

Oliver Stewart
RAIB Recommendation Handling Manager



1 August 2024

Mr Andy Lewis
Deputy Chief Inspector of Rail Accidents

Dear Andy,

RAIB Report: Pushchair trapped in tram doors and dragged, Nottingham on 15 December 2017

I write to provide an update¹ on the action taken in respect of recommendation 1 addressed to ORR in the above report, published on 10 September 2018.

The annex to this letter provides details of actions taken in response to the recommendation and the status decided by ORR. The status of recommendation 1 is **'Closed'**.

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.

Yours sincerely,

Oliver Stewart

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

Recommendation 1

This recommendation is intended to reduce trap and drag risk.

Nottingham Trams Limited should review and improve arrangements intended to manage the risk of trap and drag during tram dispatch on its network. The review should consider equipment, operating practices and the interaction between these. Areas in which improvements should be considered include:

- ensuring that tram drivers have the equipment needed for an effective final visual door check of all doors after interlock is achieved;
- CCTV modifications to ensure a good view during the final visual door check of all areas where items could be trapped in closed and locked doors;
- investigating possible door seal modifications to reduce the risk of trapping items and, if appropriate, developing a programme for installation of improved door seals (eg during planned major overhauls);
- the initial training, refresher training and monitoring needed to ensure that drivers comply with tram stop procedures and understand the importance of undertaking an effective visual check of all doors after interlock is achieved; and
- the initial training, refresher training and monitoring needed to ensure that travel officers:
 - apply appropriate procedures when removing passengers from trams;
 - understand trap and drag risk and how this affects their work; and
 - appreciate what should be considered as emergency situations and how they should respond to these.

This recommendation may apply to other tramways (paragraphs 98, 99 and 101).

ORR decision

1. In terms of engineering changes, the CCTV on the Incentro trams has been modified to allow drivers to monitor the PTI once the brakes have been released. This functionality is now the same as the Citadis tram fleet also operated by NTL. NTL has not fitted pressure-sensitive edges to the tram doors as it would require a substantial redesign and installation of a new door system, which Nottingham Trams consider as not being reasonably practicable. However, they have confirmed that any future new fleet will be specified with sensitive door edges. In terms of operational risk controls, as previously reported, NTL has briefed drivers and travel officers on reducing the risk of PTI incidents and how to deal with them if they do occur.

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

- taken the recommendation into consideration; and
- has taken action to close it

Status: Closed.

Previously reported to RAIB

3. On 14 August 2019 ORR reported the following:

Following their initial response, we met with NTL on 10 June 2019 to discuss the actions they were taking in response to the recommendation.

NTL explained that they had been carrying out a technical appraisal with Alstom regarding an engineering change to the trams which requires the installation of a button which will hold the platform view on the cab monitors to facilitate a further drivers check. The change will be reasonably straight forward on the newer Citadis fleet however a solution is still being designed for the older Incentro trams. NTL are as yet undecided whether to roll out the change on the Citadis and risk introducing an inconsistency between fleets which will have potential safety implications. NTL consider that the "blind spot" issue identified in the RAIB report will also be addressed with by the cameras remaining in platform view for longer. NTL will confirm how and when the CCTV modification will take place.

In addition, NTL are participating with the other operators in UK Tram to evaluate a potential new door seal for trams with pressure sensitive switches. It is unlikely however that the current tram doors could accommodate such a seal. It may be that any further trams be specified as having to incorporate door seals with pressure sensitive edges. NTL will confirm why they will/will not be replacing door seals on current fleets at midlife refurb and what specification will apply to any new trams in the future.

NTL carried out an urgent driver briefing in February 2018 highlighting the need to ensure drivers understand they must carry out a final check on both monitors and internal mirrors to ensure, so far as is reasonably practicable, that no one or anything is trapped in the doors. The briefing specifically states that the door interlock should not be relied on. Door trap scenarios incorporated into driving simulator training and driver standards monitoring includes tram departure and observation by the driver.

NTL have briefed all Travel officers on the process for removing passengers from the tram which includes the need to inform the driver via the passenger help point if more time is needed to avoid a separation. NTL have not yet provided information on what has been done to train travel officers on what constitutes an emergency and how they should respond.

Update

4. On 16 July 2021 Nottingham Trams provided the following update:

Recommendation 1

Point 6 - CCTV modification. We consider, as per our previous table of actions (14 August 2019), the following to be closed. The existing Incentro external cameras have two modes: wing mirror mode and door watch mode. Currently the system switches between the two modes automatically as the traction controller moves from brake to traction or from traction to brake with no facility for the driver to delay mode switch over. The system will be modified (programme attached) to allow the driver to hold the cameras in 'door watch' mode by pressing a desk mounted push button

after the traction controller has been moved out of brake. Such will provide the Incentro trams with the same functionality as the Citadis trams. Further, the tram simulator upgrade is complete. Item closed.

Point 7 – door seal replacement

NTL has previously confirmed it will not be replacing door seals on current fleets at midlife refurb. The door and door systems are not compatible with pressure sensitive edges. NTL doors conform to EN 14742 railway application standards. Item closed.

Point 9 – Travel officers Training

Training now includes ‘Emergency Scenarios’. Item closed.

5. On 11 July 2024 Nottingham Trams provided the following update:

Recommendation 1(c) – Investigating possible door seal modifications to reduce the risk of trapping items and, if appropriate, developing a programme for ensure installation of improved door seals brackets (e.g. during planned major overhauls).

As identified during initial correspondence during August 2019, the current door and door systems installed onboard the fleet within Nottingham is not compatible with pressure sensitive edges as the whole door and door control system would require a complete re-design to facilitate such a system. We therefore believe this recommendation sits outside the realms of reasonable practicability.

Specification and procurement of any new rolling stock for the Nottingham tram system falls outside Nottingham Trams Limited responsibilities and, should it occur, is the responsibility of Nottingham City Council. Should Nottingham Trams Limited be consulted by Nottingham City Council on any new build procurement, we will ensure that this recommendation is considered for inclusion by Nottingham City Council within their specification.

Previously reported to RAIB

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ORR decision

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pressure sensitive edges. NTL will confirm why they will/will not be replacing door seals on current fleets at midlife refurb and what specification will apply to any new trams in the future.

4. NTL carried out an urgent driver briefing in February 2018 highlighting the need to ensure drivers understand they must carry out a final check on both monitors and internal mirrors to ensure, so far as is reasonably practicable, that no one or anything is trapped in the doors. The briefing specifically states that the door interlock should not be relied on. Door trap scenarios incorporated into driving simulator training and driver standards monitoring includes tram departure and observation by the driver.

5. NTL have briefed all Travel officers on the process for removing passengers from the tram which includes the need to inform the driver via the passenger help point if more time is needed to avoid a separation. NTL have not yet provided information on what has been done to train travel officers on what constitutes an emergency and how they should respond.

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

- taken the recommendation into consideration;
- but ORR has not yet been provided with a fully developed plan

Status: Progressing. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

Information in support of ORR decision

7. On 20 December 2018 Nottingham Trams provided the following initial response:

Rec 1 (a) - Initial review completed Feb 2018 – Closed

Further review to take place following other recent Light Rail and Metro door trap & drag Incidents. - Closed

Further review of tram equipment to optimise final visual check. - Closed

Rec 1 (b) - Initial checks carried out. Schedule routine CCTV checks to ensure optimal camera angles are maintained. – Closed

Rec 1 (c) - Review with tram and door manufacturers' opportunities for door seal modifications. – Ongoing

Rec 1 (d) - Driver training and standards monitoring includes additional elements on door trap risks. – Closed

Door trap scenarios have been added to the driving simulator to reinforce driver training. – Closed

Rec 1 (e) - Methodology for removing passengers has been reviewed and has been included in Travel Officer training. It is part of ongoing TO standards monitoring. – Closed

8. On 27 March 2019, Nottingham Trams provided the following update:

Internal meetings and reviews were held during the RAIB investigation through to the formal issuing of the RAIB investigation report. The actions from these are recorded and tracked on an actioning planner. A synopsis of the plan was included in our letter 20 December 2018, a full copy is attached to the covering email of this letter. We will also need to see the training information and material produced in response to this recommendation and an explanation of how it has been incorporated into your competence management system.

The extract of driver training procedure covering the additional aspects of tramstop departure, the driver briefing note and the Travel Officer briefing notes are appended to the covering email.