

# Light Rail Engineers Group Meeting Minutes

Meeting held at the Irish World Heritage Centre, Queens Road, Manchester M8 0RY  
Thursday 7<sup>th</sup> February 2019

**Present:**

Craig O'Brien (COB) – Stagecoach Supertram (Chair)	Colin Kerr (CK) – Edinburgh Trams
Ian Middlemiss (IM) – Blackpool Trams – Vice Chair	Lorraine George (LG) UKTram
Ian Hale (IH) – London Trams	Lee Joyce (LJ) – SYPTE
Mike Crabtree (MC) – NTM Crich	Neil Cundy (NC) Nottingham Trams
Tracey Barnett (TB) - Siemens	Ian Ambrose (IA) – Network Rail
Mike Szender (MS) – Isle Of Man	Michael Hancock (MH) – Midland Metro
David Mee (DM) – Nexus	Graham Thornton (GT) Manchester Metrolink
Donald Thompson (DT) - ABB	Stephen Lewis (SL) – British Steel
	John Edward (JE) - ABB
	Mark Ashmore (MA) - UKTram

**Apologies for absence:**

Chris Jackson (CJ)	Lindsey Smith (LS) – British Steel
Brian Wilson (BW)	Paul Jarman (PJ) – Beamish
Gail Blyth (GB) - Siemens	David Keay (DK) – UKTram
Cathal Dwane (CD) - Siemens	Eoghan Sweeney (ES) – Luas Dublin
Ankur Ankur (AA) – Addleshaw	Paul Ankers (PA)

<b>ITEM</b>	<b>NOTE</b>	<b>ACTION</b>
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## WELCOME TO MANCHESTER

**1.**

**1.1** COB welcomed everyone to the meeting and thanked GT and Manchester for hosting the meeting. The group were then given a presentation from Professor Roger Lewis and his colleagues from Sheffield University on Low Rail Adhesion Cryogen Rail Cleaning. All presentations will be attached to the minutes.

Chris Stinchcombe, Director of Engineering, Keolis introduced himself and thanked everyone for coming to Manchester and discussed how keen Keolis are to be involved in LREG and how important the group was for sharing best practise and guidance.

## 2. INTRODUCTIONS AND APOLOGIES FOR ABSENCE

**2.1** All attendees introduced themselves around the table and COB advised of apologies received (listed above).

COB announced that he has been appointed as UKTram Engineering Manager and will start his new position in May. He also announced that he would be stepping down as Chair of the LREG group and asked the group if they would support IM stepping up from Vice –Chair to Chair.

The group agreed to this and congratulated both COB and IM in their roles. COB asked the group to put forward themselves or another staff member for the role of Vice-Chair. **Action: LG to email members to ask for their nominations and a vote will be held at the next LREG meeting. – Update LG has emailed members for nominations**

### **3. REVIEW OF LAST MEETING**

#### **3.1 Review of Previous Meeting Notes**

The notes from the previous meeting were accepted as an accurate reflection of the meeting, apart from it was noted that the header still read Croydon.

CK suggested that going forward as the minutes are usually issued a week after the meeting, that members raise any mistakes before the actual meeting to allow LG to make any changes and re-issue a correct set of minutes before the meeting. The group agreed to this change

#### **3:2**

#### **Review of Previous Meeting Actions**

**Tram Surfer Incident – Action: On-going COB to contact MM/LROC to see what work they are doing in regards to CCTV/Rear View**

**Actions from this meeting:**

**Item 2 - Action: LG to email members to ask for their nominations and a vote will be held at the next LREG meeting**

**Item 6.1 - Action: LG to contact Andy Wallace on behalf of CK - CK to look at the regulations – Update – LG contacted AW and meeting planned on 23rd March which CK has been invited to**

**AOB - Action: LG to forward to LRSSSB. – Update – LG forwarded document, the LRSSB have passed it on to David Keay to update and give feedback to LREG.**

**AOB - Action: SF to forward information on signage to LG to forward to group.**

### **4.**

#### **UKTRAM UPDATE**

#### **4.1 Update on UKTram – LG/MA**

Transport Minister Jesse Norman announced £1.5m of funding to establish a Light Rail Safety Standard board to ensure safer journeys for passengers. This will ensure improved management across the UK tram industry by enabling more effective UK-wide cooperation. The LRSSSB will be holding their next meeting on the 12<sup>th</sup> of February.

Plans by the Government to carry out a full review on the potential for new light rail schemes could herald a step change for public transport across the country. UKTram will be looking at how it could formally engage in the 'Call for Evidence' process and help to ensure any future strategy is geared to delivering the results Government wants to see

**LRSSB Board** – The LRSSB board appointed Jonathan Fox (TfL) and Bob Morris (TfGM) representing Owners & Authorities, Carl Williams (MML) and David Nichols (KAM) representing Operators.

**Risk Model** – The Industry Risk Model work being undertaken by Atkins is progressing well with the trial system KAM.

**Recruitment** – Engineering Manager (Craig O'Brien), Operations Manager (Steve Dickering) and Commercial/Marketing Manager (Jamie Swift) post successfully advertised, shortlisted, interviewed and appointed.

**Finance** – Company accounts successfully filed by 31st December. UKTram expenditure within planned budget. Auditors appointed for 2018/19 on revised schedule.

**Subcommittee 1 IRAL report** – Research report on available technologies to address RAIB recommendations 3 & 4 of the Sandilands report published for members.

**Briefing note** – DfT requested at short notice a briefing note for the Minister on the industry progress on Sandilands recommendations. Briefing note submitted within requested deadline.

**Test Track** – Next phase of ground works at Long Marston have started, this phase is to lay the foundation base for the remaining formation and complete the 'Roadway' to enable traffic to pass over the Innovation track forms.

**Relocation** - UKTram and LRSSB have now relocated into our own office area within 16 Summer Lane.

**Technology** – With the move into our new office we have procured and set up video conferencing facilities.

**DISC Tour** – Successful DISC (Driver Inattention Safety Challenge) Tour and initial project board meeting.

**Light Rail Conference & Awards** – Renewed sponsorship & collaboration with Mainspring, new terms to benefit UKTram members. We will also be helping to host three Engineering Excellence days.

**Draft Business Plan** – Business plan set incorporating Summit objective outputs, KPI's detailed and budget impact and cost options/scenarios. The draft business plan was taken to Board on the 31st of January. Once agreed it will then be shared with the Executive group for feedback.

## 5. LREG – 2016 DELIVERABLES UPDATE

COB advised that the BP day would be covering Sandilands recommendations and what this means to the maintainer & operator going forward and what we need to be focusing on. They will also be looking at procurement, contracts and the supply chain and its many challenges.

COB also advised that he had set the topics for future BP days, but that they could be changed due to hot topics or issues that members need resolving. He went on to say that the host of the meeting will be able to either provide a presentation/tour or discuss their issues/hot topics to the group.

Going forward British Steel have offered to present on rail breaks at the next meeting and the group will be looking at track renewals, upkeep of the asset, training and competences and recruitment, SCC training and OLE training.

COB and IM thanked the group for forwarding their system updates before the meeting, as it saved time during the meeting and allowed members to raise questions on the updates at the meeting. CK suggested that the group now needed to start producing guidance notes. LG suggested that if members continue to provide their updates, the time saved at the meeting could now be used to work on the groups deliverables. The group agreed.

## 5.4

### **USAN'S**

USAN 03/2018\_ Driver awareness of emergency speed restrictions.

At around 14:32 hrs on 19 October 2018, an LNER service from Aberdeen to London's King's Cross passed through an emergency speed restriction of 20 mph at approximately 120 mph (193 km/h), near Sandy, Bedfordshire.

The emergency speed restriction had been applied at around 13:50 hrs on the previous day because track maintenance staff had found a defect (a crack) in a crossing, part of a set of points. Marker boards and associated automatic warning system (AWS) magnets were in place to provide warning of the emergency speed restriction and denote where the restriction commenced and terminated. However, the driver of the train had not received any notification of the existence of the emergency speed restriction prior to the journey.

The RAIB's preliminary examination found that the requirement to issue information about ESRs to drivers was removed from the railway rule book in 2008. However, Network Rail's company procedures require it to issue advice of the restriction to TOCs and FOCs and all other relevant stakeholders. The ATOC (RDG) document 'Good Practice Guide – Control Centres: Business Process Manual' advises TOCs to have in place appropriate arrangements for advising drivers of emergency speed restrictions, before they operate over the affected route. Research by RSSB carried out in 2014 into the reasons why drivers exceed permanent, temporary and emergency speed limits found that around 10% of drivers surveyed were not receiving this advice.

Although ESRs are provided with an emergency indicator which includes flashing lights, and an associated AWS warning, it is still important that drivers are aware in advance that there is an ESR applying to the route their train will be taking. Suitable notification of drivers will alert of them of the need to look out for the start of the speed restriction, and informs them of the route to which the speed restriction applies, so reducing the chance of them missing the point at which they should start braking, or misreading the signs.

### **Safety Advice**

Train operating companies (TOCs) and freight operating companies (FOCs) are advised to review their practice in this area, and consider whether they are taking adequate steps to minimise the likelihood that a driver encountering an emergency speed restriction (ESR) may not respond correctly to the trackside signs.

Any train operators (passenger and freight) who have chosen not to follow ATOC (RDG) guidance relating to the notification of emergency speed restrictions should ensure that they have undertaken a suitable and sufficient risk assessment to justify the removal of a long established safety measure.

The group agreed that this was something that they were aware of and it was something that all systems should have procedures in place for.

## 6. TRAMWAY STANDARDS

### 6.1

#### TPG (RSP2) Update

CK advised that the document was currently being viewed, following a meeting held in Crich and that the next release of the document was due in March.

CK discussed the USAN that Edinburgh Trams had received from the RAIB. They advised to increase the sound pressure level of the warning horn fitted to its trams. They were also told that they should consider measures to mitigate risks at locations where audible warnings may be required. In particular, consideration should be given to the appropriateness of the current warning horn or bell as a method of warning to pedestrians using footpath crossings over off-street track sections with high line speeds.

With this in mind the group felt that a test and guidance note should be produced and thought that a working group should be put together. LG advised that the Heads of Safety group were putting together a working group for this issue and CK volunteered to join their group and to look at the regulations.

**Action: LG to contact Andy Wallace on behalf of CK - CK to look at the regulations – Update – LG contacted AW and meeting planned on 23<sup>rd</sup> March which CK has been invited to**

IA advised that the Urban Rail Track Perimeter's group will be holding their next meeting on the 22<sup>nd</sup> of February and that he and SF continue to work on the glazing standard group.

CK asked whether the group could look again at providing their systems metrics. COB advised that he had discussed this with James Hammett and that in his new role with UKTram he will be looking at collecting this information again. COB ask the group to provide suggestions on how this information can be collated

## 7.

### 7.1 ORR UPDATES

No update.

### 7.2 RAIB REPORTS

#### 1.RAIB USAN, REPORTS & SAFETY DIGESTS

R182018\_12112018\_ East Lancashire Railway.

R192018\_19112018\_ London Waterloo

## **RUNAWAY HAND TROLLEY AT RAMSBOTTOM**

### **Summary**

At around 11:15 hrs on Thursday 15 March 2018 a hand trolley, loaded with approximately 0.5 tonnes of ballast, ran away from a group of track workers near to Ramsbottom station on the East Lancashire Railway. The trolley derailed when it struck a wooden level crossing gate. The gate was pushed into a road which was open to road traffic.

There were no injuries, although the level crossing gate was damaged.

The immediate cause of the runaway was that the trolley was not fitted with any brakes and was deployed on a gradient without the introduction of any mitigation or safeguard against it running away.

The unbraked trolley was almost certainly available for use because it had been donated to the East Lancashire Railway, which did not have any processes in place to manage donations, and no controls in place for use of trolleys during track maintenance. Additionally, there were no constraints on the use of such trolleys on the railway, nor any competence and training requirements for their operators.

There was no assessment of the risks of using the trolley, either generically or for the specific task on the day, and there was no formal training or briefing of the operators on the day.

The underlying factors were inadequate management systems in the Permanent Way department and, probably, a lack of Safety Management System compliance audits.

### **Recommendations**

As a result of its investigation the RAIB has made three recommendations. These relate to:

HRA should issue clear guidance to its members that the use of trolleys without fail-safe braking should be prohibited on running lines and restricted to yard or workshop work on level track; unless the use of such trolleys is supported by a robust risk assessment and suitable operating procedures

The East Lancashire Railway Permanent Way department should develop and implement local procedures in accordance with the principles of the railway's Safety Management System, including, but not limited to:

Risk assessing work activities;

Managing and controlling the acquisition (including donation), maintenance and operation of Permanent Way department equipment;

Staff competence management; and

Planning of work activities.

The East Lancashire Railway should implement a process of thorough regular audits, which are capable of detecting non-compliances with its Safety Management System and identifying

corrective actions needed to improve the management of safety

### **Learning Points**

The RAIB has identified the following key learning points

The importance of undertaking planned audit and compliance monitoring activities so that heritage railways are informed about the extent to which their Safety Management Systems are being effectively implemented.

The importance of being clear about how any vehicle or trolley is to be controlled before it is placed on the track.

The importance of heritage railways adequately considering the safety risks associated with assets that are acquired through donations, and ensuring that the suitability and condition of the equipment is effectively assessed to ensure compliance with Sections 4, 5 and 6 of The Provision and Use of Work Equipment Regulations 1998. e

### **COLLISION AT LONDON WATERLOO**

#### **Summary**

At around 05:42 hrs on Tuesday 15 August 2017, a passenger train was leaving London Waterloo station when it collided with a stationary engineering train at a speed of 13 mph (21 km/h). No injuries were reported but both trains were damaged and there was serious disruption to train services until the middle of the following day.

The passenger train was diverted away from its intended route by a set of points which were positioned incorrectly as a result of uncontrolled wiring added to the signalling system. This wiring was added to overcome a problem that was encountered while testing signalling system modifications which were being made as part of a project to increase station capacity. The problem arose because the test equipment design process had not allowed for alterations being made to the signalling system after the test equipment was designed.

The actions of a functional tester were inconsistent with the competence expected of testers. As a consequence, the uncontrolled wiring was added without the safeguards required by Network Rail signalling works testing standards, and remained in place when the line was returned to service.

A project decision to secure the points in the correct position had not been implemented.

An underlying factor was that competence management processes operated by Network Rail and some of its contractors had not addressed the full requirements of the roles undertaken by the staff responsible for the design, testing and commissioning of the signalling works.

The RAIB has observed that there are certain similarities between the factors that caused the Waterloo accident and those which led to the serious accident at Clapham Junction in 1988. The RAIB has therefore expressed the concern that some of the lessons identified by the public inquiry, chaired by Anthony Hidden QC following Clapham, may be fading from the railway industry's collective memory.



## **Recommendations**

The RAIB has made three recommendations,

Network Rail should take steps to reinforce the attitudes and depth of understanding needed for signal designers, installers and testers to safely apply their technical skills and knowledge. These steps should include:

The education of existing staff and their managers, and future recruits, to promote a better understanding of industry processes, and an improved understanding of how the lessons learnt from previous accidents have shaped today's good practice;

The enhancement of processes for the assessment, development and ongoing monitoring of the non-technical skills of signal designers, installers and testers; and

Measures to monitor and encourage compliance with process, and safe behaviors on projects.

OSL Rail Ltd should enhance its existing processes for the assessment, development and ongoing monitoring of those staff who undertake signalling works so as to ensure that they have the depth of understanding, attitudes and non-technical skills that are needed to deliver work safely. Areas of enhancement should include the skills needed for effective communication and safe decision making in complex project environments.

This recommendation may apply to other signalling design, installation and testing organizations.

Mott MacDonald Ltd should enhance its existing processes for the assessment, development and ongoing monitoring of those staff who undertake signalling works so as to ensure that they have the depth of understanding, attitudes and non-technical skills needed to deliver work safely. Areas of enhancement should include the skills needed for safe decision making in complex project environments.

## **Learning Points**

The RAIB has identified the following key learning points

Signalling design, installation and testing staff at all levels must understand that modern signalling design, installation and testing processes exist to prevent accidents such as that at Clapham Junction in 1988. The importance of these established processes, and the potential for unsafe events to occur when they are not followed, is demonstrated by events at Waterloo and Cardiff (RAIB report 15/2017). Substituting alternative informal processes has the potential to degrade the safety integrity of the signalling system.

The Waterloo project team specified the securing of points to reduce risks associated with working on this particularly complex infrastructure. This was beyond normal requirements and the RAIB regards it as a good example of assessing site specific risks and identifying practical mitigation.

The intended securing of points at Waterloo was probably omitted because responsibility was not allocated effectively. Staff responsible for planning the use of non-standard precautions are reminded that to both implement and verify these precautions, there is a need for staff to be allocated to these duties and processes put in place for them to follow.



Signalling projects are reminded of the importance of providing correct and up to date drawings when returning the railway to operational use. These should be provided at locations (e.g. relay rooms) where staff expect to find them, with any superseded versions being clearly identified as superseded.

## **NEAR MISS WITH TRACK WORKERS AND TROLLEYS AT SOUTH HAMPSTEAD**

### **Summary**

At around 00:35 hrs on 11 March 2018, a group of track workers narrowly avoided being struck by a train while placing trolleys on the track alongside South Hampstead station, north London. The train was travelling at 49 mph (79 km/h) towards London Euston station when the driver saw the group, sounded his horn and applied the brake. Three other members of the work group, who were around 100 metres away from the staff placing the trolleys on the track, saw the train seconds earlier and shouted a warning to their colleagues who managed to remove the trolleys and get clear around two seconds before the train passed. One member of the group received a minor injury and many were distressed.

The incident occurred because the track workers had placed the trolleys on a line which was still open to train movements, instead of on the intended adjacent line that was blocked. The RAIB investigation found that the safety arrangements that had been established were ineffective. The work group did not have anyone designated as the 'Person in Charge', an individual who has sufficient knowledge and competence, and is specifically appointed to manage all the risks associated with the work, including the danger from moving trains. There were also a number of unofficial working practices being used by the workgroup and the person asked to take charge of safety for the work group believed the open fast lines were the blocked slow lines.

### **Recommendations**

As a result of its investigation, the RAIB has made six recommendations to Network Rail. These cover:

Network Rail should:

Revise its standard for managing the safety of people at work on or near the line (currently standard NR/L2/OHS/019 issue 9) to clarify the following aspects of the 'Person in Charge' (PiC) role:

A PiC should be allocated to each separate work group, and remain with that work group for the duration of the work;

The same PiC should be involved in both the planning process and delivery of the work (excluding exceptions stated in the standard);

When the COSS duties of a PiC are delegated to someone else, that individual should be appointed during the planning process, endorse the safe work pack and deliver COSS duties on site.

Provide suitable guidance to support the understanding and implementation of the standard, and maintain access to such documentation for relevant staff and contractors.

Brief out the changes arising from a) and b) above to relevant staff and contractors;

Network Rail should verify that all of its staff who currently act in the role of Responsible Manager, as defined in standard NR/L2/OHS/019 Issue 9, are fully aware of their responsibilities with respect to signing off safe work packs and, where this is not the case, take action to address this lack of understanding.

Network Rail should review and improve the quality of the location information provided in its safe work packs, to help staff better identify running lines, access points and other relevant geographical features. The review should include consideration of supplementing the current minimum information specified in Appendix A of standard NR/L2/OHS/019 with detailed track diagrams, local street maps, ground level and/or aerial photographs (eg from RouteView) etc, using a risk-based approach.

**Network Rail should:**

amend its National Hazard Directory to include the access point alongside South Hampstead station; and

provide access point signage to clearly identify each running line to staff using the access point

Network Rail should carry out a detailed audit of how standard NR/L2/OHS/019 Issue 9 has been implemented across the network, including in its supply chain. The purpose of this audit is to determine how the standard has been interpreted and understood, and areas of good and bad practice. Network Rail should take appropriate actions to address any issues found.

Network Rail should undertake a review of how the change of NR/L2/OHS/019 from issue 8 to issue 9 was managed, in order to identify any areas for improvement in the management of change.

The RAIB has also identified one learning points.

Those in charge of safety on site should be open to challenge from members of their team in the interests of safety and be prepared to check safety critical information if challenged.

**SAFETY DIGESTS**

**D012019\_21012019\_ Dunkeld & Birnam**

**DERAILMENT NEAR DUNKELD & BIRNAM**

**Summary**

At around 22:15 hrs on 29 October 2018, a rail head treatment train (RHTT) comprising a Class 67 locomotive and two specialised wagons, operated by DB Cargo and travelling between Inverness and Perth, derailed just after passing Dunkeld and Birnam station. Both wheelsets of the 4th bogie in the train derailed at a set of trailing points, ran for around 100 metres causing significant track damage, and then rerailed at the next set of trailing points. The train then continued a further 15 miles to Perth.

The RHTT was crewed by a driver, and an operative who operated the rail head treatment equipment in accordance with a pre-defined plan. At some point in the journey, the leading wheelset of the 4th bogie (the trailing bogie of the leading wagon) began to slide rather than rotate, resulting in the creation of a large wheel flat on both its wheels. As the train progressed on its journey, these flats developed, wearing a groove into the wheel treads and creating features on the outside edges of the wheels called 'false flanges'.

As the flatted wheelset passed over number 13 points, just south of Dunkeld and Birnam station, the false flange on the left wheel engaged with the converging switch and stock rails. Rather than the wheel tread transferring from the switch rail to the stock rail in the normal way, the false flange on the left-hand wheel became trapped between the stock and switch rail.

This caused the outside face of the wheel to run along the gauge face of the stock rail, while the right-hand wheel was pushed up against the opposite stock rail. This led to the wheelset pushing the rails apart, resulting in high lateral forces on the stock rails which in turn overloaded the rail fastenings and in some places the wooden sleepers.

### **Important Safety Message**

This accident demonstrates that the formation of large wheel flats on rail vehicles can lead to derailment. It is therefore important that:

Operators and maintainers of Rail Head Treatment Trains (RHTTs) closely monitor the condition of wheels and braking systems when operating in low adhesion conditions, due to the increased likelihood of the formation of large wheel flats

Operators of freight trains, and other specialist trains derived from freight wagons (including RHTTs), undertake suitable roll-by examinations on departure from yards, to detect non-rotating wheels

Maintainers of freight wagons have a process in place to control the isolation of handbrake interlocks on freight wagons

Staff preparing freight trains for departure, check that handbrakes are fully released and do not place sole reliance on handbrake interlocks

## **8. SYSTEM UPDATE**

**COB reminded the group to forward their system updates to LG two weeks before the meeting so that they can be shared within the group prior to the meeting.**

### **Croydon – IH**

#### **Incidents**

We've had an exciting New Year with a major fire at a self-storage warehouse adjacent to our track on New Year's Eve. Services had to be suspended past the site due to the fire and the line then had to remain closed for a further five days while the remaining shell was demolished and the site made safe. This resulted in 12 trams being stranded the far side of the fire away from the depot and fleet staff had to carry out remote maintenance on these during the five days including filling the sanding equipment by hand. .

Once permission to go back to our tracks had been given, our maintenance and operations teams inspected and repaired the assets and reopened the line within 4 hours. A number of lessons have been learned from this incident, particularly around emergency planning and management.

We have also experienced several vehicle incursions onto the network where drivers have ignored the trams only signage and subsequently beaching the cars on the ballast. Alcohol seemed to be the common factor in these. We are looking to improve the signage at road/tram interfaces.

### **Sandilands**

The project for design and implementation of the Positive Prevention of Overspeed System has now been let. The project has a challenging timescale of completing in 12 months.

FAT testing of the driving simulator is about to commence. This is focused on tram cab environment not whole route.

### **Projects**

Work has finally begun at Blackhorse Lane Bridge – the programme of works is now agreed between Croydon Council and TfL and will take the whole of 2019.

Works have also commenced, although currently just traffic management and site set up for replacing the retaining wall along Ampere Way. This is a challenging project as the site is (understandably) long and narrow and services will continue to run throughout.

Design work on the communications infrastructure replacement system has now completed and cable pulling commenced. This has identified a number of blocked/collapsed ducts that we are working through.

At a strategic level, consultation is ongoing regarding the Sutton Extension with three different routes being proposed and two different modes (trams or rapid bus transit). This completes early 2019 so that decisions can be made in the next 12 months.

Activity is also starting to accelerate regarding the proposed Westfield shopping centre in the centre of Croydon. The enabling works for this make several changes around the tram route in the tow including junction improvements and tramstop changes.

### **Maintenance**

The maintenance staff fatigue study has now completed its data collection and all results are being analysed. Initial indications are confirming that some changes will be required in the infrastructure maintenance area,

No problems were caused by the falling snow at the end of January.

## **Edinburgh – CK**

### **Driver Innovation Safety Challenge**

The DISC project is progressing well and we have been in discussion with the academic and medical professions to identify suitable experts to assist in the validation process.

We are putting the finishing touches to the ITT documentation and will put that out in the first quarter of this year.

### **Maintenance Contract Management**

City of Edinburgh Council (CEC) is asking Edinburgh Trams (ET) to take on full ownership of all O&M costs. They will gradually novate the maintenance contracts to ET during 2019.

### **Saughton Pedestrian Crossing Incident**

We are working with RAIB for their report into the Saughton Ped Crossing incident. The RAIB carried out some sound level checks for our audible warnings. As a result we are looking at some

enhancements.

## **Blackpool – IM**

### **Extension**

The extension to Blackpool North Train Station has been put back for some time. The track is laid and connected to the main line but there is still an issue at the Wilko end with no real end date.

### **Maintenance**

During a recent inspection we found that a gearbox was coming away from the axil. This has cause damage to the gearbox, the axil and the couplers. Bombardier sent a Bogies expert to investigate and have stated that the gearbox could not have been fitted properly by BTS. We have disputed this finding and have blamed the vibration caused by previous bogie issues that we have been having. Bombardier are replacing the faulty parts.

Bombardier are to replace all window frames as part of a modification to replace corroded frames. They have replaced three in order to understand the extent of the work required and are now putting a plan in place. The corrosion has been caused by a drainage hole in the frame.

We have been working very closely with the fire brigade on their drills to recover a casualty from under a tram. Currently these exercises have shown that it takes 14 minutes to recover a casualty from arriving on site. This is due to the lifting jacks that where bought for the brigade by BTS when the trams came into service. The jacks lift in stages. We are working with a manufacturer and the brigade to modify the lifting points on the tram so the brigade can use their normal lifting gear.

We continue to have a fault with the SCADA system as it does not automatically change over from fibre connection to GMS when there is a fault. Austin Lenika are working on a solution.

We also have continuing issue with our multicar overhead vehicle. The vehicle continues to go into limp mode which results in a max rev count of 2000rpm.

### **Lost Mileage**

Period 8 (14/10/18 – 10/11/18) saw a loss of 163km this equates to 0.2% of overall journeys. The main problems were tram faults.

## **Sheffield - COB**

### **Tram Train**

There was a second incident involving a car and a City Link vehicle causing a high degree of damage to the Tram Train. This occurred at exactly the same junction and appears to be a result of running a red light. This further reduced the Fleet to 5 vehicles and 2 of only 4 available for running as Tram Train. One additional Tram was turned to be able to run as a Tram Train and then the 2 damaged City Links were combined to make 1 good Tram Train.

We currently have 4 available for tram train running and 2 as regular service vehicles. It is estimated that the cost of the repair will be in excess of 1 million with a time frame of 12-18 months to return it.

Supertram and Network Rail are yet to reach an agreement on the cross boundary isolation process which is making it difficult to carry out the required training. In addition the Infrastructure department cannot fully plan the maintenance regime as there is no agreement in place with a contractor to supply the necessary personnel and documentation to do so.

Passenger wise the route is proving popular and we are currently carrying an average of 18 thousand passengers over the first 3 periods.

### **Embedded Rail Replacement 2019**

The program for 2019 has been finalised and all works will take place on the Hillsborough section of the system. This will allow the rest of the service to run as normal and be more sensitive and less disruptive to passengers catching buses.

This is the second of a 3 year contract to which Volker Rail is the principle contractor with Aecom as the designer and Turner Townsend managing the project on behalf of SYSL. The work will start Easter Bank Holiday and will continue through to 31st August.

### **Infrastructure**

**Bond theft** – There has been a few more bonds and earth returns which have been stolen but the amount has certainly reduced over the last few periods. The culprits were never apprehended so to some degree we anticipate further issues in the future some SYSL continues to work with the Transport police on ways of guarding against these attacks.

**Rail Breaks** – There have been several more breaks in the embedded rail consistent with the previous number the total now is 14. All but 2 of these which occurred in December & January which are scheduled to be done through February 2019. Supertram has carried out a full investigation into the breaks, using British Steel as a consultant and have been issued a report with the findings. AS a follow up to the works Supertram would like to pursue an industry standard for dealing with these as none currently exists.

**Low Rail Adhesion Cryogen Rail Cleaning** – Sheffield University will be presenting at the next LREG meeting and will provide updates on the progress to date.

**Substations** – During our recent annual Sub Major inspections and testing we have experienced a number of issues with component failure and inability to be able to re-install circuit breakers. In affect the entirety of the Subs are beyond life expectancy but technical still fit for purpose. We are now faced with the genuine prospect at looking to retrofit some elements of the Subs are installing brand new Sub Stations in full.

Given the age it goes without saying that obsolescence and support of this kit is on the wane.

**Sleeper Replacement** – approximately 70 wooden sleepers at 2 sites have been replaced by Volker Rail over a number of nightshifts. This was slightly more time consuming as it included removal of a checkrail around the curves.

### **Rolling Stock**

**Axles** – Applied instruments will be conducting Ultrasonic testing on all trams to try establishing the amount of axles which have experienced cracking. It may not be feasible to accurately test all the axles using the method recommended by SNC Lavelin. If some of the tests are inconclusive then these axles will be considered not fit for purpose and will have to be replaced.

**HTC** – All the fleet has been upgraded for the Audio on the tram and digital displays tying in with PIDS.

**Bogies & Articulation** – Work on overhauling these continues to progress and this work stream ongoing.

**Mobile Compressor** – The business is looking at purchasing one of these to enable Technicians

to bring the Tram back without the need for towing.

**Pantograph Overhaul** – 50% of the fleet has now been replaced but this has slowed due to the supplier stalling.

**Air Cylinders** – The point has now been reached where the 24 year recommendation for testing is due on cylinders. There may be corrosion present but of the 5 inspected only 1 is showing any level of corrosion.

## **Midland Metro – MD**

**Please find attached.**

### **Crich – MC**

The Museum will reopen on Saturday 16th March 2019 'Crich 60'

This year the Museum is celebrating that it is 60 years since The Tramway Museum Society acquired the site at Crich and commenced to build The National Tramway Museum. There will be a celebratory event on the weekend of 21st and 22nd September.

#### **Catering Facilities:**

The project for a new hospitality/catering centre is going ahead with architects appointed and development work for planning permission progressing well.

#### **Engineering staff recruitment:**

Recruitment of skilled staff for tramway engineering continues to be difficult

A coach builder/technician has been appointed and is settling in well.

A mechanical technician for rolling stock work and a competent OLE Engineer is being sought.

#### **Rolling stock developments:**

Major restoration project on London County Council tramcar No 1 'Bluebird' is progressing with a planned completion date of October 2019. The bogies have been fitted and the majority of the air brake system is installed and static tested. The air operated platform doors and folding steps is proving to be a challenge as the equipment had been removed many years ago and there are no drawings of the installation.

The part life restoration of Newcastle 102 built 1901 is under way with the bogies dismantled and the wheels and motors away at contractors for overhaul including re-tyring , 2 new axles and new road gears with motor pinions.

London Transport 1622 has been lifted for a periodic 'lift and inspection' pre planned maintenance event. The bogies have been dismantled for in house overhaul with wheels and motors sent to contractors for attention.

#### **PW Developments:**

Relaying of the Museum's northern terminus 'Glory Mine' is progressing with existing point and crossing castings recovered by welding.

#### **Traverser overhaul:**

The traverser that is used to enable tramcars access the Exhibition Hall and the non-operational tramcar storage depots is being overhauled by contractor and fitted with an upgraded control



system

**Holroyd Smith Exhibition:**

An exhibition to describe and display the work of Holroyd Smith is being developed with some interesting research revealing the true extent of this engineering genius's work.

**Manchester Metrolink – GT**

GT went on to say that they now have 27 new trams and work will be starting on the extension of both depots. Their three year business plan started in December, with the 1<sup>st</sup> new tram due to arrive in March 2019.

**Nexus – DM**

**Infrastructure:**

**South Shields Training centre** – Construction of new training centre is ongoing with steel work being erected. Track, OHL and signalling work feeding the sidings and cable runs are completed. Awaiting commissioning. Training Centre expected completion by late summer 2019. – Currently on target.

**South Shields Station** – The new station has been built and internal fitment has started. The existing station is still being used. All new track, signalling and OHL has been fitted for the new station lay out. Work continues on the shopping centre/bus interchange which is part of the new station. Expected completion August 2019. Must be completed in readiness for the Great North Run scheduled for Sunday 8th September 2019. – Currently on target.

**New Depot** - Five prospective bidders are at the final stages of producing their bids with contract award expected November 2019.

**Temporary Satellite depot** – To enable the demolition of the old depot in stages, a separate satellite depot is to be built at Percy Main. Planning permission has been submitted and at final approval, this will allow up to 10 trains to be out stabled overnight.

**Asset Renewal Plan** – This covers track, signalling, drainage, Overhead Line, structures, stations, and ticket machines renewals across the system. We are in year 9 of a 10 year Asset Renewal Plan which is on target and budget to date.

**Train Fleet:**

**New Fleet** - Five prospective bidders are at the final stages of producing their bids with contract award expected November 2019.

**Tetra Radio system** – Has been installed on all Metro cars and has now been configured to the RTMS (Rail Traffic Management System) signalling system in the Control centre. A few minor bugs in the system are being ironed out, but generally speaking is starting to work well.

**Existing Fleet** – Continues to run, but it is showing its 40+ years of age, suffering from obsolescence of components in many systems, including traction motor bearings, Axle bearings, and Brake actuator components.

**Network Rail – IA**

An announcement is expected soon on the proposals from Andrew Haynes' (CEO) 100 days review. This is likely to result in further restructuring of the company, focussing more on the Routes, however a central Technical Authority will be included in the organisation

The Sheffield Tram Train service continues to perform well and is attracting good patronage. The delivery team are closing out the remaining snags on the NR infrastructure and full handback is scheduled for August this year

In collaboration with SYSL and SYPTE we are engaging with a number of other authorities interested in tram train options and hosting visits to Sheffield. These include GMPTE, WMCA, Metro West, TfW, HITRANS and others to be confirmed.

Development of the learning platform continues along with the evaluation programme for the scheme. SC and IA putting together a case for retaining core experts from the TT delivery team to support all the above

Other major events can be viewed on the news section of our website [www.networkrail.co.uk](http://www.networkrail.co.uk)

## **Isle of Man – MS**

Passenger services are now suspended for winter maintenance. The Engineering teams are performing winter maintenance with own staff and contractors rebuilding stock, relaying track and re-wiring the overheads.

We progressively re-open to passenger traffic from 6th March.

Overall 5.5% growth to 515k passengers.

MER 125 was a great success, generating additional traffic and interest.

SMR traffic remains restricted by stock availability (1/3 of fleet not available), but growth year on year remains very strong.

Steam service, slight reduction this year, the growth of 2017 despite insufficient stock and SAFs (mainly due to boilers) in 2017 was not sustained in 2018, but is still 15% up over the two years .

Operational Staff have now been inducted for the start of season. Pre-service training and testing is commencing.

## **Staff**

4 new apprentices taken on. Currently being rotated through departments on 3 month rotation.

1 new electric fitter employed on MER.

1 new mechanical fitter on Steam to be appointed imminently.

1 member of P/way staff left.

We are under-manned in some areas and recruitment remains challenging.

## **Safety**

Headline issue is the HSWI (HSE) prosecution arising from Snaefell incidents. The Dept admitted guilt to some offences and challenged others which were withdrawn, with a fine of £18k imposed.

Since the court findings HSWI have since implemented a more rigorous enforcement of railway inspections after some criticism. New Railway Inspectors are being appointed, with much effort to provide the necessary data and evidence required by HSWI.

All suggested improvements were implemented and the railways are currently under an improvement notice to fit fail-safe brakes. We continue to work closely with the HSWI. A significant incident over winter was a P/way contractor's incident with coupling bar failure resulting in a laded trailer colliding with and damaging the RRV.

### **Track**

105km of track, with 4km being re-laid this winter. As we have 3ft & 3ft 6in gauge track, there is a limited range of engineering plant, hence most done without specialist tools making it challenging. 3.3km of 4km are total relays, including digging out ballast and drains.

New cross-over being installed on the mountain railway (laid as permanent through-route, with a mod kit to allow cross-over, as the centre Fell Rail isn't switched).

Re-plating & refurbishing Nunnery Bridge on Steam Railway underway, with work about to commence on Laxey Viaduct of the MER.

### **Over-Head Line**

75km of OHL, with re-wiring and renewal of fittings of another 6km this winter. About 1/3 completed.

Pole painting is progressing, with 100 poles repainted of 1100 (200 on mountain). 15 poles replaced.

New substation at Ballamenagh, commissioned in 2018 had a successful year. Two new substations to be designed and built in 2019.

### **Major Projects**

DBHT Promenade scheme. Complete relaying of road and tram-lines, with future provision for electric running. Assured 950m of double tram track available by mid-April.

Strathallan Tram Shed. Now demolished and rebuild commenced. The Shed will be rebuilt with a 1902 façade, improved staff, maintenance and public facilities.

Temporary tram shed to be constructed to hold half of fleet, using a former ice-rink marque. In meantime maintenance and inspections are not easy.

Cladding of MER depot sheds delayed due to commercial constraints.

Plans are under development for the rebuild of Ramsey Plaza, with running into the town centre and new tram storage facilities.

Land acquired for a new P/way & RS Storage Shed on Steam Railway at Airport (Ronaldsway Halt).

Planning for the procurement of new SMR trams for the future is developing.

### **Rolling Stock**

212 items of rolling stock. Some stock returned to traffic in 2018, e.g., Tram 14 and Trailer 59 both of 1898 and Trailer 42, continuing trend of recent years.

Most recent addition to the fleet is an electrically powered inspection car and trailer (MEC-4 from Donfabs & Consilla).

55% of stock now serviceable. Of the Out of Service stock, some items are heavily stripped of components or in poor state of repair, making rebuilds more challenging. But we have plans for more stock to be rebuilt and return to traffic.

### **Rolling Stock Projects**

Installation of electro-magnetic track brakes on the mountain railway trams (on a 1:12 grade)

Design of new steel frameworks in-house, to rebuild two SMR trams.

Rebuild of MER and DBHT trams on-going. All on Island. We have plans to bring another tram and three trailers back into service this year.

Brill 27Cx bogies are a serious problem. They do the lion's share of work on the MER – suffering from severe wear issues, requiring a major rebuild and refurbishment exercise.

Overhaul of ECC (Electric Construction Company) motors from 2018 was successful, so planning to do more (there are some unique features of this early motor design).

Design of new steel frameworks for Steam Railway coaches.

Repair and re-commission DE Loco 21 – delivery of refurbished bogies imminent.

Rebuilding of steam loco on-going in UK.

Rebuilding of coaches on-going, one in UK, one on Island.

### **British Steel – SL**

SL advised that British Steel are going through a period of restructure. Rob Lambeth has now left the organisation and Lindsey Smith has stepped up as manager and they have a big rolling plan taking place in April.

### **ABB – Donald Thompson**

DT introduced his colleague John Edwards, General Manager to the group and discussed their work on overhead line arresters, arresters on carriages and track voltage limiting devices.

### **ANY OTHER BUSINESS**

DT discussed energy storage and power factor correction and advised the group that ABB would be willing to come to their system and show you how to test them and could also write the procedure for you. This would be a free service and DT suggested members contact him if they needed any further information.

CK discussed Self Certification Process for the Management of Electro Magnetic Compatibility (EMC). The document has been created but may need updating and permissions given by UKTram to be published. CK suggested forwarding the document to the LRSSB. **Action: LG to forward to LRSSSB. – Update – LG forwarded document, the LRSSB have passed it on to David Keay to update and give feedback to LREG.**

LJ asked the group to forward him information on “how your standards work” as he would find this information helpful.

SF advised that the group need to look at best practise for highway junctions and thought that the group should look for examples so that UKTram/LREG could lead on this document.

SF also thought that the group should be looking at signage and offered to send some information to the group after the meeting. **Action: SF to forward information to LG to forward.**

COB asked whether the group was interested in fly wheel energy storage. **Action: COB to forward information to the group.**

#### **FUTURE MEETING DATES**

**9<sup>th</sup> and 10<sup>th</sup> May 2019 - Crich**

**19<sup>th</sup> and 20<sup>th</sup> September –**

**7<sup>th</sup> and 8<sup>th</sup> November -**