for Energy and Industry, having been elected in 2010 as the MP for Hereford and South Herefordshire.

Paris drivers are the 2017 European champions

MetroTenerife played host to the 6th European Tramdriver Championship on 4 June, also celebrating ten years of tramway operation in Santa Cruz de Tenerife. Fourteen countries took part, including Jerusalem as a guest city.

The competitions were held on a section of tramway near the Santa Cruz terminus and involved tests in five disciplines, including speed and braking, lateral distance, exact stop, overrun test and tram bowling. A big screen was set-up for public viewers, and the competition was also broadcast as a live web stream.

In the final, the Parisian team of Corinne Leroy and Karim Annouche secured a clear win, with 3390 points, while the team from Berlin narrowly beat the pair from Frankfurt-am-Main into third. Berlin’s Franka Sonntag was awarded Best Female Driver, and Karim Annouche from Paris was crowned Best Male Driver.

At the award ceremony Carlos Alonso and Andrés Muñoz de Dios from MetroTenerife handed over the baton to Wolfgang Arnold of SSB Stuttgart; the German city will host the next competition on 5 May 2018.

With more than 15 years of experience returning American heritage streetcar fleets to service, BROOKVILLE is a proud vehicle rebuild partner of the City of El Paso and Camino Real Regional Mobility Authority. We look forward to these integral pieces of El Paso’s historic past becoming an iconic connection to its prosperous future. BROOKVILLE brookvillecorp.com • 814.849.2000
FALL AND RISE OF THE
EL PASO STREETCAR

2019 will mark the 45th anniversary of the demise of the Texan city’s first-generation streetcar system with the opening of a new urban double-loop service. Vic Simons reports from Southwest Texas.

The pages of TAUT have been filled with many new US streetcar openings in recent years, all reinstating urban rail-borne service to cities that abandoned the mode many decades earlier in the face of a change in emphasis to motor buses and the private car. ‘What makes El Paso different?’, a reader may ask. Well, significantly this is the first time that the reintroduction of light rail will be with the very same PCC cars that were in service at the time of the original closure, although the new figure-of-eight loop sadly won’t see the resumption of the cross-border lines of the original system.

The closure of the famous international tramway link in 1973 was largely brought about by the Mexican authorities fearing that the streetcar was having a detrimental effect on the economy on its side of the border by bringing so many of its citizens across to the US to work and to shop and little in economic exchange the other way. This was one of the more unusual reasons noted for a US streetcar closure.

What is encouraging is that the City of El Paso, supported by groups of enthusiastic volunteers, took the far-sighted view that rather than sending its streetcars to the scrapman’s torch they should be stored with a view to a future reopening. Current officials admit that the city was not expecting to wait 45 years however.

Nine PCC cars were thus stored, six of which are currently being refurbished by Brookville Equipment Corporation in Pennsylvania ahead of their return to city metals within the next two years.

A little background

El Paso is located in the extreme west of Texas on the border of both the US State of New Mexico and the country’s international border with Mexico. It is the only part of the state in the Mountain time zone, being some 925km (575 miles) west of the state capital, Austin. Although three other cities in the state feature light rail and streetcar operations, El Paso’s nearest light rail neighbour geographically is the Arizonan city of Tucson... despite the fact that one has to cross two state borders to reach it.

The city and surrounding county metropolitan area have a population of just over 800 000. Directly across the famous Rio Grande is the Mexican city of Ciudad Juárez – the largest city in the nation’s largest state of Chihuahua and commonly known as simply...
Juárez – itself having a population of around 1.4m; effectively this encompasses 2.2m people in the cross-border conurbation.

Originally known as El Paso del Norte, the US city has a complex history. The main settlement was established by Spanish conquistadors in the 17th Century, although evidence of Native American inhabitation across the Rio Grande valley dates back many millennia. The main community lay south of the Rio Grande and it was not until the resolution of conflicts with various Native American tribes and the establishment of the State of Texas was there any significant population expansion north of the river.

Ownership of the area that the modern city sits upon passed to the US following the war of 1846-1848 when Mexico lost almost half its national territory. The war officially ended in February 1848 with the signing of the Treaty of Guadalupe Hidalgo that formalised the future international boundary along the Rio Grande as well as the relinquishing of any Mexican claim to Texas.

The city as we know it today was formed from the nucleus of a settlement called Franklin and was incorporated in 1873. By the time the railroad was extended through the city in 1881, Franklin had become El Paso and was already on its way to becoming a boomtown. Mule-drawn streetcars first arrived in 1882 and were replaced by electric traction in 1902; local lore has it that during the ribbon-cutting ceremony for the new electric service, long-serving mule Mandy kicked out at the new cars that would become her replacement! A robotic recreation of Mandy is now the ambassador for the El Paso Museum of History and is used as an educational tool across the state.

By the 1920s, El Paso had more than 100 cars running over a 100km (62-mile) network, but within the decade the system saw patronage decline as the city grew and introduced more bus services. By 1937 many of the routes within El Paso had been phased out and by 1950 all but the route to Juárez had been discontinued. This continued to thrive, and even re-equip, due to its unique cross-border operation that transported enough families, migrant workers and shoppers to sustain itself for more than two decades after the other lines had disappeared. Paradoxically it was this very reason that led to the line’s final demise.

In 1973 the Mexican authorities, for fear of an economic decline with many of their citizens...
making the short ride across the border, and following a number of complex labour disputes, revoked the line’s licence and destroyed the tracks inside Juárez. With its main source of patronage removed, the City of El Paso was forced to abandon the system in May 1974, in the process saying goodbye to one of the continent’s few original streetcar survivors. When the original car barn was repurposed by the city for its fire department in March 1986, the remaining cars were moved to an alternative site by the Paso Del Norte Streetcar Preservation Society and finally ended up in outdoor storage at El Paso International Airport.

El Paso today

Despite the tramway’s closure, a large number of Mexicans continue to make the cross-border journey on a daily basis – indeed it is the second busiest border crossing after San Ysidro, CA. However, given its natural southern boundary the main growth of the city has been northwards and westwards with the small suburban town of Chaparral lying across the state line within New Mexico. The mainstay of public transport has been the motor bus, but it was clear to the city fathers by the turn of the 21st Century that urban traffic levels were strangling future development. The bold resolution was therefore made to develop an efficient integrated transit network that would make El Paso the least car-dependent city in the south-western US.

Following a 2010 study by Cambridge Systematics Inc. on behalf of the Texas Department of Transportation, two solutions were later approved by the city to be implemented by its transit agency Sun Metro: BRT and streetcar. The streetcar has a 7.7km (4.8-mile) figure-of-eight alignment with an accompanying USD97m pricetag that is being met wholly by the State of Texas. The southern loop will start at El Paso’s Downtown Transit Center and head north on Santa Fe to Franklin Street where it turns east to South Kansas Street. Before reaching South Kansas, the northern loop will diverge north on Stanton as the southern route continues back to Father Rahm Avenue where it turns west back to Santa Fe and the Downtown Transit Center. The northern loop continues along North Stanton Street to Baltimore Drive where it heads west to North Oregon Street and then turns south. Just south of this junction is the Glory Road Transit Center, one of the few locations where the streetcar will share a stop with the Brio BRT service. Operation will be in this direction only. When asked about whether the potential 10% gradients in the uptown loop had been an issue, Sun Metro explained that there had been other places, particularly in Pennsylvania, where streetcars had successfully climbed steeper gradients and in much worse weather than that of El Paso. The 27 streetcar stops will be to the same standard as those of the Brio BRT operation but without the ticket machines; these will be inside the refurbished PCC cars. Services will be provided seven days a week with generally five streetcars an hour around the downtown loop; every other car will be being extended through the uptown loop. Average running speeds are expected to be 29km/h (18mph), and a little higher at the outer ends of the route. The new car barn and maintenance facility is adjacent to Sun Metro’s Burt Williams downtown Transit Center on Santa Fe, although the project’s tight budget has led to the elimination of both emergency passing facilities.
TAUT
Streetcar Operations Carl C. Jackson told although Assistant Director of Sun Metro cost overruns above the approved budget, the city is insisting that there can be no loops and storage sidings. As matters stand, the contract includes stripping down the trolley poles with modern pantographs. data recorders, and replacing the original Wi-Fi, air conditioning, CCTV cameras and incorporating features such as passenger what Sun Metro describes as a ‘retro’ style, are being rebuilt from the ground up in of the US, although the chosen cars will still require significant work. The dual-door single-ended 750V dc cars are being rebuilt from the ground up in what Sun Metro describes as a ‘retro’ style, incorporating features such as passenger Wi-Fi, air conditioning. CCTV cameras and data recorders, and replacing the original trolley poles with modern pantographs. The contract includes stripping down the vehicle frames, repairing and replacing structural components, a complete electrical overhaul and rebuilding the trucks, and it is clear from the design and work to date that the cars will retain the ambience and flavour of when they were first put into service. The destination blinds will be akin to the original roller blinds both on the front and the side of the vehicles. The cars are also being made compliant with the Americans with Disabilities Act with wheelchair lifts. The PCCs will be painted in three different liveries to reflect the El Paso operating styles of the 1950s, 1960s, and 1970s. Each car is costing USD3.2m on average to refurbish; Jackson believes this is good value as the cars will return in better than new condition, with a 15-year target life expectancy. The first arrived at Brookville’s Pennsylvania facility in November 2015 and is expected back in El Paso either later this year or early in 2018. Once up and running the streetcar will be run and maintained as part of Sun Metro’s day-to-day operations, with its costs included in its operational budget. The construction phase is being managed by the Camino Real Regional Mobility Authority (CRRMA) on behalf of Sun Metro and the City of El Paso. TAUT met with Gilbert Gardner from the CRRMA, seconded to the agency from engineering and project management consultancy Atkins, who explained that the biggest challenge to date had been utility relocation. This is particularly the case in the centre of Stanton Street where the utilities apparatus had been laid under the centre of the street. With this major hurdle overcome he now expects the project to be completed on time and to budget. Civil engineering and trackwork are well underway with the most disruptive works deliberately planned for the summer following graduation ceremonies at the University of Texas El Paso (UTEP) and local schools to avoid adverse impacts on students and those working in and around such educational facilities.

Four substations are being built along the alignment with an additional one for the maintenance facility. Gardner was keen to point out that these facilities are also making extensive use of solar power, adding to the project’s green credentials.

Construction will be completed in time for initial testing once the first refurbished PCC arrives back in El Paso, Gardner explained, stating that each vehicle will take between two weeks and a month to undertake the formal approval process. Public outreach and information are key in Gardner’s eyes to ensure support for the project, and he is pleased that local objections have been minimal and easily dealt with.
Parallel BRT development

Sun Metro considers that its new BRT system, marketed under the name Brio (Spanish for verve or energy), will have a much greater impact than the streetcar on encouraging fewer trips by private car, simply due to the more extensive nature of the network.

The objective is to cut commuting times in half by having less frequent stops, and with dedicated stations and greater use of prepayment to speed boarding and reduce stop dwell times. Ticket machines taking both cash and credit cards are being installed at each stop; the honour system, with its switch to paying before boarding, will necessitate the provision of vigorous revenue protection and ticket checks. Fare evasion has been minimal prior to Brio’s launch as all tickets and passes were checked when boarding buses.

Sun Metro has made it clear that the Brio corridors could be converted to light rail in the future and the common design features would certainly enable this transition.

The author wonders whether some of the benefits will be eroded in the future with the lack of dedicated bus lanes, although there is a small number of such lanes in the downtown area.

The first of four planned Brio lines is the 13.8km (8.6-mile) Mesa corridor which opened in October 2014 with 22 stations, all of which are equipped to full LRT standard. In addition to the ticket vending machines, they have sheltered waiting areas and timetable information with raised kerbside platforms to allow level boarding.

Brio services take advantage of signal priority at junctions, unlike the streetcar – another unfortunate casualty of the ‘value engineering’ process.

New 18.5m articulated buses running on CNG (compressed natural gas) have been procured from Canadian-based manufacturer New Flyer for the BRT corridors.

The Mesa BRT line cost USD27.1m, of which USD15.6m was provided from the Federal Transit Administration (FTA) and USD5.5m from the State of Texas. The remainder was funded locally.

The second and third Brio lines are under construction and are both planned to open during 2018. The second will be the 23.3km (14.5-mile), 29-station Alameda corridor, expected to cost USD38.3m and entirely funded by the City of El Paso.

The third line is the 16.4km (10.2-mile), 22-station Dyer corridor. This is expected to cost USD35.7m, of which USD21.5m is planned to come from the FTA with a further USD6.4m from the State of Texas. The balance will be financed locally.

The fourth Brio line will be on Montana; planned to open in 2020, this is expected to cost USD43.3m, of which USD 25.7m will be sourced from the FTA.

View from the top

Jay A. Banasiak, Sun Metro’s Mass Transit Director, is bolstered by progress to date and is excited about the transformation that the streetcar and Brio are bringing to the city.

The tight budget constraints make it particularly important that revenue projections need to be met and this is his biggest concern. Revenue protection is crucial, he told TAUT, with even more robust checking regimes being implemented.

Banasiak’s clear message was that a rapid transit network was the key to success in increasing public transport usage and taking people out of their cars. To help meet these objectives some bus routes were being recast to feed Brio.

Sun Metro’s approach is admirable and while its project management needs to be robust to cope with the tight budget constraints, these are often the realities of modern urban transit schemes in ever-more constrained funding climates.

It cannot go unnoticed that the first three Brio routes are costing approximately the same for 53km (33 miles) as the streetcar will cost for less than 8km (five miles), but it remains to be seen which mode will prove more successful. This will soon be determined at the Glory Road Transit Center where passengers will have a choice whether to travel to the downtown area by streetcar or by Brio.

Grateful thanks are due to Jay Banasiak, Oscar Arriaga and Carl Jackson from Sun Metro and Martin Bartlett and Gilbert Gardner from the CRRMA for their assistance in the preparation of this article.
INVESTING IN PEOPLE IS THE KEY TO PASSENGER SATISFACTION

Alistair Gordon of Keolis UK argues that while technology is a valuable enabler of customer satisfaction, staff development must remain a priority.

The UK transport industry is increasingly focused on how we can use digital technology to create more efficient networks and ultimately a better passenger experience. Light rail operators are at the forefront of this innovation, as we have been with our roll-out of smartcards and mobile ticketing on Nottingham’s tramway.

Clearly, the application of technology is an important step in meeting the high expectations of our passengers, but it alone is not a ‘cover-all’ solution. The people who deliver transport services are as essential to this as the technology we use, and we must continue to invest in training and development.

Technology is making it easier to connect and communicate with passengers, but it is also raising the bar for customer service. Through social media, we can access information instantly about our journeys and communicate with passengers, expecting responses in real time. We expect to be able to buy tickets on our smartphones and access Wi-Fi when travelling. Across all industries, consumer expectations are rising, and transport is no exception.

For a high-density light rail network with a large, diverse passenger base – like those that we run in the UK and abroad – this presents clear challenges. Good communication is key to ensuring that passengers feel valued from the moment they board a tram, to when they reach their destination. Yet the challenge of serving a huge demographic means there is no ‘one size fits all’ strategy. Instead our priority is to ensure communication is available in a variety of forms, and accessible to everyone, particularly during periods of change when passengers are likely to need more assistance. What must underpin all of this is a commitment to training and developing our people so they can effectively support passengers on their journeys.

For example, we have taken Nottingham’s tram network (NET) through a significant transformation in recent years. The Phase 2 expansion has increased passenger journeys to more than 16m per year and brought with it a lot of change for passengers – and inevitably a level of disruption. Yet throughout the expansion the network has maintained solid customer satisfaction, scoring an impressive 97% in the Passenger Focus Survey results revealed in June 2017. Investing in our customer-facing employees has been critical to achieving this.

Given this, it may sound counter-intuitive that a major change was the switch to off-tram and digital ticketing – a move that involved taking conductors off the trams. Changing this role enabled us to put more human resource into other areas of customer services – offering passengers a broader range of contact options – but it also presented the challenge of continuing to deliver excellent service while having a less obvious visible presence. We addressed this, in part, by bolstering our social media offering and introducing an out-of-hours ‘on-call’ service. Staff have been equipped with tablet computers, allowing them to update customer communication channels remotely. We also created a dedicated travel centre in central Nottingham to provide face-to-face contact for people who prefer this.

Critical to this change was a new approach to training on the network. We put 72 customer-facing employees through the Institute of Customer Service’s accredited training programme, and as part of this we asked them to help identify potential areas for improvement across the network. Our aim was to embed a customer service mentality within the culture of the network, by empowering staff with new skills and the agency to make positive change.

To spread the benefits of this training, we physically relocated our customer service team to the network’s control centre. This was both a symbolic shift – ensuring everyone working on the network understood that customer communication should be at the heart of operations – and a practical one, helping our teams to relay real-time information to passengers. In tandem, drivers also undertook announcement training to build their confidence in talking directly to passengers – a step which many passengers have welcomed.

Revenue protection is another area in which well-trained and supported staff are fundamental to success. Paying customers expect operators to reduce fare evasion and ensure all passengers are contributing, but taking too heavy-handed an approach risks eroding positive sentiment. On the Docklands Light Railway (DLR), our joint venture has rolled out new training for revenue teams on how to create positive customer interactions. This has enabled us to maintain goodwill while increasing the number of ticket checks from 2% to over 18% of passengers per day. This visible presence also increases the perception of security and makes our passengers feel safer – key elements of customer satisfaction.

As ever, technology will be high on the agenda at this year’s UK Light Rail Conference, but I also hope to see operators and suppliers sharing their experiences and best practice for staff development. If there’s one thing we’ve learned from Keolis’ experience running urban transport networks around the world, it’s that we cannot provide our customers with a quality service if staff have not been trained to provide it.

As my team takes over operations on Manchester’s fantastic Metrolink light rail network this month, our focus is on improving operational reliability, customer service and security. Technology will enable this and, in time, help us to provide new and better contact and ticketing options for passengers. But transport is fundamentally a people business, and continuing to support and upskill our people is key to success.

”Transport is a people business, and continuing to support and upskill our people is key to our success.”

As CEO of Keolis UK, Alistair oversees strategy for the UK and Ireland and sits on the boards of rail franchises including Nottingham Trams and the Docklands Light Railway (DLR).

A graduate in mathematics from University College London, his previous roles include working for transport consultancy Steer Davies Gleave in the early stages of rail privatisation and seven years at Eurostar, where he became strategy director following a number of finance, branding and commercial positions.
Witold Urbanowicz reviews the current and future prospects for Polish rolling stock builders with domestic orders for over 600 trams due in the next six years.

Above: A Pesa Swing (122NaL) at the state-of-art Central Tram Station in Łódź; the city ordered a further 12 trams of the same type in April. Kasper Fiszer

Right: Protram rebuilt many 105N trams for Wrocław, also building new three-section articulated units with low-floor centre sections. More recently the city has seen deliveries of Škoda 19T double-ended cars and is currently looking for a further 40 new 32m three-section vehicles with a 20% low-floor requirement. Mike Russell
With the assistance of European Union funding, tramway operators across Poland are experiencing something of a renaissance. With the investments in infrastructure, tram and LRV manufacturers across the country are also seeing a boom in orders, providing a more affordable and tailor-made option for Polish undertakings.

Under the current EU budget, Polish cities are set to buy over 600 new cars in the period to 2023 and while there are many indications that Pesa will remain the market leader, other firms are trying their hand in this lucrative market – with varying results.

There are currently 15 tram networks across the country and most have seen significant development since Poland entered the EU in 2004. With the help of structural funds, public transport has seen significant growth – and investments, both large and small – with varying results.

The move towards low-floor trams

Large orders from Polish cities have been the key driver for the growth of domestic tram production. There has been a great deal of interest among manufacturers in securing a stake in the market, but for the moment at least only Pesa has been able to secure a permanent place with regular orders.

Domestic car-building has grown considerably in the past 15 years, leaving fewer opportunities for established non-Polish suppliers who have been unable to compete either on price, delivery schedules or flexibility in customising products to local needs. This latter requirement is especially challenging for larger international concerns that focus on their families of platforms of standardised vehicles.

The primary supplier of trams for the country’s tramways in previous decades was Chorzów-based Konstal; since 1973 the company has built hundreds of 105N and 105Na cars and also its metre-gauge 805N and 805Na versions. Principally a high-floor design with steps, such cars were supplied to systems across the country until 2001.

In the second half of the 1990s the firm produced partially low-floor rolling stock, however low orders meant this was more of a prototype development process. Based on this experience, the factory, acquired by Alstom in 1997, developed a new family of low-floor trams marketed as the Citadis 100. In total, 21 cars of this type were sold to Gdańsk and Tramwaje Śląskie, although this was not enough to sustain Alstom’s ambitions in the country and after the completion of this order in 2001 the French conglomerate withdrew from the Polish tram market.

With the injection of EU funds from 2004 allowing system modernisation and expansion, a new era of partial or wholly low-floor vehicles has begun. Polish manufacturers who thought of entering the market, or staying in it, have come up with all-new designs as it soon became clear that further adaptions of the ageing 105N wouldn’t guarantee long-term success.

Successes and failures

The current status quo was thus formed quite quickly, and soon came under the dominance of Pesa. A number of companies have tried their luck, one being Poznań-based HCP-FCP Cegielski. The company delivered 30 high-floor cars of its 123N series to Warsaw in 2006–07 – the last high-floor order by the Polish capital – also creating the partial low-floor Puma 118N prototype that failed to reach large-scale production.

Protram from Wrocław has also recently experienced difficulties and withdrawn from the market. This company was created in 1999 from a restructuring of the MPK Wrocław undertaking. Initially involved in the modernisation of 105N cars, the firm followed this with the production of trailers and high-floor cars. In 2006 Protram delivered partially low-floor 205WiAs cars to Wrocław but hasn’t won any orders since 2013 and is currently in bankruptcy, one of the nails in its coffin being penalty fees imposed by MPK Wrocław for the late delivery of wheel rims for Śkoda trams.

Newag, despite considerable success with its new EMUs for regional Polish rail operators, has had little luck with its tramway products. In 2010 the company obtained funding from The National Centre of Research and Development for production of a 100% low-floor tram; the resulting 126N Nevelo, presented in 2012, currently operates in Kraków on a long-term loan. In partnership with Modetrans, the company was close to securing an order for the new Olsztyn tramway. In 2012 its offer was considered the most attractive, as one of the requirements for this new-build system was low noise emissions and the consortium offered an extremely low level of 65.9dB. However, competing bidders claimed that this figure is not possible and the case ended with the National Board of Appeal.

In the end, Newag and Modetrans did not extend the validity of their offer and the order for Olsztyn was awarded to Solaris, which has successfully delivered 15 Tramino low-floor cars (with a confirmed noise emission level on a straight section of track of 74dB – the lowest achieved figure in Poland).

From buses to trams

Gaining moderate ground in recent years is Solaris Bus & Coach. A specialist in the
Pesa currently has a monopoly on the Polish low-floor market. Is there room for other manufacturers?

Small is beautiful and we are not afraid of Pesa, but we respect them. We will never be big. Even if we grow to Pesa’s size, they will be much further ahead. I think we can live together peacefully in the market as we look at niche tasks such as tram modernisation projects.

And what about your speciality in partially low-floor trams?

Cities like Gothenburg did not buy fully low-floor trams, but instead invested in the installation of low-floor sections when making investments they considered how many disabled people or mothers with strollers there are; the Swedes are very rational in spending investments they considered how many passenger and per kilometre travelled.

What is your current tram production capacity?

Over the past few years we have increased our capacity - both in terms of quantity and quality - over five times. After some minor investments we should be able to produce 50 low-floor trams a year.

Moderntrans grows and flourishes

Moderntrans, established in 2005, is a daughter company of MPK Poznań that specialises in the refurbishment, maintenance and repair of rolling stock. Its modernisations of high-floor cars form the Modernus Alpha family and a more recent addition is the Modernus Beta, being either rebuilt or new partially low-floor vehicles; Moderntrans also offers the installation of low-floor sections in second-hand trams imported from Western European operators. Entering this market segment proved a clever step for the company, allowing it to fill a niche that opened up for cities unable to afford fully low-floor vehicles. No other domestic car-builder offers such an option and new Betas have been delivered so far to Poznań, Szczecin, Tramwaje Śląskie and Wrocław.

In November 2016 the firm presented its Modernus Gamma prototype – its first fully low-floor tram, developed with the assistance of grants from The National Centre of Research and Development.

The dominance of Pesa

Without doubt, Pesa remains the undisputed leader in the Polish light rail market. The successor to a former PKP state railways repair unit, with a history dating back to the 19th Century, a new chapter for the company opened after the fall of communism and the transition to a free market economy.

In 1991, ZNTK Bydgoszcz left the PKP organisation, although it still focused on repairs to passenger rail cars. A decade later, a shareholders’ meeting authorised changes in ZNTK and the company became a private enterprise adopting the name-Pojazdy Szynowe Pesa Bydgoszcz Spółka Akcyjna. Holding which reflected the shift in activity from repairs and refurbishment to new vehicles. In 2001, Pesa began the production of trams for regional and intercity services.

Despite a lack of tram experience, the firm entered the market quickly and in 2005 won its first contract for the delivery of the fully low-floor Tramino to Elbląg. This experience allowed the company to take part in other tenders. Proving extremely effective and hard to rival in terms of price and deadlines, the firm flourished although such rapid growth has also led to challenges. Pesa has supplied about 500 cars to Polish operators under the 2007-13 EU Perspective (with the settlement and implementation period lasting until the end of 2015), but this has required a huge amount of effort. Savings from a number of EU projects allowed cities to launch additional programmes and in 2014 a number of operators issued tenders for rolling stock; due to the need to complete these projects by the end of 2015, delivery deadlines became very tight.

Pesa took all of the country’s orders for low-floor cars in this period, competing in some cases with Solaris, and this has led to an accumulation of orders and resulting delays that could result in the loss of EU funding for projects that could not be finished in 2015. As a result, many of the contracts faced delays and MPK Kraków and MPK Łódź operators even sent their own employees to Bydgoszcz to help with the trams’ assembly. This help, however, has been insufficient.

By mid-2015, seven contracts for a total of 216 cars – trams for Kraków, Bydgoszcz, Łódź, Warsaw and Toruń, as well as vehicles for PKP Intercity (the state-owned long-distance train operator) and Koleje Mazowieckie (a local commuter train operator) – were threatened. The Polish authorities and
the Centre for EU Transport Projects found a solution – the contracts were paid up and formally settled by the end of 2015, but payments for vehicles that hadn’t been yet commissioned have been made by the cities and operators to a fiduciary account. Pesa received this money only after the respective contracts were fully concluded.

By the end of 2015, 146 cars had been fully commissioned and 70 conditionally. Due to these delays, Pesa now pays several operators a penalty fee but, to be fair, in some cases it was the only bidder willing to produce a tram to such tight schedules. Contract signings were dependent on formal assignment of external EU funds – and in some cases the bureaucratic mills were slow – even though the contract deadline remained fixed. So if it hadn’t been for Pesa, it could be argued that some cities wouldn’t have received any new rolling stock under such conditions.

**2014-20 EU Perspective tram orders**

Many of the new programmes for the 2014-20 EU Perspective are now being launched and it appears that this period for public transport, and tram networks in particular, will be as ambitious as the previous one. This is no surprise as the needs for operators are still massive. According to various declarations, Polish cities may see more than 600 new tramway cars delivered in the years to 2023.

Two trends can be observed. Firstly, the biggest cities – with more robust budgets – are tending to order 100% low-floor trams. Such investments are now standard practice in, for example, Warsaw, Kraków or Gdańsk. Cities with tighter budgets prefer partially low-floor trams (with at least 20% low-floor); such orders have most recently been placed in Wrocław in what is not the most popular decision locally.

Yet despite the raft of current and planned investments, many cities still operate trams that date back to the 1960s or 1970s. Some will continue modernising existing fleets, many using second-hand trams from German systems which are often more reliable and in better condition than newer Konstal vehicles. These will probably be rebuilt and fitted with low-floor sections. Recently Łódź has introduced one partially low-floor NF6D car (ex-Bochum) and with promising initial results the opportunities for the acquisition of a further 34 such vehicles are growing.

Although the current EU Perspective is now formally in its third year, it is only now gaining momentum when it comes to tramway projects. Poznań was the exception in February MPK Poznań and Modertrans signed an agreement for 50 new trams – including 30 single-ended and 20 double-ended vehicles. Although the tender only required
60% low-floor platforms, Modertrans has offered its fully low-floor Modernus Gamma, which will make Poznań the first city with such vehicles in its fleet. In March Bydgoszcz signed a contract with Pesa for the delivery of 18 trams, including 15 long ones (up to 31m) and three shorter ones (up to 21m). This was not a surprise as the tender requirements favoured fleet unification and the only new trams previously delivered to Bydgoszcz were from Pesa. In April Pesa won another order, this time for 12 trams for MPK Łódź.

The latest, relatively small, but interesting development was a contract signed in June between the city of Modertrans and Elbląg. Three single-section partially low-floor vehicles of up to 15m have been ordered in the first such order in Poland, although partially low-floor single-section vehicles are popular in the Czech Republic. In a further two orders the winner is known, although the contracts await signature.

In January Pesa was named the only bidder in the contest to supply Gorzów Wielkopolski with 20 new trams (with an option for a further six). The manufacturer will have to deliver three-section fully low-floor vehicles with a length of 23-26m. Also, as revealed in June, Pesa is the only bidder in the repeated tender for 30 vehicles – including an option for 15 more cars – for Gdańsk.

Another interesting situation is currently underway in Kraków, which in August 2016 was one of the first cities to announce a tender for new trams under the new EU budget. In October four bidders were named – AEG, Alstom, Pesa and Solaris, Škoda and Newag. Pesa’s offer is the lowest, the second being that of Stadler and Solaris (though price in this case is only given a 40% weighting). However, MPK Kraków has biled Pesa for PLN26m (approx. EUR6.2m) for delays in the delivery of Krakowiak trams and excluded the manufacturer’s offer on the grounds of improper execution of its previous contract. However, the National Board of Appeal and now the Provincial Court have ruled that Pesa’s offer needs to be reinstated and evaluated along with other bids.

**Warsaw looks to break the bank**

The biggest single tender is carried by Warsaw, which envisions the delivery of 123 low-floor cars with an option for another 90. The basic order forms 85 double-ended trams and 18 single-ended vehicles up to 33m long, as well as 20 shorter cars, up to 24m in length. As the option consists of 45 double-ended and 45 single-ended trams each up to 33m. The estimated value of the order is over PLN3.3bn (approx. EUR543m).

Five bidders responded to the May 2017 tender: Stadler and Solaris, Hyundai Rotem, Alstom, Pesa and Škoda. There were several surprises, possibly most significantly the participation of Hyundai Rotem. The next being that only Stadler and Solaris (the lowest offer) and Hyundai Rotem meet the budget requirements. Last but not least was the most expensive offer from Pesa, a company that has so far delivered 281 vehicles to Warsaw. The offers are currently being evaluated and the outcome may well be interesting. It is worth mentioning also that in May Częstochowa announced a procurement programme for ten new trams (with an option for five further cars) – consisting of three to five sections, with a required length between 28 and 32m, and at least 70% of low-floor. Olsztyn also offers awards for 24 trams (including an option for 16 more) of 28-32m length. Wroclaw is also seeking 40 new 32m three-section trams, although the city only specifies a 20% low-floor requirement.

In the near future, tenders are expected in Upper Ślesią, Toruń, Grudziądz and Szczecin. If funds permit, there can then be a second wave of orders in the second half of the EU Perspective. 
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Mike Mustard, Business Development Manager
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The formation of the Light Rail Transit Association was hardly a grand launch. A few persons, aroused by what they judged to be the folly of scrapping certain tram routes in North London, made contact through the correspondence columns of local newspapers. After one or two tentative gatherings, an organising committee of three (George Jackman, Jay Fowler and Geoffrey Southerden) signalled the arrival of the new body, given the name Light Railway and Transport League by means of a press release to The Times and the technical press. Formation of the League had been a gradual process, and the committee assigned the purely arbitrary date of 30 June 1937 to its establishment: a date not without its symbolism since it was the fourth anniversary of the disappearance of London County Council Tramways.

At that time the prospects for tramways in the British Isles were hardly propitious. A Royal Commission had recently pronounced that tramways, if not obsolete, were at least obsolescent. Some 40 or so sizeable systems had already disappeared and even in the case of large cities, such as London, Birmingham, Manchester, Leeds and Bradford, there had been major route closures. Only a few systems offered evidence of modernisation: notably Glasgow, Liverpool, Leeds, Sunderland and Blackpool. Taking their cue from these, the organising committee gave the League’s objectives in its prospectus:

“to show transport in a proper perspective in which no type of vehicle is without its proper place... [and]...to foster interest in the light railway, and to help it to attain its rightful place, which it can only do if there is progressive development and a willingness on the part of transport authorities to adapt it to modern conditions.”

Difficult though the position of the industry was at that time, the new body, which had modified its title within a month to Light Railway Transport League, was further burdened by internal dissent. Two distinct schools of thought had emerged amongst its few members: one was concerned with studying the history and technical details of tramways as a matter of recreation and interest; the other favouring a proselytising approach, actively propounding the merits of tramways as a matter of recreation and increased commitments for those remaining on the ‘home front’. At least one of the meetings of the League’s governing body, the Council, had to be conducted in an air raid shelter. In one instance at least the war was helpful: Lionel Boylett and Jack Norris, when surveying Vauxhall Bridge Road to determine whether loading islands and other improvements to assist the trams could be accommodated, were helped by a friendly policeman who held up the traffic under the impression they were engaged in ARP (Air Raid Precautions) works!

Restrictions on paper limited the size of The Modern Tramway, but no issue was missed. (The only issue to fail to appear was in March 1956, attributable to a printing strike.) Also despite paper controls, the first edition of the classic Great British Tramway Networks was published in July 1940, the first of many monographs published by the organisation.

With the return of peace, group visits to British systems were resumed with a tour of Southampton in July 1945. Ever-increasing in frequency, these tours became noted social...
contacts with other countries has led to developments in the British Isles. Growing affluence and improved transport, the then beyond the Iron Curtain until, with the closure of British systems, a growing number of schemes in South Hampshire, Leeds, Bristol and Merseyside have fallen by the wayside. More towns and cities worldwide have also rediscovered the mode and there are currently around 800 systems of varying shapes, sizes and technologies in operation. An average of ten new systems open each year, not counting the major extensions to existing networks. But grappling though these developments have been, can the Association claim any credit for this dramatic reversal of fortune?

The answer is perhaps best summed up in an editorial which commemorated our Golden Jubilee in 1987. This magazine then wrote:

"The Association does not claim, of course, to have brought about this revolution by itself. Major factors: economic, environmental, political, psychological, demographic, have all been at work together with numerous lesser issues. But the Association can claim to have kept the torch alight throughout the dark years of tramway decline... It is plain to see that the Association has been more effective in indirect, rather than direct, terms. In particular, many of its members, imbued with its spirit, have gradually attained positions of responsibility in the transport field, both here and abroad, a process which has enabled the worth and potential of modern tramways to be more easily recognised, fostered and ultimately exploited."

In 2004 the Association became a not-for-profit company limited by guarantee. About that time, the name and organisation that was severed and the two magazines are now published by the Association itself, through a joint venture subsidiary. This joint venture was instrumental in inaugurating the Light Rail Awards, now in its tenth year, recognising projects and organisations that have contributed to the development of the tramway industry. This event now welcomes entries and guests from around the world, proving the unity of the industry and its willingness to share expertise.

A single voice for the tram and industry has been established. This takes the form of an organisation called UKTram, in the operations of which the Association plays a substantial part. The much-derided Tramways Act of 1870 has now been repealed and replaced by a more streamlined and congenial regime operating through Transport and Works Orders. UK tramway legislation has in general been updated. In achieving these changes, the Association has played a major role.

On its 60th anniversary, the ideals of the LRTA continue to be vindicated and we are still taking bold new initiatives to demonstrate the continuing vitality of the Association.
the past month has seen a few setbacks in the global fight in tackling urban pollution and providing clean air. Probably the most troubling is the US’ withdrawal from the Paris Agreement on climate change.

Even before the US withdrawal, the evidence of our impact on the planet’s climate is all around us in our towns and cities. Just look from a slight rise outside most towns and cities at the end of the day just before sunset or first thing in the morning at sunrise and you’ll see the layers of dirty smoke or mist. These layers are chiefly the by-products of man-made industry and our urban transport systems made up of a toxic mix of tailpipe emissions and the ‘Oslo Effect’.

While the scale of the impacts of climate change are uncertain, many leading authorities predict medium- to long-term fresh water shortages and sweeping changes in food production conditions. Allied to this is an expected increase in extreme weather events such as floods, storms and heatwaves, although linking any single event to global warming is complicated.

Some Western governments are robustly tackling the problem of tailpipe emissions with a growing and significant push for electric vehicles – almost on a panic level to correct previously flawed policies over diesel adoption. Yet many of these same governments are heading for a bigger fall in refusing to recognise and consider the consequences of the Oslo Effect.

The Oslo Effect is quite simple. Road surfaces erode with the passage of vehicles, rubber particles are generated as tyres wear out and the fine dust from worn brake linings spread into the atmosphere in fine particles as low as PM2.5. These microscopic particles are then held in suspension around our transport corridors. A positive relationship exists between vehicle weights and non-exhaust emissions as electric vehicles are on average 24% heavier than their conventional combustion-engined counterparts. Studies suggest that non-exhaust sources account for 90% of PM10 and 85% of PM2.5 from traffic, so future policies should focus on reducing vehicle weight as well as changing the form of propulsion.

Air pollution has already been widely implicated in respiratory and cardiac disease, especially affecting the young and older members of society, and recent studies have suggested that it could also be a factor in cognitive decline. A recent US study showed that elderly people in highly-polluted areas were 50% more likely to suffer mental degeneration.

Responding to 2016 research published on the subject in the journal BMC Geriatrics, Professor Anthony Seaton, Emeritus Professor of Environmental and Occupational Medicine at the University of Aberdeen, said: “Studies in Mexico City have hinted at an association between air pollution particles in the brain and Alzheimer’s disease... This adds to the body of evidence that the combustion of fossil fuels has widespread toxic effects on our health. The solution to this is literally in our own hands as we take hold of the steering wheel.”

It is disappointing that new US President Donald Trump has chosen to sidestep responsibility on climate change. By withdrawing from the Paris Agreement, the US has become one of only three countries not taking its place in this vital framework for tackling environmental issues. The President, who has previously called climate change science a ‘hoax’, said that the non-binding commitments laid out in the agreement threatened US jobs and “disadvantaged” his country.

Encouragingly, hundreds of US cities have stepped up to try to fill the void in national leadership, with many mayors honouring their climate commitments. A growing number of States have indicated the same with a key alliance between California, Washington, New York and nine other states quickly vowing to cut emissions by 26-28% from 2005 levels. Representing some of the largest US economies, this pledge will see a considerable drop in overall emissions.

Hawaii has become the second US state for six months to adopt a pledge to defy President Trump’s decision. Governor David Ige signed two landmark laws that require the island state to honour the commitments and goals to reduce greenhouse gas emissions laid out in the accord. The state hopes to protect forests, wetlands and nature preserves while providing incentives for companies to become carbon-neutral. A certification scheme for farmers will be implemented to measure and promote carbon-neutrality as well.

It can be argued that there’s also a question of reducing US influence in moral leadership. Michael Brune from environmental group the Sierra Club said the withdrawal was an “historic mistake which our grandchildren will look back on with stunned dismay at how a world leader could be so divorced from reality and morality.”

Even North Korea’s Ministry of Foreign Affairs has condemned what it describes as a “short-sighted and silly decision.” In a statement released to the press in early June, a Foreign Ministry spokesman attributed the decision to Trump’s “America First” policy and to ignorance “of the fact that the protection of the global environment is in their own interests.

“It is the height of egotism and moral vacuum, seeking only their own well-being at the cost of the planet,” the statement added.

The Paris Agreement was reached in 2015 and was a signature diplomatic achievement for Trump’s predecessor, President Barack Obama. More than 190 nations came together in the French capital to agree to voluntary pledges to cut greenhouse gas emissions through a range of measures, including addressing emissions from transport. This is an area where it is believed that major gains can be made - and in relatively short timescales.

The only other two nations who didn’t sign the agreement are Nicaragua – which argued that the resolutions didn’t go far enough - and Syria, which was in the midst of a devastating civil war.

The role of trams and light rail will play a significant role in the battle for cleaner, safer air as more cities bring in their own ‘clean air zones’.

“Fighting the battle for cleaner air for all...”

Jim Harkins considers the impacts of the Paris Agreement on climate change and why some governments are moving slowly in tackling this global challenge.

Jim Harkins is Chairman of the Light Rail Transit Association’s External Relations Group, Secretary of the UK All-Party Parliamentary Light Rail Group and Managing Director of the not-for-profit Light Rail (UK). Jim is a Member of the Transport Planning Society and a Fellow of the Chartered Institute of Logistics and Transport.
UKTram is the trade body for Light Rail & Guided Transport Systems in the British Isles, working with modern and heritage tramways, light railways, metros, ULR and PRT systems.

We lead the industry in all matters, including:
- Promoting trams, light rail and other guided transport systems
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- UKTram focuses on areas chosen by its members for the benefit of the whole industry.
- We want all our members to value their membership as much as we value theirs.
- The more we work together, the more we achieve.
The capital of Oost-Vlaanderen (East Flanders) province, Gent (French: Gand) is in the Dutch-speaking Flanders Region and lies around 55km (34 miles) north-west of Brussels, near the mid-point of the main railway line between the Belgian capital and the coast. Gent’s rise to power in the Middle Ages and resultant wealth, as reflected in many buildings, grew from the trading in textiles; partly due to waterway silting, a long decline was not arrested until the industrial revolution. Mechanisation was keenly embraced by the city’s key industries, a process that included making the port viable once more.

Much of modern Belgium has dense road and rail coverage, with Gent being a main transport convergence. Expanding for over a decade, a 258 000 population places it as Belgium’s third-largest city; just under 10% of the city’s internal journeys are made by public transport.

From 1904, battery trams and local railways gave way to electric trams with overhead supply. Standardising with metre-gauge tracks, the service was initially run under licence by Tramways Electriques de Gand/Elektrische Tramwegen van Gent, and today’s network includes sections that were once part of the NMVB/SNCV network connecting outlying districts. Passing into public ownership from 1954, the tramway was later affected by Belgium’s creation of three administrative regions. From January 1991, the city’s own MIVG organisation was subsumed by the new Flanders regional transport body. Its De Lijn branding covers a network using around 3700 buses and the three Flanders light rail systems: Gent, Antwerp and Kusttram along the Belgian coast. Unlike the last two, Gent only uses bi-directional trams.

The tramway shares the familiar European history of a once-significant system cut back in favour of motor buses, also being degraded by war. The 11 lines of 1961 were reduced to four within a decade and seemingly heading for total abandonment, as had occurred in nearby Brugge/Bruges by 1951. Survival was assisted by environmental awareness and the growing capability of light rail. New single-car PCC trams arrived in 1971 and lines were being extended by the early 1980s. More capacious than PCCs, nine former Bogestra (Bochum Gelsenkirchen) Düwag GT6 trams introduced in 1994 proved difficult for the operators, being withdrawn by October 1998. Low-floor trams followed the next year with the Hermelijn developed for De Lijn; they are Gent’s most numerous type. Not subject to a
As new stock is received, Gent is reducing the use of high-floor, PCC trams built 1971-74 by BN in Brugge. From the originals, 6202-6223 (as designated in the later series) were modified from 1998, greatly changing their internal and external appearance. The 70% low-floor, five-section Siemens/Bombardier *Hermelijn* trams built in Bautzen, Germany, were derived from Dresden’s *NGT6DD*. Totalling 41 (6301-6341), Gent’s batches include minor differences from builds starting in 1999, 2005 and 2007. They are 29.3m long, 2.3m wide, with capacity for 254 passengers, 58 seated. Like the *Hermelijn* (Ermine) name in being a De Lijn designation, *Albatros* is a version of the 100% low-floor Bombardier *Flexity 2*. To bring much-needed extra capacity, Gent only uses the seven-section version for which the manufacturers identify space for 378 passengers. The initial ten (6351-6360) were built 2014-15. Introducing recycled leather upholstery, 16 more (from 6361, received January 2017) should arrive by the end of the year.

Confirmed on 13 June, CAF was finally selected to supply 146 new trams – sufficient to allow withdrawal of all older De Lijn stock. Although some overall promotional schemes are seen, most external advertising is on small panels on the standard De Lijn livery.
Making use of a track closure at Kouter, 6253 - without the full Gent PCC modifications - was used by a community group as the Wens (dream) Tram in autumn 2016.

“Away from showpiece settings, the section between Ledebergplein and Moscou terminus exemplifies the system’s more traditional aspects.”
pre-metro project of tracks going below ground as in nearby Antwerp or in the then similarly-sized Charleroi, Gent has an entirely surface-running system with a mix of shared road space and dedicated rights of way.

From the outset, trams provided an essential link between the historic centre (locally ‘De Kuip’) and Gent Sint Pieters, the principal railway station that lies 2.2km (1.4 miles) to the south. Indicative of a strong economy, visitor appeal, many commuting options and with an estimated 70 000 student population in the city, this is now Belgium’s second-busiest station and hosts almost as many weekday passengers as the busiest, Brussels Midi. The station has several dispersed tram platforms, distinguished as numbered perron.

With a long-term project extending Gent Sint Pieters on the south side, the 1996 tram tunnel (main line tracks are elevated) which incorporated platforms was replaced by a plainer installation further west. Due for completion by 2025, there will be more changes here with an enlarged tramstop created beneath the station and with direct railway platform access restored.

Despite there being just three lines – 1, 2 (from Spring 2017, formerly 21 and 22) and 4 – trams have a high profile in central Gent. This is due to them passing prominent locations, some circuitous routing and high frequencies. Palpably modern and 43m long, the Albatros trams introduced in 2015 are unlikely to go unnoticed as they thread the winding central streets. Near the magnificent ‘three towers of Gent’ is Korenmarkt (corn market), an elongated plaza fringed by classic Flemish architecture; this became a pedestrian area in 1997 and was restored under the KoBrA project (TAUT 869).

Where the line curves at the southern end, a junction with a short stretch of track on the Sint Michielsbrug (bridge) ramp is in preparation for the restoration of an east-west tram axis. A similar installation was made near the Belfort (bell tower). These works anticipated trams taking over the line 3 route that is currently bus-operated and was previously Belgium’s last trolleybus service when that mode was withdrawn in 2009. De Lijn believes that only tramway conversion can handle the demand being expressed or projected over bus lines 3 and 7, each around 10km (6.2 miles) long. Although these specific projects have not started, as with the junctions, track was installed on Botermarkt near the Belfort as part of the street’s upgrading to avoid later disruption.

Away from the showpiece settings, the section on streets between Ledebergplein and Moscou terminus exemplifies the system’s more traditional aspects. Despite a series of upgrades and route amendments around the centre, it is south of Gent Sint Pieters that the system has changed most in recent years. Line 1 is the system’s longest at about 13km (eight miles) and services take 51 minutes end-to-end; extensions south of Gent Sint Pieters were completed by 2005. More recent land development near Flanders Expo shortened the one-way turning circuit in summer 2015 leaving the previous track that passed the elaborate terminus structure being covered for use as a road. As the exhibition and event venue can attract large numbers in a short period, the temporary terminus can accommodate several
Adding to event-related loadings, changes in this district will bring even more regular demand to line 1. As elsewhere on the system, some trams do not run the full line length, with destination displays being used to make such distinctions. Opening in March 2016, line 4 was extended by around 800m south to UZ (Universitair Ziekenhuis) Gent using wholly new infrastructure from near De Pintelaan tramstop. The covered two-platform terminus is in the centre of the large hospital complex which is amongst the city’s biggest employers. The most recent extension was from the previously named Zwijnaardebrug (now Zwijnaarde Gestichtstraat) to a new terminus at Zwijnaarde library. This extra 2km (1.2 miles) at the southern end of (then) lines 21/22 had a long-delayed opening in November 2016.

With line 22 removed, the line 2 designation was revived to replace 21. Line 22’s abolition was attributed locally to a long-standing problem being exacerbated as a greater percentage of longer trams joined the fleet, however the change freed former line 22 revenue track in Gentbrugge that leads to temporary but longstanding storage space beneath the E17 motorway viaduct.

Maintenance and stabling have been a significant modernisation stumbling block for over a decade. De Lijn has had to continue using the depot on Brusselsesteenweg, also in Gentbrugge. Becoming less suitable as the tramway has expanded, this site next to the Stelplaats (depot) stop dates back to the start of the electric system. A projected relocation has been thwarted by disputes over the land north of central Gent that is intended for the new Wissenhage depot. A bridge complete with overhead line supports over a canal to connect this site to the system near Sint-Lucas Biervlietstraat stop has been available since 2010, but has been used only by pedestrians and cyclists. With no start yet on the depot, it may be 2020 before Wissenhage is available for trams.

Local travel: Useful for the service alteration leaflets during rebuilding, a Lijnwinkel (staffed information point) can be found outside Gent Sint Pieters and at Korenmarkt. Tickets are available here from machines or (payment restrictions apply) from the driver. Single journey up to 60 minutes with transfers. EU13 De Lijn day tickets (EUR6/12/17 for one/three/five days) cover any of the three light rail systems and their respective buses, but are not valid on national rail. Onboard ticket validation is required. It is a request stop system and there is also a bus-operated night network.

What is there to see? The main tourist office at Sint Veerleplein is very close to Gravensteen tramstops (separate platforms for lines 1 and 4), both overlooked by the eponymous fortress. Characterised by mediaeval buildings and threaded by canals, Gent is inevitably compared to Brugge (Bruges), about 30 minutes away by train. Of similar splendour, Gent is proportionally less given over to tourism, with its ‘picture book’ aspects more dispersed. Despite the central concentration of stops and the potential hazard of fast-moving cyclists, walking is the best way to appreciate central Gent, with boat tours adding extra vistas.
AUSTRALIA

BRISBANE. The Queensland Government has approved the AUD5.4bn (EUR3.6bn) Cross River Rail project, a 10.2km (6.3-mile) line between Dutton Park and Bowen Hills for commuter rail services. P Robinson

Cairns. A ten-year federal grant announced on 11 May to Gordonvale using a ten-year light rail link from Palm Cove to Gordonvale using a ten-year federal grant announced on 11 May. P Robinson

MELBOURNE. The first of the new batch of 30 Bombardier trams, E2 6051, entered service on 14 June. The new series has thinner windscreen pillars to enhance the driver's field of view. M Rowe

SYDNEY. The metro tunnel under Sydney Harbour will be built by a joint venture of John Holland, CPB Contractors and Ghella, at a cost of AUD2.8bn (EUR1.9bn). The contract covers twin 15.5km (9.6-mile) bores from Chatwood to Sydenham, due to be completed in 2021. TA

AUSTRIA

INNSBRUCK. The first of the order for 20 new Bombardier Flexity trams is due to arrive in November, and the new depot at Dullestrasse should be ready by then. Referring to our June report, the September-October closure of the Stubaitalbahn is to enable work on a new 153m bridge to replace the 113-year-old Mühlbacherbrücke and bypass the adjacent tunnel. The old bridge will become a cycle/footpath. Route 6 to lgs was due to resume operation in July. D. Drum, Hof R. Rue

WIEN (Vienna). The last of 61 six-car metro trains of type V500 was delivered by Siemens on 6 April. The old Mühlbacherbrücke and bridge to replace the 113-year-old Mühlbacherbrücke will be built by a joint venture of John Holland, CPB Contractors and Ghella, at a cost of AUD2.8bn (EUR1.9bn). The contract covers twin 15.5km (9.6-mile) bores from Chatwood to Sydenham, due to be completed in 2021. TA

Yarra Trams 6051, the first of the latest delivery of Bombardier E2 trams for Melbourne, showing the revised cab design. M. Rowe

CHARLEVOIX. For about 18 months from 15 May, lines M1 and M2 are to be cut back to Pétria, to permit renewal of the trackbed and infrastructure between Pétria and Anderlues Monument; double-track will replace the single-track section in Rue de la Station. Anderlues depot remains in use, with trams passing in the early mornings and evenings (except from 7 August to 1 September). Sale of tickets on trams was withdrawn from 1 July; all tickets are now sold from machines or agents. P. Robinson

TOLEDO. Funding for the 11km (6.8-mile) Finch West light rail line (Finch West subway station to Humber College) was announced on 23 June: CAD1.2bn (EUR816m) from the Province and CAD333m (EUR226.6m) from the federal government. The cost includes two underground stations and a depot. Bombardier trams 4437/8 entered service in June. Plans for a fifth subway line, the so-called Relief Line (7.4 km/4.6-mile, Pape – Queen), have been helped by a CAD27m (EUR18.4m) grant from federal funds to assist planning. Siemens has challenged the Metrolinx decision to issue a CAD528m contract for 61 Alstom Citadis Spirit LRVs, claiming the deal violates both government procurement policies and the CETA European-Canadian free trade agreement signed in 2016. A Metrolinx spokesperson told local media that the contract with Alstom had to be expedited as delays to the existing Bombardier vehicle order had the potential to jeopardise the opening of the Crosstown and Finch LRT lines, both scheduled to enter service in 2021. D. Drum, Toronto Star

Yarr Trams 6051, the first of the latest delivery of Bombardier E2 trams for Melbourne, showing the revised cab design. M. Rowe

MONTREAL. The federal government has agreed to provide CAD2.3bn (EUR1.4bn) towards the planned 67km (41.6-mile) automated metro project. This completes the CAD2.5bn (EUR1.6bn) funding package. Subject to legal authorisation, passenger service could start in 2020. D. Drum

ONTARIO. Funding for the 11km (6.8-mile) Finch West light rail line (Finch West subway station to Humber College) was announced on 23 June: CAD1.2bn (EUR816m) from the Province and CAD333m (EUR226.6m) from the federal government. The cost includes two underground stations and a depot. Bombardier trams 4437/8 entered service in June. Plans for a fifth subway line, the so-called Relief Line (7.4 km/4.6-mile, Pape – Queen), have been helped by a CAD27m (EUR18.4m) grant from federal funds to assist planning. Siemens has challenged the Metrolinx decision to issue a CAD528m contract for 61 Alstom Citadis Spirit LRVs, claiming the deal violates both government procurement policies and the CETA European-Canadian free trade agreement signed in 2016. A Metrolinx spokesperson told local media that the contract with Alstom had to be expedited as delays to the existing Bombardier vehicle order had the potential to jeopardise the opening of the Crosstown and Finch LRT lines, both scheduled to enter service in 2021. D. Drum, Toronto Star

CHANGCHUN. Metro operation started at 08.00 on 30 June on the 18.1km (11.2-mile) north-south Beihuan to Hongjuzi line 1. CRRC Changchun has supplied 22 six-car aluminium-bodied trains that operate on 1500V dc overhead. RGI

BEIJING. Test operation on the 10.2km (6.3-mile) Maglev line linking Mentougou and Pingguoyuan started in June. CRRC Tangshan is supplying ten six-car trains. RGI

BELGIUM

ANTWERPEN. Former Vicinal tram 999 is operating in passenger service every Sunday from 9 July to 20 August, on a tour leaving St Pietersvlietline 7 terminus at 12.30 and hourly to 15.30. The NMVB tram will operate a service between Nationale Bank and Koninklijkjaal between 18.00 and 23.00 on 5 August only. On 27 August there will be more museum tram operation, with 9994 and two Antwerpen preserved services from Bolivarplaats and Groenplaats between 13.00 and 18.00. M. J. Russell

GUANGZHOU. CRRC Dalian has started the delivery of 17 eight-car metro trains for use on line 13. RGI

HANGZHOU. The municipal government, Hangzhou Metro Group and MTR Corporation have signed a PPP concession for the construction and maintenance of the planned 51.5km (32-mile) line 5, expected to open in 2019. RGI

DHAMPS. On 5 June CRRC built Alstom Citadis trams for line 2 of the Chengdu tramway, which will run 27.7km (17.2 miles) from Chengdu West station to Pianix and is due to open in mid-2018. The second phase of metro line 4 opened on 2 June, adding 20.3km (12.6 miles) and almost doubling its length to 41.3km (25.7 miles); 324 metro cars with Alstom equipment are in service. D. Drum

Dalian. Two metro extensions were opened on 7 June. Line 1 was extended 9.1km (5.6 miles) south from Exhibition Center to Hekou (paralleling tramline 202) and line 2 was extended 3.9km (2.4 miles) east from Huiyizhongxin to Haizhuyun. Construction on planned lines 4 and 5 is starting this year. The suburban metro line 12 was extended for 2.1km (1.3 miles) from Caidaling to Hekou, connecting with the rest of the system for the first time (without an intermediate station). urbanrail.net

CHINA

MONTRÉAL. The federal government has agreed to provide CAD1.28bn (EUR870m) funding towards the planned 67km (41.6-mile) automated metro project. This completes the CAD2.5bn (EUR1.6bn) funding package. Subject to legal authorisation, passenger service could start in 2020. D. Drum

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with the metro at Qinghu Longhua tram was inaugurated 11.3km (seven-mile), north-south SHENZHEN. Service was due to start at the end of June. Two lines have an interchange at alignment, and on a 5km (3.1-mile) demonstration line in China SHIJIAZHUANG. The flat fare is CNY2. Shenzhen Metro Group and China a PPP concession between provider for the service. BIELFELD. With passenger traffic increasing again in the last year to 34.6m, a EUR90m order for 24 more Vossloh-HeiterBlick Vamos trams has been placed, that will also permit the replacement of the last Siemens Metrums. Delivery start in 2020. DRESDEN. From 1 July the section of tramway between Ludwig-Hartmann-Str and Wasserkreuz Tolkewitz was closed for infrastructure renewal. Lines 4 and 6 were cut back, while new services worked by double-ended trams run from Tolkewitz to Wallstrasse (44) and Tolkewitz to Niedersedlitz (46). Normal service is due to resume by 22 December.

ESTONIA TALLINN. Tramline 2 is replaced by buses from 26 June to 1 September to permit track relaying. From 1 September lines 1 (Kopli – Kadrior) and 2 (Kopli – Suur-Paala) will both be open, with trams. The first of 14 trams modernised by Evoka Electric/ Cegolec in Ostrava arrived back in Tallinn in mid-June. transphoto.ru

FRANCE ST-ÉTIENNE. The freight tram project saw a symbolic inauguration on 13 June when merchandise was delivered to the Casino store in Place Carnot using car 913 with some seats replaced by racking covering 80m². STRASBOURG. Traffic on the new cross-Rhein line to Kehl averaged 8200 passengers/day in the first month of operation, with Saturday the busiest day; 80% of passengers were French citizens visiting Kehl. The first modern tram to be withdrawn is 1020, badly damaged in an accident. However, CTS is looking to order more Citadis from Alstom, which would permit more 30m Eurotram vehicles to be withdrawn. T2000

GERMANY BERLIN. Planning applications have been submitted for three tramway extensions: from Hbf to U-Bahn station Turmstrasse (2.2km/1.4 miles) for line M10, from Marktstrasse to Bhf Ostkreuz (1km/0.6 miles) for line 21, and from Adlershof to Schöneweide (2.6km/1.6 miles) for lines M17, 61 and 63. If all goes to plan, the new lines could open in 2020.

U-Bahn set 1027, the first IK to carry temporary modifications to allow it to be used on large profile lines, was delivered on 28 June.

INDIA BANGALORE. The 10.5km (6.5-mile) southern section of the Green line metro opened on 17 June, taking the line from Sampige Road to Yelachenahalli. A six-minute service is provided using 27 three-car BEML trains, with train control from Alstom.

DELHI. The state government has approved the planned 4.9km (three-mile) elevated northern extension of the metro between Mundka and Kundli. Passenger service should start in 2022.

KOLHAI. The first metro line, running 13km (eight miles) from Aluva to Palarivattom, was opened by Prime Minister Narendra Modi on 17 June; revenue operations began two days later. Alstom has supplied 25 three-car trains for the service.

MUMBAI. Six bids were received for two further sections of automated trains to operate the 33.5km (20.8-mile) north-south metro, from Hitachi, CAF, Mitsubishi, Alstom, Kawasaki/BHEL and CRRC Nanjing/Changzhong.

IRAQ TEHRAN. On 10 June the 22km (13.7-mile) metro line 7 from Meydan-e-San’at to Basij was opened with seven stations. In full, the extension will take the line to 31km (19.3 miles) next March with more intermediate stations.

IRELAND DUBLIN. A key milestone for the Luas Cross City project was met over the weekend of 17-18 June, with the first gauging trials over the new line from St Stephen’s Green to Broombridge.

The project to implement a 5.8km (3.6-mile) on-street line linking the existing Red and Green lines with an extension on private right of way to Broombridge is now entering its final six months. Daytime testing is to start in mid-July and driver training in mid-September, once the line has been handed over to operator Transdev and sufficient new trams have been delivered. Public opening is currently being targeted for the weekend of 9-10 December, as a ‘working date’.

The Irish Government has produced a public transport strategy for the Dublin area. This focuses on developing rapid transit corridors and bus services to low-density housing areas, with development of a network of park-and-ride sites close to major roads and transport hubs such as Luas stops and Irish Rail stations. If implemented in full, this would cost EUR1bn, but EUR300m is already committed under Building on...
overnight at station Noord north-south line, being stabled being used for test runs on the it was to parcel up the planned negotiations, Israel’s Finance After failure to reach agreement despite lengthy... of 19.6km (12.2-mile) Green line. The CityPass consortium that delivered the first stage of the Red line under a 30-year concession has already begun works on the northern section of the extension to Neve Yaakov, and is also competing in the Green line tender.

ITALY

ROMA. Approval has been received from the Ministry for Cultural Heritage to build a tramway link on Via dei Fori Imperiali using a catenary-free system. The new line will connect the Piazza Venezia terminus of line 8 and the Farini terminus of lines 5 and 14. A first stage will take the latter two routes along Via Cavour to Largo Corrado Ricci.
As a later phase, the City Region envisages trams running east-west from Barnsley to Doncaster town centre and on to Doncaster-Sheffield Airport. Two separate accidents involving pairs of trams in June saw a shortage of vehicles such that from 27 June the Purple route was curtailed to operate only the first round trip in the early morning, plus the evening service starting with the 19.37 journey from Cathedral. Between these times bus substitution operated between Herdings Park and Gleadless Town End to connect with Blue trams to the city centre.

TYNE & WEAR. Closure of the Metro is to take place between South Gosforth and Four Lane Ends 31 July-11 August; and from South Gosforth to Shiremoor on 12-2 September. Work will involve track replacement along with the strengthening of embankments; the replacement and widening of the bridge over Killingworth Road, Gosforth; and maintenance at Northumberland Park station.

Bus substitution will be in place over the closed section, initially between Regent Centre and Four Lane Ends, and later between Regent Centre and Shiremoor. Metro services will run between Airport and South Hylton; South Shields and Regent Centre; and St James to Four Lane Ends or Shiremoor via Wallsend and the Coast.

WEST MIDLANDS. The business plan for the GBP200m (EUR227m) extension of the Midland Metro from Wednesbury to Brierley Hill was submitted to Secretary of State for Transport Chris Grayling in mid-June. The new line would branch from the Birmingham – Wolverhampton line at Wednesbury, running to Great Bridge, Horseley Heath, Dudley Port, Dudley town centre, the Waterfront and Merry Hill, before terminating at Brierley Hill town centre. It would also serve Brierley Hill’s new DYS Enterprise Zone.

A further line from Bull Street, through Digbeth and Small Heath to Birmingham Airport (North Solihull), is currently under development. Construction is at the early stages for the extensions in Birmingham to Selly Oak Square and Acocks Green, and in Wolverhampton from St Georges to the station.

A route from Wolverhampton to Wednesfield and New Cross Hospital has been included in the ten-year transport plan for the West Midlands, which is currently at consultation stage. This resurrects plans first proposed 35 years ago and if approved could be built following the completion of work on the city’s railway station interchange. A scheme is currently being drawn up by West Midlands City Council, with a view to seeking funding as part of an area regeneration project.

USA

ATLANTA, GA. Tramway patronage fell from 880 083 passengers in 2015 to 371 041 in 2016 after imposition of a USD1 fare. However 2017 ridership has rebounded by 9.6% in the first five months. Operation of the line is likely to pass to the Metropolitan Atlanta Rapid Transit Authority later this year.

BETHESDA – NEW CARROLLTON, MD. A federal appeals court has been asked to lift an emergency order to suspend the lower court ruling that is holding up progress on the Purple light rail line.

CINCINNATI, OH. The Southwest Ohio Regional Transit Authority (SORTA) has requested a 6% increase in the tramway operating budget to permit a third tram to be operated at weekends, aiding the provision of a ten-minute service to the Central Business District.

DENVER, CO. Ninety days of pre-service testing on light rail line G began on 14 June.

DETROIT, MI. Free rides on the QLine tramway have been extended through to Labor Day on 4 September.

HONOLULU, HI. The city council has approved a bill permitting the Honolulu Authority for Rapid Transportation to issue bonds that will provide funding to prevent the closure of its new mini-metro running out of money in January. The project has a shortfall of USD3bn.

KANSAS CITY, MO. The Streetcar Authority has endorsed plans for a northern extension of the tramline to Berkley Riverfront Park. Attempts to raise the USD30m cost will now start. Two more low-floor Urbos trams have been ordered from CAF for USD11.9m, and will arrive in 2019.

LITTLE ROCK, AK. The tramway is offering free rides from 1 June to 31 August to encourage patronage. Saturday and Sunday schedules have been extended from 4 September.

LOS ANGELES, CA. On 22 June LACMTA approved USD1.4bn funding for the next stage of the Foothill Gold line from Glendora to Montclair (18.4km/11.4 miles). Aistom has been awarded a USD333m contract to build the 52 Siemens-built P2000 LRVs dating from 1996-99. The work

double-ended trams. Revenue service started on 15 July.  

UKRAINE

KYIV. Elektron trams is to supply seven more single-ended five-section Elektron 100% low-floor trams for UAH301m (EUR10.2m).

UNITED KINGDOM

EDINBURGH. Following elections that produced no overall control of the City Council, a coalition between the Scottish National Party and Labour councillors was elected that includes a commitment to go ahead with the tram extension to Newhaven by 2022, dependent on the business case and delivery plan.

Flooding at the Edinburgh Gateway interchange in early June closed the tramway between Edinburgh Park and Edinburgh Airport for more than 24 hours.

GREATER MANCHESTER. Metrolink’s Second City Crossing has received the ‘Transport Policy, Planning & Implementation’ award from the Chartered Institute of Logistics and Transport ‘North West Region Awards for Education & Excellence’. Former Metrolink Director Peter Cushing was presented with the ‘Services to the Passenger Transport Industry’ award.

Tram 3022 has been named ‘Spirit of Manchester’ and given a revised livery to mark the response of the local community following the Manchester Arena terrorist attack. The livery is inspired by the worker bee, which has become a Manchester symbol.

LONDON (UNDERGROUND). Transport for London is undertaking public consultation into improving the capacity of Camden Town station. The intention is to triple the station’s size, with the provision of a new entrance, new lifts and escalators. Consultation closes on 18 August.

Investment is planned to see the network become zero emission by 2050. Work includes completion of new signalling and more frequent services on the Metropolitan, District, Circle and Hammersmith & City lines; improvements on the Jubilee, Northern and Victoria lines; and modernisation beginning in the 2020s of the Piccadilly, Central, Bakerloo and Waterloo & City lines, including new trains.

Expansion plans include extending the Bakerloo line to Lewisham and beyond; taking London Overground to Barking Riverside; the Northern line to Battersea; and the Docklands Light Railway across the Thames to Thamesmead. Public consultation lasts until 2 October.

PRESTON. After receiving planning permission to develop a demonstration tramline, Trampower is intending to submit another application to Preston City Council to see key locations across the city connected by trams.

This would resurrect proposals for a ‘Guild Line’ tramway based on the former Longridge to Preston railway line, with 12 stops linking Deepdale Retail Park, the University of Central Lancashire, Skelfington Road for Preston North End’s Deepdale Stadium, the city centre and railway station.

For more detail on Trampower’s planned Guild line, see TAUT 949.

SOUTH YORKSHIRE. Sheffield City Region (UK) is proposing extending Supertram service to serve the Advanced Manufacturing Park (AMP). The extension would link the AMP to Meadowhall, creating a ‘tram triangle’ with the existing line and the under-construction tram-train line.
will be carried out in Vallejo, California from 2017-2021. The last of the original Blue line Nippon Sharyo LRVs will be retired this year after 27 years of service. The latest completion date for the planned Downtown Street car is July 2022.

MINNEAPOLIS-ST PAUL, MN. The US Congress has appropriated USD10m to permit continued planning for the Green line Southwest LRT extension to Eden Prairie.

OKLAHOMA CITY, OK. On 2 June the operating contract for the 7.8km (4.8-mile) tramway was signed with Herzog Transit Services. The six-year deal will cover training prior to public service in December 2018 (USD3.2m/year) and operation from the end of 2018 (USD3.2m/year) using seven Brookville Equipment Corporation Liberty trams. A 12-minute peak headway is specified; there will be no Sunday service.

PHILADELPHIA, PA (SEPTA). Buses will replace trams on route 15 from 18 June to 17 September for the Central City Connector project linking West Philadelphia to America Plaza. Through passengers must transfer using the pedestrian crossing of Kettner Blvd.

SAN FRANCISCO, CA (Muni). The latest F-line PCCs to be returned from Brookville after refurbishment are 1059 (Boston trackage orange) and 1060 (Philadelphia silver and white with blue trim).

SAN DIEGO, CA. From 11 June Orange line light rail service was cut back one stop from Santa Fe Depot to America Plaza. Through passengers must transfer using the pedestrian crossing of Kettner Blvd.

SALEM, OR. A USD50m federal grant has been made available for the South Central light rail branch, due to be built for the South Central LRT Project. It will connect Salem to Keizer.

SEATTLE, WA. Sound Transit has secured a USD87.7m low-interest loan to build a 96-car depot at Bellevue for its extended light rail system.

WASHINGTON, DC. The final 2018 budget passed by the city in June restored funding for the eastern extension of the tramline to Benning Rd metro station, but made no provision for the western route to Georgetown.

EDEN PRAIRIE, MN. Eden Prairie Regional Transit District has named as construction manager Bytrafik (Sweden) for the South Central light rail branch, due to be built for the South Central LRT Project. It will connect Salem to Keizer.

UZBEKISTAN

SAMARKAND. Construction of the second tramline, linking Vokzal and Siabskiy Rynok, started on 1 June. The tram fleet has been renumbered 1001-13.

MUSEUM NEWS

BRNO (CZ). Tatra 72 tram 1435 has been restored using parts from Ostrava 685, and made its first appearance in a parade through the city on 25 June; 1435 was delivered as 435 in 1958 and remained in service until 1998, subsequently being converted for works duties until being put aside for preservation in 2009.

CRICH (UK). The National Tramway Museum has received over GBP20 000 (EUR23 000) in donations from members to add to the fund for the refurbishment of depot buildings. Work is due to start in November. The museum has appointed David Lewis Associates as principal designers and has obtained listed building consent for the works, which include renewing the roof, and installing new doors and partition walls.

The museum is working on a plan to extract narrow-gauge Bournmouth car 85 from the now-closed Museum of Electricity at Christchurch, to enable it to be transported to Crich for display in the Exhibition Hall. It is hoped this will take place later in the year. The tram is owned by the Science Museum Group, which will transfer it to the care of the Tramway Museum Society.

GIMBERGEN (BE). Vicinal type tram 9104 has been put on display on a short section of track outside the former depot. T2000 SKJOLDENAESHOLM (DK). Newly restored Kobenhavn motorstald tram 2266 made its first test run at the museum on 26 May. A new depot 4 is under construction, with metre-gauge tracks, permitting metre-gauge trams to be relocated from depot 1.

MENNERSWALD, AT. Tatra 611/5 tram 618 from the 1957 Innsbruck Park Festival has been purchased by the Tramway Museum Society. Museum staff had been working towards the purchase since 2012 and will transfer it to the care of the Science Museum Group, which will subsequently be donated to the museum.

NORWAY. Oslo Tramway has purchased five more Articulated Linnégård trams for Tramway Line 1, allowing it to operate in peak midnight services.

TEHRAN (IR). Tatra 72 tram 1412 has been restored for display at the Tehran Museum of Urban Transport, which is owned by the Ministry of Transportation.

The Tramway Museum at Darlington has received a donation of GBP100 (EUR115) from a member. The donations are being matched by the Heritage Lottery Fund, allowing the museum to purchase new doors and windows for its main building.

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MAILBOX
Get your views into print

A simple GPS-based solution for tram overspeed?

There seems to be a strong case that the fatal Sandilands accident in November 2016 was due to driver inattention.

The tram approached a very sharp curve – restricted to 20km/h (13mph) – at what was later found to be 73km/h (46mph).

Following the accident there have been calls for a method of automatic speed supervision, yet while this may be the long-term answer, something is needed in the short-term too.

In the UK three systems are already in use on the main line railway:

1. Several forms of full Automatic Train Protection (ATP) give three levels of speed supervision: Indication, Warning and Intervention. These are provided continuously on the approach to a speed restriction.

2. The widely-fitted Train Protection & Warning System (TPWS) gives one level of supervision: Intervention. This is active at one place on the approach, chosen as somewhere that a speed below a certain threshold (probably) means that a controlled approach to the restriction is being made.

3. The long-fitted Automatic Warning System (AWS) system gives two levels of supervision: Indication, followed by Intervention – unless indication is acknowledged by the driver. To achieve intervention, all the above systems have to be linked to the train’s braking system.

In the belief that the most pressing problem is momentary driver distraction, inattention or disorientation – and knowing that trams are equipped with emergency brakes capable of bringing the vehicle to a halt within a very short distance (more like that of a road vehicle) – the following form of Speed Restriction Reminder Device (SRRD) is proposed:

A standalone box, much like a car sat-nav placed in front of the driver and needing only an electrical power supply, that gives the following levels of supervision:

1. Indication, followed by Warning, and finally Imminent Danger Warning (but no physical intervention). These levels of supervision would be applied sequentially at a number of GPS checkpoints (perhaps four?) on the approach to a speed restriction – not continuously as with ATP, or just once, as with TPWS.

At the first of these checkpoints, the screen would show on its left-hand side a representation of the speed restriction sign being approached, and continue to do so until the restriction has been passed. At the same time, a digital display of the tram’s actual speed would appear on the right-hand side, and this would continue until the end of the restriction.

If at this first checkpoint the tram is considered to be going at a safe speed, the display is accompanied by a discreet chime, repeated once, to advise the driver (Indication). However, if at this checkpoint the tram is considered to be going too fast, the speed display would flash and the audible signal would be a more insistent, continuous, chiming (Low-level Warning).

If at the next checkpoint the tram’s speed has been safely reduced, the display reverts to Indication state, with no audible signal. If the speed is still too high, the actual speed would flash more rapidly, and the chimes become more insistent.

This sequence is repeated until the last checkpoint. At this point danger is imminent and the audible signal changes to ‘Emergency Brake! Emergency Brake!’ repeated loudly until speed is reduced to a safe level that turns it off.

This final call is because accident reports have noted that drivers are reluctant to use the emergency brake. This would seem to be because: they have to announce that anyone injured should make themselves known immediately (presumably for insurance), they have to report the circumstances when it is used, and also for some reason they think the emergency brake has to be repaired after a very low number of uses.

Please note, I am a retired railway signalling engineer who spent many years putting ATP on the Great Western Main Line. I have often mulled over these problems for tramways and I note that TfL has put up flashing signs at the lineside, but what is really needed is something in the cab.

It’s a pity I have no means of taking things further!

Brin Hodge, by e-mail

Tram-train wheel profiles

Much of the UK debate on tram-train seems to revolve around the challenging issues on tyre profiles, but with opportunities being reviewed for Leeds, Glasgow and other cities, surely the option of designing the tram system to operate with standard rail tyre profiles will resolve this problem.

For Leeds, a core city loop can eliminate the need for almost every bus service to clog up the city on a grand tour which can easily cost ten minutes, and a couple of extra vehicles and drivers on each route at peak times, at around GBP100 000/year per vehicle. A largely reserved track route Headrow – Bus Station – railway station – City Square would provide the foundation for tram-train options to deliver high-frequency services to Harrogate and Leeds/Bradford Airport (with future extension to Yeadon and Guiseley – to offer increased frequency of service on the Wharfedale line) and access to the Bradford Interchange route, increasing frequencies without impacting on the bottleneck of Wortley and Holbeck Junctions. To the east, restoring a four-track railway through Crossgates and Garforth, with an elevated connection through the deep cutting between Neville Hill and the city centre, would require a short on-street connection to also use the city loop, and offer future routes to Hunslet and Middleton.

For Glasgow, a ‘quick fix’ might use the Deanside Transit branch and potentially a loop through the new Q2E Hospital site using existing bridges under the M8 and A8, and connection to Braehead. This would avoid the need to run into Glasgow Central by running onto the Glasgow Union Railway or into the yard at Salford Street, or (if possible) a link via the dive-under junction at Shields. Note that Stadler will have a train ‘coupling-up’ and engineering facility practically connected to the Glasgow-Paisley main line for the new Subway trains at Edmiston Drive. It’s a pity that no forethought was given as Subway trains could have been delivered by rail with a special access siding directly from the Up line.

In Tyne & Wear I do wonder whether the delivery of new Metro rolling stock that can run a) on street/reserved track to reach Ponteland, Killingworth, and other dormitory areas with the connectivity not available to conventional rail vehicles and b) run with the power module facility on Stadler FLIRT/KISS so that Metro can run out via Blyth & Tyne and other routes to towns currently not quite on the system.

Naturally this would mean the current grooved rail profiles could not be used, and the use of tight curves with rails embedded in the street would require wide and deep flangeways that would probably be unacceptable.

However, noting that many of the new generation of tram systems outside the UK make every effort to maximise track laid in reserved formation, we might perhaps put greater effort into delivering this in the UK.

In Brussels, Chemnitz and elsewhere the spin-off is apparent. The short sections of street running can be delivered as ‘long’ level crossings, and (as delivered for Kattwyck...
Bridge – a road & rail crossing in the Port of Hamburg – and Asikew Level Crossing (42m, 10° skew on ‘7 metre’ A684 in North Yorkshire) only the ‘four-foot’ panels need to be used, with the road pavement laid up to the outer rail edge or the encapsulation. The latter offers the benefit of reducing the damage arising from the mismatch between rail deflection and pavement properties and resulting damage to the pavement at this interface (and asphalt does not stick to steel very well under the onslaught of road traffic). There is some potential for the delivery of low-cost rail ‘on road’ solutions directly using level crossing construction methods to deliver those short on-road sections with substantially less disruption – and cost. I’ve been discussing this with interested parties. The alternative fix of the special ‘thick’ wheel profile and raised check rails on all of the S&c that ensures trams can run through, on rail infrastructure, as used in Sheffield, would also be eliminated in a system planned from the outset as a tram-train with P6 or equivalent wheel profile.

Reserved track in the urban, hard landscaped environment offers the opportunity to deliver SUDS (Sustainable Drainage Systems) with the development of tram infrastructure. This brings the added benefit of air quality and carbon credit from the conversion of COx and NOx, capture of airborne PM, cooling effect etc, in addition to the attenuation of surface rainwater and filtration of fine material, and some pollutants from downstream watercourses. SUDS is likely to feature increasingly in the requirements for the delivery of new rail developments, especially depots and stabiling sidings, where green track – planned to require minimal maintenance with maximum effect – is a key selling point of the railway as a green mode.

Dave Holladay, by e-mail

TramForward: ‘Trams for Clean Air’
The role of trams in urban transport goes so much further than delivering emission-free transport, that is why TramForward’s new ‘Trams for Clean Air’ initiative is seeking to bring together other influencers and decision-makers – both in central and regional government – to the table to develop short, medium and long-term strategies and find common ground on which to work together. This is about the big picture. Trams and light rail affect every facet of urban life, from public health and air pollution, to increased mobility, city design and quality of life. As such it is time to rethink public infrastructure to encourage the public away from using private cars and into reliable, low-emission public transport.

We at TramForward believe that both central government and city and regional authorities need to assess the root conflicts between economics and the environment. By understanding and prioritising the link between economic protection and economic growth, we can protect our fundamental right to breathe clean air.

According to the World Health Organisation, seven million deaths each year result from air pollution around the world. Encouragingly, air quality has moved up the political agenda. Campaigners challenging the status quo and European Directives over the last 30 years have resulted in the avoidance of an estimated 80,000 early deaths. We are reaching a tipping point and those who doubt the impacts of urban pollution and say ‘what crisis?’ just need to look at the figures that show the impacts on public health. The Royal Colleges of Physicians and of Paediatrics and Child Health estimate that there are up to 40,000 UK deaths each year from the effects of pollution, and the links to coronary and respiratory disease and strokes are well documented.

In London, legal limits of nitrogen dioxide were exceeded during the first five days of January 2017. Significant amounts of nitrogen oxides come from diesel-powered vehicles and it is well understood that such vehicles emit more pollutants than petrol models. An estimate by the Royal College of Physicians puts the cost to care at over GBP20bn a year to the UK economy. This is symptomatic of the rest of the country, however, as the capacity of the UK’s road networks is insufficient to accommodate the extra traffic predicted. Pollution, already in many places above limits, will get worse. Yet Nottingham has seen a reduction in carbon emissions since 2005, according to data released by the City Council, one of the key factors being the introduction of the city’s modern tramway. Clearly there needs to be effective consultation to minimise the division between supporters of clean air and opponents who restrict further moves to circumvent regulations.

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A strong majority of the public is behind us as a recent YouGov survey showed that 65% of the British public support a new Clean Air Act to deal with these issues. The new Government needs to be bold, as its next steps may have an irreversible health impact on much of the population of UK towns and cities; that is also why local authorities must have the ability to action the autonomous rights given to them by voters to tackle environmental challenges.

Now is the right time (pre-Brexit) to demonstrate global leadership and the UK can exercise its powers to advance clean air as a key environmental policy, as a measure to attract global investment and create jobs. It is also crucial that we bust the myth that trams and light rail are an expensive luxury. Some short-sighted authorities do not therefore consider trams as an option, being put off by perceived over-engineering and possible cost overruns – also referring to continental systems being less expensive than in the UK. Others seek to transfer risks to the private sector, so the tram system price goes up.

The benefits that come from the costs and investments must be more clearly understood and explained to decision-makers, including how cost can be controlled through good management. Capital expenditure can be kept low by standardising rolling stock, stops and maintenance facilities, while high upfront investment in the former is justified by length of service for tram vehicles, an estimated 30 years.

To deal with the ‘risk’, Government should consider alternative ways of funding trams and take on more of the risk of these projects. The Government can borrow at cheaper rates, refinancing on completion of the system. Once the project has been completed, the infrastructure becomes the security against which to borrow at lower rates of interest. A private promoter can then take on a new tram system as a commercial venture to create a profitable business.

There are other ways to raise finance such as by modifying the PFI approach using leading edge business models and dealing with land uplift; long-term bonds can be secured against land value along with co-ordinated funding from different sources of finance, within a structure where Government is enthusiastic about fixed-price contracts to pass risk down to contractors.

A number of additional financial solutions are also opening up, including the use of New Town Development Corporation powers to assemble land and to borrow low-cost funds from the Treasury.

There is a great deal of interest from around the world into all forms of rail infrastructure in the UK, including from investors from China, the USA to name but three. All demonstrate the potential for high future returns as fixed assets; it just requires a different focus as there is a need to concentrate not just on the capital cost of a project but on the return on investment.

In short, we cannot afford trams as a solution to the capacity, infrastructure and environmental challenges of cities!

Daniel Giblin, TramForward

Bridging the public-private gap

I cannot agree more with Reg Harman’s comments in TAU T955 in two key respects. I believe the ‘silo approach’ he refers to does indeed hamper the effective co-operation of political and professional life, and part of this is driven too often by commercial considerations rather than the public good. It is hoped that the regional devolution agenda within the UK will bring about not only greater partnership working, but also the formation of ‘alliance models’ developed by Messrs Hewitt and Moreno in relation to the New Town Development Corporation powers to assemble land and to borrow low-cost funds from the Treasury.

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Daniel Giblin, TramForward
Zürich’s Double Anniversary

An impressive programme has been arranged by the Zürich Tramway Museum Society to mark 2017’s double anniversary, a high point being 21 May’s grand parade. Mike Russell was there.

This year marks a double anniversary for Switzerland’s Zürich Tramway Museum. The museum society (Verein Tram-Museum Zürich, TMZ) was formed in 1967, and in 2007 its collection was moved to more spacious accommodation in the former Burgwies depot of Verkehrsbetriebe Zürich (VBZ). So 2017 offered an opportunity for a double celebration, in which to present the museum and its collection to a wide audience in a varied year-long programme of events.

A high point of the programme was the tramcar parade through the city centre on 21 May, featuring all serviceable cars from the collection, plus examples of the present VBZ fleet to bring the visual story up to date. The display certainly illustrated the development of the city’s tramways across the years, from a replica horse car of 1885 to the newest five-section low-floor articulated Cobra car built to Zürich’s unique specification.

Parts of the city centre were closed to general traffic, and regular tramway services diverted, for three hours on that Sunday morning for the cavalcade to be formed and later traverse the city centre. Fine weather brought out the crowds, amply justifying the decision to stage such a mammoth event, which featured no fewer than 18 trams.

Three examples of earlier years, being saved after demolition, were returned to operational condition. As the design was effectively identical to the original condition of a contemporary series of Zürich trams, it has been restored as an STSTZ car, albeit with glazed platforms.

Coming next was the May parade. Mike Russell was there.

Examples before unification

The cavalcade was headed by horse car 27, a replica of an 1885 vehicle, loaned for the occasion by Verkehrshaus der Schweiz, the national transport museum, in Luzern (Lucerne). Horse-drawn tramway operation in Zürich had begun in 1882.

Like so many big city tramways, today’s unified network was formed by amalgamation of various small constituents. The electric cars in the procession, restored to the livery of their original operators, represented two such examples. Leading was two-tone green motor car 1 of the erstwhile Strassenbahn Zürich – Oerlikon – Seebach (ZOS); dating from 1897, it entered its second half-century.

The last survivor of the pre-1900 fleet was Lightweight Kurbel tender trailer 626 of 1925. Both remained in service until 1969 and after overhaul became the first serviceable car set in the TMZ collection. Like many other cars on display, both have been subject to frequent overhauls and refurbishment before being returned to operational condition.

Admirable co-operation

Following the museum cars came two from the current VBZ fleet: two-section articulated car 2070 with bogie trailer, and Cobra five-section articulated car 3031, an example of a type that can be seen across the network.

The parade moved off at 09.05 and followed a circular route from Limmatquai via Bellevue, Quaibrücke, Bürkliplatz, Bahnhofstrasse, Bahnhofplatz, Bahnhofbrücke and Central back to Limmatquai, lined throughout by onlookers. Thereafter the cars were placed on display until the time came for them to retreat to their depots. Works car 1905 of 1962 was on hand to tow the replica horse-car and the motor cars then followed, returning Limmatquai to normal by the agreed time of 11.30. During the parade, most of the cars had carried invited guests and those who appeared in period costume were invited to join the three elderly four-wheelers and Elephant 321 for a journey to the former TMZ museum premises at Wartau, now used as a restoration workshop.

Large numbers of Zürich Karpfen bogie cars of 1969 and the articulated Mirage cars of 1968 have found a new life in Vinnytsya, Ukraine, where they have transformed the city’s tramway into a model based on local European practice and created arguably the most impressive urban transport system in that country. One each of the Karpfen motor and trailer cars (1430 and 785) were retained in their home city for the museum but did not feature in the May parade. Two examples of the latter, however, have been restored and car 1675 made an appearance to represent vehicles that were a feature of the city scene for over 40 years, either operating solo, in double-traction or hauling a bogie trailer.

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It is a great pleasure to record that for this huge exercise the TMZ received the fullest co-operation, not only from VBZ, but also the police and highway authority. Perhaps they, too, take the enlightened view that a tramway is an important part of a city’s infrastructure and that occasional grand public celebration of its heritage is to be applauded. The assistance and co-operation of the VBZ, in the creation and development of the TMZ’s heritage fleet generally, speaks volumes for its appreciation of the role it plays in city life. It may seem amazing now, when Zürich is rightly feted as one of the finest European examples of urban tramway operation and integrated transport, that only a few decades ago the whole system came within an ace of closure.

When Zürich puts on a show, it does so with panache, and we can only wish the TMZ every success in continuing to preserve and operate examples of the city’s tramway history as it enters its second half-century.

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1. Replica horse car 27, on loan from the Swiss national transport museum at Luzern.

2. Early morning sunshine that illuminated Limmatquai gave the opportunity for views of the line-up in the early stages of the parade. Here we see the two cars from the former independent tramways later subsumed by StStz, with many examples of beautiful Zürich trams behind. Veteran 1897 tramcar 1 of the former Zürich – Oerlikon – Seebach tramway takes the lead. This is Switzerland’s oldest operable electric tramcar.

3. An extended halt for photographic purposes during the early stages of the parade provided an opportunity to illustrate the replica ‘Postrolli’ trailer built by TMZ personnel to be drawn by Limmattal-Strassenbahnen car 2 of 1900.

4. The aftermath: At the conclusion of proceedings in early afternoon, Zürich car 102 of 1900 is seen in hot pursuit of car 1 of 1897 at Albisriederplatz en route for the VBZ main workshops where they will be stabled overnight.

5. Motor car 2 of 1928, one of the last batch of two-axle cars delivered to Zürich, proceeds out of Bahnhofstrasse into Bahnhofplatz during the course of the parade with trailer 626 of 1925 in tow.

6. After conveying invited guests to and from the reception at Wartau depot, the former TMZ museum premises in Höngg, Elefant centre-entrance bogie car 321 and trailer 679 proceed along Limmattalstrasse towards Meierhofplatz before returning to Oerlikon depot.

7. The most modern museum car participating in the event was 1675, one of two preserved Karyfen three-section articulated cars; 2070, an example of the current fleet contributed by VBZ, can be seen in the background.

8. The fleet number of VBZ works car 1905 does not indicate its vintage, for it is a mere youngster, dating from 1962. It did not participate in the parade but was on hand at Limmatquai to haul replica horse car 27 back to the works.
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