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Mr Andrew Hall  
Deputy Chief Inspector of Rail Accidents  
Cullen House  
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GU11 2HP

Dear Andrew,

**RAIB Report: Collision between a train and a car at Jetty Avenue level crossing, Woodbridge, Suffolk**

I write to report<sup>1</sup> on the consideration given and action taken in respect of the recommendations addressed to ORR in the above report, published on 15 December 2014.

The annex to this letter provides details of the consideration given/action taken in respect of these recommendations. The status of recommendations 1 and 5 is '**In progress**' and recommendations 2, 3 and 4 are '**Implementation ongoing**'. ORR will advise RAIB when further information is available regarding actions being taken to fully address these recommendations.

We will publish this response on the ORR website on 18 December 2015.

Yours sincerely,

**Andrew Eyles**

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

### **Initial consideration by ORR**

1. All 5 recommendations were addressed to ORR when the report was published on 15 December 2014.
2. After considering the recommendations ORR passed recommendations 1 to 4 to Network Rail asking it to consider and where appropriate act upon them and advise ORR of its conclusions. Recommendation 5 was addressed to the ORR. The consideration given to each recommendation is included below.
3. The report was also brought to the attention of the Heritage Railway Association

### **Recommendation 1**

*The intent of this recommendation is to reduce the short-term risk associated with inadequate sighting of approaching trains at user worked crossings by checking that sufficient allowance is made for the position of the driver in the types of vehicle likely to use the crossing. This recommendation should be implemented pending the completion of research referred to at recommendation 2.*

Network Rail should implement a time-bound plan for the re-assessment of the sighting of approaching trains at all user worked crossings where safe use depends on vehicle drivers sighting approaching trains. The time-bound plan should also cover implementation of any mitigation needed to permit safe use of such crossings. The objective of the re- assessment process shall be to verify that drivers seated in the normal driving position of their vehicle have sufficient sighting of approaching trains when the front of their vehicle is stopped a safe distance clear of the line. In providing guidance to staff, Network Rail should consider:

- the range of vehicle stopping positions;
- the types of vehicles likely to use each crossing (particularly the distances of the driver's eyes from the front of the vehicle); and
- any effects due to crossing gates being open, including obstruction of sighting by signs on the gate, when vehicle drivers are looking for trains.

### **ORR decision**

4. As required by the recommendation, Network Rail has developed draft guidance on the re-assessment of the sighting of approaching trains at user worked crossing, which it has shared with ORR. However, whilst this guidance is currently being trialled it is likely to require further change before being finalised, at which time a timebound plan for the assessment of all user worked crossings can be developed. ORR has also expressed a fundamental concern that an inappropriate and unsafe

vehicle stopping position had been included in the guidance. Network Rail has been challenged to address this before allowing its use.

5. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it but has yet to provide a timebound plan for doing so.

**Status: In progress. ORR will advise RAIB when actions to address this recommendation have been completed.**

### **Information in support of ORR decision**

6. On 24 February 2015, Network Rail provided the following information:

#### General summary

*The National Level Crossing Team (NLCT) will develop guidance for Route teams to use in assessing User Worked Crossings (UWCs) where safe use for vehicular users relies on the sighting of approaching trains. This will fit in with the on-going risk assessment process. The guidance will take account of differing driving positions and stopping distances. It will include examples of available risk controls.*

*As part of the action plan, the NLCT will inform Route teams of the RAIB investigation report and recommendations by:*

- *Route Level Crossing Manager (RLCM) general awareness – undertaken at RLCM meeting 22/01/2015*
- *Forming a NLCT / RLCM working group.*

#### Action plan

##### *Develop guidance*

*The National Level Crossing Team will, in consultation with a Working Group (WG) consisting of RLCMs, develop guidance on appropriate decision points encompassing differing vehicle characteristics. The guidance will be issued to Route teams for formalised cascade briefing.*

##### *Implement guidance.*

*An implementation programme which is likely to be based on Level Crossing Managers applying the guidance at their next routine visit to the level crossing (including during asset inspection visits) will be developed by the WG. This will result in the identification of UWCs:*

1. *With sufficient sighting for vehicles expected to use the level crossing*

*2. Where locally delivered work will achieve sufficient sighting and compliance can be achieved for vehicles expected to use the level crossing*

*3. Where sighting is insufficient and a user based warning is needed to enable a safe means of traverse for vehicles expected to use the level crossing. This will feed into a long term asset strategy which will require funding to enable its delivery.*

*Interim short and long term solutions will be implemented as appropriate.*

*Completion date: 28 February 2016.*

7. On 19 November 2015 Network Rail provided the following update:

*A strawman guidance document has been produced and is being trialled on Wales Route. It will require further changes. This document is aimed at providing guidance on the range of stopping positions for various vehicle types, types of vehicle likely to use crossings, height of the driver position and effects of gates / lineside fencing / signage etc. on sighting approaching trains.*

*Only when the guidance has been finalised will Network Rail be able to produce a timebound plan for re-assessing all User Worked Crossings and implementing mitigations. Network Rail will need to extend the timescale of this recommendation beyond 28 February 2016.*

Network Rail is in the process of producing a timescale extension request.

## **Recommendation 2**

*The intent of this recommendation is to identify measures which complement those achieved by Recommendation 1. It is intended to assist risk management until such time as all UWCs are equipped with technology capable of providing reliable advice to crossing users.*

Network Rail should commission research into measures to improve the safety of UWCs where vehicular users are reliant on sight to detect the approach of trains (paragraph 103). This should utilise and, as necessary, extend existing research findings to include consideration of:

- the ways in which the behaviour of vehicle drivers can be influenced by the design of the crossing to use the crossing as intended including stopping and looking for trains at an appropriate location;
- use by different types of vehicle, including heavy commercial and agricultural vehicles;
- use of the crossing by persons other than those briefed by the authorised user (e.g. unexpected visitors or delivery vehicles);
- instructions and/or guidance given to users, including signs and road markings where appropriate; and
- instructions and guidance provided to those assessing, maintaining and modifying UWCs.

This research should take into account the safety of pedestrians (including vehicle occupants when opening gates), cyclists and equestrians who may use UWCs.

The findings of this research should be used by Network Rail to improve/ clarify existing standards related to the design (including gates, signage and road markings), management of user worked crossings, guidance provided to users and training/briefing to relevant staff. Network Rail should also identify the need for any modification to the legal requirements relating to level crossing signage requirements, and make suitable representations to government that this be done.

### **ORR decision**

8. ORR notes that Network Rail has discounted the viability of commissioning further research on the basis of excessive cost and the existence of significant research in this area. Network Rail will collate all available relevant existing research, review that research with support from consultants, particularly to identify any gaps around vehicle users in pedestrian mode. Network Rail will then hold a workshop to review those gaps and draft its report and look to develop a tool to address the findings. A consultation will be held prior to briefing the new process to the Level Crossing Manager community and crossing designers.

9. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it by 31 August 2016.

**Status: Implementation ongoing. ORR will advise RAIB when actions to address this recommendation have been completed.**

### **Information in support of ORR decision**

10. On 24 February 2015, Network Rail provided the following information:

#### General summary

*A significant amount of research relating to level crossings has been undertaken in recent years, much of it delivered through RSSB led projects. Consequently, Network Rail is not seeking to initiate new RSSB research. Human factors experts will be commissioned to review and consolidate the output from existing research. If identified, additional work might be required to take account of issues specific to User Worked Crossings (UWCs) where safe use for vehicular users relies on the sighting of approaching trains.*

#### Review

*The review phase will consist of research into measures to improve safety at UWCs. This will take the approach of using existing research and extending it where needed to cover:*

- *Behaviour of road vehicle drivers and the influence of crossing design*
- *Crossing use by un-briefed members of the public*

- *Different road vehicle types*
- *Instructions and guidance given (to users) including signs and guidance*
- *Other user groups such as pedestrians / cyclists / horse riders as appropriate*
- *Instructions and guidance given to LCMs*

*The review phase will conclude with the production of a draft report.*

*If the draft report identifies that currently available research does not encompass all aspects of vehicular usage at UWCs, we will utilise the expertise of the Human Factors experts to supplement the existing findings as needed.*

*It is anticipated that the review phase will complete on 30 September 2015.*

#### *Solution*

*The draft report from the review phase will be used to decide if changes need to be made to Network Rail processes, standards, training and guidance.*

*Indicative timescale – 31 January 2016*

#### *Plan implementation*

*Indicative timescale – 31 March 2016*

#### *Implement*

*Indicative timescale – 31 March 2017*

11. On 5 August 2015 Network Rail confirmed that it had engaged Human Factors Consultants ERM to consider how to take this recommendation forward.

12. On 19 November 2015 Network Rail provided the following update:

*Network Rail has engaged with ERM to discuss how best to carry out the research. It is possible that Network Rail will be looking to do this internally with a small amount of support from ERM. The approach would be to;*

- *Collate the available/relevant research*
- *Review the research with support from ERM*
- *Identify any gaps around vehicle users in pedestrian mode*
- *Hold a workshop*
- *Draft report*
- *Consultation stage – with ERM review*

*This recommendation will need to be extended and is likely to take until 30 June 2016 to complete.*

13. On 30 November 2015 Network Rail provided the following update:

*Network Rail has initially engaged with Human Factors Consultants [ERM] to consider carrying out new research to address this recommendation.*

*However the Central LC Team believe that there are research papers already in existence that cover a lot of the learning points required by the RAIB*

*Recommendation. Rather than commission wholly new research in this area the revised action plan is as follows:*

- *Collate the available/relevant existing research - 31/01/16*
- *Review the research with support from ERM - 28/02/16*
- *Identify any gaps around vehicle users in pedestrian mode - 28/02/16*
- *Hold a workshop to review the existing gaps - 31/03/16*
- *Draft report & implementation tool e.g., decision tree - 31/05/16*
- *Consultation stage- with ERM review - 31/06/16*
- *Briefing new process out to LCM Community/Crossing designers - 31/08/16*

### **Recommendation 3**

*The intent of this recommendation is for Network Rail to provide those responsible for checking level crossing signage with information in a user-friendly format needed to establish the signage required at each level crossing.*

Network Rail should review, and if found necessary, modify its processes so that staff checking level crossing signage have a practical and easily used means of establishing the signage required at each crossing they are inspecting.

### **ORR decision**

14. Draft guidance on establishing the required signage at level crossings, which includes guidance on bespoke signage, has been produced and will be issued to staff by 16 January 2016.

15. Network Rail has indicated that, when implemented, this solution will also inform its response to recommendation 1 of the Frampton level crossing RAIB report.

16. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it by 16 January 2016.

***Status: Implementation on-going. ORR will advise RAIB when actions to address this recommendation have been completed.***

### **Information in support of ORR decision**

17. On 24 February 2015, Network Rail provided the following information:

#### *General summary*

*A phased approach will be taken to address this recommendation. This will commence with a review stage to determine what, if any, changes / improvements to Network Rail processes are required.*

## Review

*A review of the processes and practices related to level crossing signage checks will be undertaken by the National Level Crossing Team and Working Group members (see recommendation 1). This will clarify the work required and inform timescales for overall completion of the action plan. The review will seek to identify ways to improve the information provided to relevant staff concerning mandatory and optional signage requirements. It will take account of all crossing types. The review will consist of:*

- *Identifying the processes and information sources used by Route teams when checking level crossing signage*
- *Reviewing level crossing signage requirements in relevant legislation, ORR guidance and Network Rail standards*
- *Making recommendations on any modifications to processes.*

*Review phase completed by 31 October 2015.*

*Indicative dates for any further stages to be confirmed dependent on the output of the review stage.*

18. On 19 November 2015 Network Rail provided the following update:

*Network Rail has almost completed a guidance document that will be issued to staff which shows the mandatory signage for all passive level crossing types as well as non-mandatory signs. This will be available by 31 December 2015.*

This completion date was subsequently amended to 16 January 2016 via the issue of a formal extension notice by Network Rail on 30 November 2015.

## **Recommendation 4**

*The intent of this recommendation is for Network Rail to review and update its method of calculating crossing times.*

Network Rail should, in consultation with ORR, review and if necessary, amend the criteria used to calculate crossing times with reference to vehicle speed, the time taken to reach a decision when to start crossing and vehicle length.

## **ORR decision**

19. Network Rail has reviewed the figures that have been used in its internal guidance which gives, for example, timings to be added onto tractor crossings and tractor & trailer crossings and has concluded that the origins are unclear. Network Rail is now developing its position on how best to calculate crossing times and the current guidance will be reviewed in the light of this.

20. After reviewing information received ORR has concluded that, in accordance with the Railways (Accident Investigation and Reporting) Regulations 2005, Network Rail has:

- taken the recommendation into consideration and
- is taking action to implement it by 31 August 2016.



**Status: Implementation on-going.** ORR will advise RAIB when actions to address this recommendation have been completed.

### **Information in support of ORR decision**

21. On 24 February 2015, Network Rail provided the following information:

#### Action plan

*The National Level Crossing Team (NLCT) will review Network Rail's practices and methodologies for the calculation of vehicular traverse times. This will be compared with the ORR method (detailed in RSP 7). Each method will be evaluated to determine its appropriateness and what, if any changes need to be made to the Network Rail method. In support of this, Network Rail will seek (so far as is reasonably practicable) to identify if any better quantifiable alternative approaches exist in the calculation of vehicular traverse times.*

*Network Rail will consult with ORR to seek agreement to align the methodologies used by both organisations in the calculation of vehicular traverse times.*

*Timescale: 30 June 2015*

22. On 5 June 2015 Network Rail advised ORR of a revised completion date of 31 October 2015.

23. On 19 November 2015 Network Rail provided the following update:

*Enquiries have been made within Network Rail and the ORR to ascertain the origins and methods used by each organisation to develop their respective traverse time guidance. However, it has proved impossible to identify the methodologies used. The Corporate knowledge and memory no longer exists.*

*The Central Level Crossing Team will now need to work with the Ergonomics team to review the current timings used. We will need to extend the date for this recommendation also, to 30 June 2016 and align it with the work for Recommendation 2.*

On 30 November 2015 Network Rail submitted a formal extension notice confirming the revised completion date of 31 August 2016, aligning it with the revised timescale for recommendation 2.

### **Recommendation 5**

*The intent of this recommendation is for the Office of Rail Regulation to provide enhanced guidance relating to user worked crossings, including guidance about how the decision point is determined in order that the sighting of approaching trains is measured from an appropriate location.*

The Office of Rail Regulation should provide duty holders with enhanced guidance which:

- reminds duty holders that, when determining the position of decision points at user worked crossings, they must take due account of the characteristics of vehicles

likely to use the crossing and recognise that a minimum dimension of 3 metres from the nearest rail is insufficient for most vehicles; and

- takes account of outputs from the research and review undertaken in response to recommendations 2 and 4.

### **Decision**

24. This is subject to the outcomes from actions to address recommendations 2 & 4. The outcomes will be taken into account when Railway Safety Publication 7 'Level Crossings: A guide for managers, designers and operators' is revised.

25. In the interim, ORR recognises the work that Network Rail is doing in briefing its Level Crossing Managers.

**Status: *In progress*. ORR will advise RAIB when actions to address this recommendation have been completed.**