

Recommendation(s) Status: Pedestrian struck by a tram at Sandilands tram stop, Croydon

This report is based on information provided to the RAIB by the relevant safety authority or public body.

The status of implementation of the recommendations, as reported to us, has been divided into six categories:

Key to Recommendation Status

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| Implemented: | All actions to deliver the recommendation have been completed. |
| Implemented by alternative means: | The intent of the recommendation has been satisfied in a way that was not identified by the RAIB during the investigation. |
| Implementation ongoing: | Work to deliver the intent of the recommendation has been agreed and is in the process of being delivered. |
| In-progress: | The relevant safety authority has yet to be satisfied that an appropriate plan, with timescales, is in place to implement the recommendation; and work is in progress to provide this. |
| Non-implementation: | Regulation 12(2)(b)(iii) = recommendation considered and no implementation action to be taken. |
| Awaiting response: | Awaiting initial report from the relevant safety authority or public body on the status of the recommendation. |

RAIB concerns on actions taken by organisations in response to recommendations are reflected in this report and are indicated by one of the following:

-  The red triangle shows recommendations where the RAIB has concerns that no actions have been taken in response to a recommendation.
-  The blue triangle shows recommendations where the RAIB has concerns that the actions taken, or proposed, are inappropriate or insufficient to address the risk identified during the investigation.
-  The white triangle shows recommendations where the RAIB notes substantive actions have been reported, but the RAIB still has concerns.

Note: The tables which follow, report the status of recommendations on 31 December 2015. In some other cases the end implementer has already sent information to the relevant safety authority about the actions it has taken, or proposes to take and the safety authority is considering whether it is satisfied that those actions and the associated timescales are accepted.

| Number/ Date/ Report No/ Inv Title / Current Status | Safety Recommendation | Summary of current status (based on latest report from the relevant safety authority or public body) |
|--|---|--|
| <p>1 16/05/2012 03/2013</p> <p>Pedestrian struck by a tram at Sandilands tram stop, Croydon</p> <p>Status: Implemented</p> | <p>The intent of this recommendation is for London Tramlink to improve its approach to foot crossing risk assessment in order that it can clearly identify those locations where risk is highest and also identify the factors that need to be considered to reduce risk. The revised approach should consider, but not necessarily be limited to, all of the factors identified in the 2011 risk assessment and be extended to all foot crossings on the system.</p> <p>London Tramlink, in conjunction with Tram Operations Ltd, should continue to develop its process for periodically assessing risk at all foot crossings, taking into account the findings from this report in relation to factors that could affect all aspects of the safety of crossing users. The process should include the requirement to use the findings from the periodic risk assessment to identify those crossings where there are reasonably practicable measures that can be taken to reduce the risk and to produce and update a prioritised programme for safety improvements. The process should include a reference to a range of possible safety improvement measures, which should take account of good practice from elsewhere in the rail and tram industry and good practice in highway design (paragraphs 114b, 114c, 115b, 117 and 120c).</p> | <p>ORR has reported that London Tramlink, in conjunction with London Trams Ltd, has reviewed and updated its risk assessment process for foot crossings. Office of Rail Regulation (ORR) proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p> |
| <p>2 16/05/2012 03/2013</p> <p>Pedestrian struck by a tram at Sandilands tram stop, Croydon</p> <p>Status: Implemented</p> | <p>The intent of this recommendation is for London Tramlink to consider the need for removing the obstruction to pedestrians' view of approaching trams at Sandilands tram stop, to identify and take action as appropriate to deal with similar obstructions at other tram stops and to implement a process to prevent the installation of equipment in locations which are detrimental to pedestrian safety in the future. London Tramlink should:</p> <p>a. taking into account the improvements made to the configuration of the approach to the foot crossing at the west end of Sandilands, consider whether further action is desirable to improve pedestrians' view of approaching trams as they walk from the bus stop towards the entrance to the west end of Sandilands tram stop, and implement any changes that they deem to be reasonably practicable;</p> <p>b. conduct a review of the approaches to all other foot crossings on the system from all credible directions to determine whether similar obstructions exist elsewhere, and if so, whether they can be removed; and</p> <p>c. embed within its processes for new works in and around the tramway the requirement to consider pedestrian sight lines from</p> | <p>London Tramlink has reported that it has taken actions in response to this recommendation. Office of Rail Regulation (ORR) proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p> |

all credible approaches to the crossing before approving the positioning of equipment and other infrastructure (paragraph 116a).

3 16/05/2012 03/2013
Pedestrian struck by a tram at Sandilands
tram stop, Croydon
Status: Implemented



The intent of this recommendation is for ORR to re-evaluate its guidance to tram operators on optimising sight lines for pedestrians and tram drivers in the vicinity of foot crossings, physically guiding pedestrians as they approach foot crossings so that they are encouraged to look for approaching trams and the need or otherwise for recesses under tram stop platform and paving up to rail level through tram stops. The guidance should be amended in accordance with ORR's findings.

ORR should re-evaluate and revise its guidance to tramway operators on:

- a. the need for operators to take into account pedestrian and tram driver sight lines from all credible approaches to foot crossings when planning new works on tramways (paragraph 116a);
- b. the optimum angle of approach for pedestrians at crossings over the tramway (paragraph 120b); and
- c. the need for a recess under tram stop platforms and the desirability of paving up to rail level between the platform-side rail and the platform face (paragraph 119b).

Pending the re-issuing of guidance, ORR should consider how modified advice should be provided to tram operators.

ORR has stated that it considers the guidance relating to parts A and B of the recommendation to be sufficient, the RAIB is still of the view that providers of tram infrastructure are in need of more detailed guidance in this area.

The ORR is proposing to take no action in response to part C of the recommendation on the basis that a recess would be difficult to construct on a low level platform. The RAIB considers that more work is needed in this area since the presence of a recess on a low level platform proved effective in minimising injuries in the Sandilands accident. Furthermore, there are some systems such as Manchester, which in any case have high platforms. The ORR has made no reference to the lack of paving which was also a key factor in mitigating the consequences of the Sandilands accident and deserves consideration. \$b

4 16/05/2012 03/2013
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The intent of this recommendation is for London Tramlink and Tram Operations Ltd to conduct joint investigations into defined accidents and incidents on the Croydon tram network so that infrastructure issues as well as those associated with tram operations are identified.

London Tramlink and Tram Operations Ltd should jointly review and amend their procedures and/or practices for investigating accidents and incidents on the Croydon tram system so that joint investigations are always carried out if there is any possibility that the infrastructure might have contributed to the circumstances of the accident. Joint investigations should be mandatory for all significant incidents involving pedestrians being struck by trams (paragraph 117).

London Tramlink and Tram Operations Ltd have reported that they have taken actions in response to this recommendation. Office of Rail Regulation (ORR) proposes to take no further action unless they become aware that the information provided becomes inaccurate.

**Number/ Date/ Report No/
Inv Title / Current Status**

5 16/05/2012 03/2013

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tram stop, Croydon

Status: Implemented

Safety Recommendation

The intent of this recommendation is for London Tramlink to take measures that will secure a high quality of safety decision-making within the organisation.

London Tramlink should conduct a review of its arrangements for taking and prioritising safety decisions and take any necessary steps to secure for the organisation sufficient competence in safety and risk management techniques so that key personnel have a clear understanding of the factors that affect risk, the constituent elements of a competent risk assessment and how to use the results to prioritise actions (paragraph 118).

**Summary of current status (based on latest report from
the relevant safety authority or public body)**

London Tramlink has reported that it has taken actions in response to this recommendation.
Office of Rail Regulation (ORR) proposes to take no further action unless they become aware that the information provided becomes inaccurate.