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The Level Crossings Risk Management Toolkit			
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Keywords	Level crossing, human factors, lxrmtk		
Summary	This RIG outlines a major update in 2015 to this web-based toolkit, which aims to help industry and ORR staff identify likely human factors issues at level crossings, and suggests corresponding mitigation measures with approximate costings.		
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Subsequent consultation (reviews only)	Simon Smith, Network Rail Level Crossings Project Team Claire Dickinson, Central Specialist Inspectors' Team Manager		

Detail

Introduction

1. The Level Crossing Risk Management Toolkit (lxrmtk) is a web-based toolkit that helps railway companies, highways authorities and ORR staff to assess what risk influencing factors, especially from human factors issues, may be significant at a particular level crossing. It suggests possible mitigation measures, and attempts to give an approximate indication of their likely costs. The toolkit was originally introduced in 2006. This updated RIG outlines a significant update to the toolkit in May 2015, and draws inspectors' attention to its potential uses.

Background

2. In 2005, research carried out on behalf of the Health and Safety Executive (HSE) resulted in the publication of HSE Research Report RR359 "*Level crossings - Summary of findings and key human factors issues*" (www.hse.gov.uk/research/rrpdf/rr359.pdf).

3. Subsequently, following a comprehensive study into addressing road user and pedestrian behaviours at crossings, the Railway Safety & Standards Board (RSSB) published research report T335 "*Development of a Level Crossing Risk Management Toolkit – Summary Report*" (available to registered users on RSSB's SPARK website at <http://www.rssb.co.uk/research-development-and-innovation/research-and-development/research-project-catalogue/t335>). The purpose of this work was to help those in control of risks at level crossings understand and better manage the human factors risks at level crossings of all types. This led in turn to the development of the toolkit itself.

4. After a series of minor updates in the years following its introduction, in 2015 RSSB completed a more comprehensive update, outlined in the project brief for RSSB Project T1053 "Updating the level crossing risk management toolkit" (<http://www.rssb.co.uk/pages/research-catalogue/t1053.aspx>). The toolkit has been updated to take better account of:

- The industry's approach to level crossing risk management
- The latest research and best practice from GB and abroad
- Incident investigation recommendations (including those from RAIB)
- New and innovative technologies in development and in testing
- End-user feedback.

As a result of end-user feedback, the toolkit has been updated to provide greater support to the risk assessment processes at level crossings, for example Network Rail's Narrative Risk Assessments and Optioneering process. As part of this, new functions have been incorporated, including:

- Increased filtering capabilities
- A comments function for mitigation measures to enable end-users to provide supporting information for others; for example accurate, real-world costings and implementation instructions
- Content-managed site, allowing for faster updates to be made by Network Rail
- Training slides to support new/inexperienced users
- Intelligent keyword search to ensure all relevant results appear
- Ability to export results to PDF and email them as a Microsoft Word document

The toolkit

5. The lxrmtk toolkit is available at www.lxrmtk.com. Self-explanatory guidance on its use is accessible from the home page and in the training slides. The toolkit can be used in various ways depending on the user's needs, but staff may find it particularly helpful as a prompt or checklist of issues likely to be significant at particular crossing types, either used pro-actively or after an incident or complaint.

For instance:

To identify what kinds of Risk Influencing Factors are likely to affect the crossing you're considering select the LX type (e.g. AOCL) and User type (e.g. "Car driver") to generate a list of likely Risk Influencing Factors e.g. "sunlight". Clicking on each human factors issue in turn generates a list of relevant Mitigation Measures, with a suggested associated cost banding e.g. "LED warning lights".

6. The lists of Risk Influencing Factors are presented in approximate priority order according to the likely level of risk. Other useful features on the website include a keyword search facility, a Bulletin Board and Forum for Network Rail users to share experience and information, and a "Links" section providing hyperlinks to a wide range of level crossing resources. Toolkit users can now better tailor searches for Risk Influencing Factors and Mitigation Measures, for on-screen display, direct printing, saving as a pdf document or emailing to themselves or others, for instance for use as a checklist / prompt at crossing inspections.

7. Network Rail's Level Crossing Managers should be familiar with the toolkit and, where necessary, make use of it in assessing whether risk controls at crossings are adequate. Inspectors should also refer relevant highways authority staff to the toolkit where there is reason to believe improvements could reasonably be made to control measures at a crossing.

Summary

8. In summary, the toolkit is a good prompt to aid understanding of potential level crossing risks, though is less comprehensive on factors attributable to signaller behaviour. Although it does not provide a definitive enforcement position on human factors issues for level crossing risk controls, it nevertheless provides a useful resource to supplement the experience and knowledge of staff assessing the adequacy of crossing risk controls. Some of the suggested costings given in the toolkit can appear rather high and should be treated with some caution. ORR encourages innovation and, more widely, is challenging industry over the high prices quoted by the industry for some level crossing improvements. ORR staff dealing with level crossings should be aware of possible uses of the toolkit, and refer duty holders to it in appropriate cases.

Action

9. Inspectors dealing with level crossings are recommended to familiarise themselves with the toolkit, and consider how it can help them and relevant duty holders (e.g. Network Rail, other infrastructure managers and highways authorities) assess the adequacy of risk controls at level crossings. Inspectors should however note that the toolkit gives useful guidance on good practice rather than an authoritative interpretation of reasonable practicability.

10. Inspectors should direct queries on enforcement of safety at level crossings to ORR's Level Crossings Project Team (Michelle Travers or Simon Smith) in the first instance. If inspectors have specific human factors questions, queries about the toolkit, or become aware of human factors issues or associated mitigation measures which should be included in the toolkit, please contact Railway Interface Team or Jeremy Mawhood in ORR's Central Specialist Inspectors Team (07768 331 314).