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29 April 2020



Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
Cullen House
Berkshire Copse Rd
Aldershot
Hampshire GU11 2HP

Dear Andrew,

RAIB Report: Overturning of a tram at Sandilands junction, Croydon, 9 November 2016

I write to provide an update¹ on the action taken in respect of recommendation 8 addressed to ORR in the above report, published on 7 December 2017.

The annex to this letter provides details of the action taken regarding the recommendation. The status of recommendation 8 is '**implemented**' for London Trams/Tram Operations Ltd.

We do not propose to take any further action in respect of the recommendation, unless we become aware that any of the information provided has become inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 30 April 2020.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'Oliver Stewart', is written over a horizontal line.

¹ In accordance with Regulation 12(2)(b) of the Railways (Accident Investigation and Reporting) Regulations 2005

Oliver Stewart

Recommendation 8

The intent of this recommendation is to minimise the risk of people being trapped in an overturned tram where side windows and doors are either facing the ground or facing the sky. Solutions could include the use of removable windscreens at the ends of trams. Implementation may involve tram operators seeking input from appropriate tram manufacturers.

UK tram operators and owners should review options for enabling the rapid evacuation of a tram which is lying on its side after an accident. If the review identifies practical measures which would provide significant benefit to trapped passengers, UK tram operators and owners should:

- i. implement these measures on existing trams if practical to do so in the short term; or
- ii. provide a time-bound plan to implement these measures on existing trams when practical to do so (e.g. during planned refurbishment).

Such measures should then be promoted for inclusion in the specifications and standards governing the new builds of trams.

ORR decision

1. In addition to research into evacuation from an overturned tram by UK Tram Subcommittee 1, London Trams (LT) and Tram Operations Limited (TOL) have undertaken a review of their evacuation procedures and concluded that the measures taken to address Recommendation 6 (fitment of a reinforcing film to all exterior windows and doors) and Recommendation 7 (fitment of uninterruptable emergency lighting) constitute all that is reasonably practicable to minimise the risk of passengers being trapped in an overturned tram.

2. LT/TOL have focused on control measures to prevent trams overturning in the first place and in that area have been industry leading, installing amongst other things, physical prevention of over speed (PPOS) the tram equivalent of the speed control function in TPWS, at risk assessed priority locations (tight radius curves).

3. LT/TOL have confirmed that they will take into account the findings from the publication of the industry risk model, but it does not impact on existing measures taken to address recommendation 8.

4. After reviewing the information provided ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, London Trams has:

- Has taken the recommendation into consideration; and
- Has taken action to implement it.

Status: Implemented.

Previously reported to RAIB

5. On 3 March 2020 ORR reported that TOL/LT were awaiting the outcome of the risk model development (rec 2) before making any changes to evacuation arrangements.

Update

6. On 10 March 2020 London Trams provided the following update:

With respect to Recommendation 8, work is well underway to fit a new independent emergency lighting scheme to our fleet of trams. At the time of writing 21 vehicles have been completed, with the remaining due to be complete by the end of March.

For your information, included with this letter is the Employer Requirements document for the new lighting scheme which was sent to our contractor. This document will give you a bit more information about the system we are currently installing.



LT-C-18-103
Emergency Lighting

Previously reported to RAIB

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Such measures should then be promoted for inclusion in the specifications and standards governing the new builds of trams.

ORR decision

1. On 3 January 2020 London Trams provided the following update:
UK Tram Subcommittee 1 on behalf of the Industry came to the collective view that installing escape hatches in the floor or roof of any Tramcar would import significant risk. We are awaiting the output of the industry risk model (see recommendation 2) which may inform further enhancements to our evacuation arrangements.

As part of the business as usual safety governance arrangements we will support TOL when they review their emergency procedures, especially following the installation of thicker window film (Recommendation 6) and the new emergency lighting system being installed (Recommendation 7).

Status: Implementation on-going - TOL is supporting LT's work to implement this rec.

2. On 9 December 2019 Tram Operations Ltd provided the following update:
Strengthening of the anti-vandal film on the tram windows was completed in April 2019. Whilst the update to the Emergency lighting in trams is underway, it has been delayed due to procurement issues; these have now been resolved.

A new design has been received by LT from the Supplier. It will be shared with TOL after a technical review. Due to commitments on completion of the other projects

resulting from Sandilands, the installation of the new Emergency lighting has been delayed until Spring 2020.

Once the installation of the emergency lights has been completed, TOL will review its evacuation process to take into account any changes that flow from the provision of emergency lighting and the strengthening of the film on the tram glass. In addition, TOL are awaiting the output of the industry risk model before any further review of the evacuation arrangements on Tramlink trams.

Status: Implementation on-going - TOL/LT are awaiting the outcome of the risk model development (rec 2) before making any changes to evacuation arrangements. As per TOL response.