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Mr Andrew Hall
Deputy Chief Inspector of Rail Accidents
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Dear Andrew,

RAIB Report: Fatal accident at Piccadilly Gardens

I write to provide an update¹ on the action taken in respect of recommendations 1 and 2 addressed to ORR in the above report, published on 30 May 2012.

The Annex to this letter provides details of the action taken. The status of recommendation 1 is '**Implementation ongoing**'. ORR will advise RAIB when further information is available regarding actions being taken to address this recommendation.

The status of recommendation 2 is '**Non-implementation**'. We do not propose to take any further action in respect of this recommendation unless we become aware that any of the information provided becomes inaccurate, in which case I will write to you again.

We will publish this response on the ORR website on 19 February 2016.

Yours sincerely,

Andrew Eyles

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

Recommendation 1

The aim of this recommendation is to improve the detail of pedestrian injury data to better understand the role of tram front end design in minimising injury.

UK tram operators should work together to improve the data collection on tram front end collisions with pedestrians. This is to include greater detail on the type and severity of any injury received as far as possible, and the likely points of contact with the tram.

ORR Decision

1. ORR notes that work is underway to develop and trial a new database to capture accident information relating to Tram systems, and that it is expected that all tramways will be trained and using this database by April 2016.
2. After reviewing the information received ORR has concluded that UK Tram operators, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, have:
 - taken the recommendation into consideration; and
 - are taking action to implement it by April 2016.

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

Brief Summary on what was previously reported to RAIB

3. On 4 June 2013 ORR reported to RAIB that evidence had been provided that UK tram operators were working together to improve data collection, but at the time there was no definitive outcome. CPT had been working with tram operators to formulate a process that would allow them to report all incidents of this nature in a standard format.

Update

4. On 27 October 2015 UK Tram provided the following update:

In response to Recommendation 1, UK Tram has developed a Tram Accident & Incident Reporting Database (T.A.I.R) to collate all accident information of UK Tram systems. This web based system is in the final throws of development and will be trialled by three of the current UK systems ahead of full implementation in 2016. This has had the input from all the UK operators and ORR.

5. In response to a request from ORR for further information on the details of TAIR UK Tram provided the following update on 11 November 2015:

UK Tram provided two TAIR database presentations; one gives a general overview of how the database came about and how its development was planned and the second is more of a 'how it will work'.



UK Tram TAIR



151013 TAIR

Workshop 1 Document Overview Update.pdf

You will see that on the timeline, UK Tram is due to be training the three operators who are trialling the system, which are Stagecoach Supertram Sheffield, Edinburgh Trams and Nottingham Trams. UK Tram is awaiting the launch of the new UK Tram website which will be linked to the database for members, so training cannot start until this is live, but should still be on target for December to enable the trial to start in January 2016. As you will see the aim is for a three month trial ahead of all Tramways using the database by April 2016 and the first feedback session and data in the following September.

The details in the drop down sections of the database will allow for incident type, location etc to be searched and collated and reviewed, therefore satisfying Rec 1.

6. ORR has asked UK Tram to confirm that the new database will record points of contact with the tram as required by the recommendation.

Recommendation 2

The aim of this recommendation is to better understand the design of tram front ends and their potential for injuring pedestrians in collisions.

UK tram operators in conjunction with UK Tram (as a representative body of UK light rail operators), and in consultation with tram owners, should undertake research into the potential for the reduction of injuries to pedestrians involved in front end collisions with trams. Operators should understand the likely ways in which pedestrians can come into contact with the fronts of trams, and the severity of any consequential injuries. Should this research show that it is appropriate to implement design changes, either to existing trams or emerging new designs, these should be done.

ORR decision

7. ORR notes that research has started at the EU level through the CEN/TC working group 256/SC2 with the intention of producing a European standard for the front end design and life guard arrangements for tramcars which will address the intent of this recommendation. The UK does not currently manufacture tramcars and the majority of the data that will feed into research is held by mainland European tramway operator. However, UK Tram operators are participating in this work. On this basis ORR considers that it would be inappropriate for the UK to commission its own corresponding research because:

- (a) it would duplicate existing an existing European workstream which will influence the Tram manufacturing market which provides the tram fleets for UK operators;
- (b) it would inappropriate for the UK to develop its own standards which might go against EU legislation and potentially represent a barrier to trade; and
- (c) the UK has access to a reduced body of experience and knowledge compared to the EU acting as a whole. It is possible therefore that the UK may not have the breadth of knowledge to draft an appropriate standard and that as such participating in the EU work will produce a better outcome in the long term.

8. In terms of implementing changes that might arise from this European research ORR would expect UK Tram to update the Railway Safety Principles 2 (RSP2).guidance document to incorporate its findings and for UK Tram operators to consider whether they should be implemented.

9. Given the time period that it is likely to take for a new standard to be developed the outcome of this work will be monitored as part of RSD's on-going engagement with UK Tram.

10. After reviewing the information received ORR has concluded that UK Tram operators, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, have:

- taken the recommendation into consideration; and
- are not taking action to implement it.

Status: Non-implementation.

11. ORR has consulted RAIB on this proposed non-implementation and, having been provided with details of the individuals who have been nominated as UK experts for the relevant tram related EU research projects, RAIB confirmed on 3 February 2016 that it would not identify this decision as a point of concern.

Brief Summary on what was previously reported to RAIB

12. On June 2013 ORR reported to RAIB that UK Tram had indicated it was involved in on-going discussion of EU wide for the front end design and under run protection on trams which will mean for the first time that tram procurement agencies will be able to specify against a Euro norm and that through these means will participate in any discussion of regulatory aspects leading to future EN standards for new vehicles. Some tram operators had indicated they would be willing to participate in research, however UK Tram had indicated that it did not intend to carry out any specific research.

Update

13. On 12 May 2015 ORR was notified by the European Committee for Standardisation (CEN) of its approval on 17 March 2015 of a research project

entitled 'Vehicle end design for trams and light rail vehicles with respect to pedestrian safety'. The scope of this work is as follows:

- *This Technical Report is applicable to trams and light rail vehicles operating in urban areas and interfacing with pedestrians.*
- *This Technical Report defines the minimum requirements to protect pedestrians in case of frontal collisions with trams and light rail vehicles, i.e.*
 - *Design recommendations for the vehicle front end to minimize the impact effect on a pedestrian when hit,*
 - *Design recommendations for the vehicle front end to minimize the risk of being drawn between vehicle body and road surface,*
 - *Design requirements for the vehicle body underframe to not aggravate injuries to a lying pedestrian,*
 - *Requirements to prevent the pedestrian not to be overrun by the leading wheels.*

14. On 27 October 2015 UK Tram provided the following update:

UK Tram has already discussed with the ORR that as all Trams are supplied by International Manufacturers we would not be in a position to influence the design of the front end of Tramcars, especially as the major market players in Tram procurement are our international colleagues. As an industry when procuring vehicles we are only presented with a choice of designs from manufacturers, while we can request the safest design possible it depends on the design options available.

Making any changes to UK vehicles would not only put us out of step with all our European Colleagues (as all the Tramcars as designed to be EN compliant), it would implement a huge cost to the operators and owners of Tramcars in the UK.

We also have put forward experts to represent the UK on the CEN EN Standard review working group of Light Rail Cab design.

15. On 28 October UK Tram, in response to a request for clarification from ORR, provided the following information:

UK Tram is involved on the working group to produce a European Standard for under-run protection and front end cab design, however this has taken time to set-up by CEN so we have only recently been asked to nominate experts from the UK. We provided details of three experts for this area for the UK.