

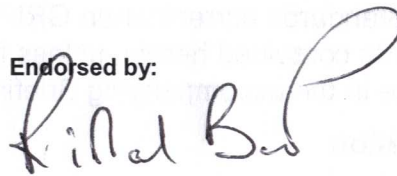
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Issue:	02
Date:	01 June 2008
Compliance date:	26 August 2008

Level 2

Provision, risk assessment and review of level crossings

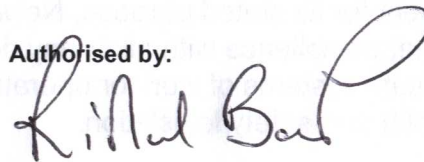
Endorsement and Authorisation

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Issue record

Issue	Date	Comments
1	December 2006	New Standard
2	June 2008	Phase 2A / Engineering reorganisation responsibility change

Compliance

This Network Rail standard is mandatory and shall be complied with by Network Rail and its contractors if applicable from 26 August 2008.

When this standard is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the designated Standard Owner has stipulated otherwise in the accompanying Briefing Note.

Reference documentation

[NR/L2/OPS/031](#) Risk assessment and briefing of timetable change

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1 Purpose

This standard sets out the requirements that must be complied with for Network Rail to have a robust and consistent process for determining the safety requirements for new level crossings, and the risk assessment and management processes that shall apply to both new and existing level crossings.

2 Scope

This standard applies to all level crossings on Network Rail Managed Infrastructure.

3 Roles and responsibilities

N/A.

4 Definitions

Active warning

A device which warns users of the imminent arrival of a train. Such devices are either visual or audible.

Authorised walking route

A designated route providing pedestrian access to places of work for railway staff (including booking-on points and stabling points) and which is suitable for use by people not certificated as competent in personal track safety.

Automatic crossing

A level crossing where the protective equipment (for example, barriers and active warnings) is automatically activated by the approaching train.

Blocking back

The formation of a stationary or slow-moving queue of road traffic over a level crossing, due to road traffic conditions in the vicinity of the level crossing, causing obstruction of the line.

Crossing

Used in level crossing documentation to mean 'level crossing', where the continued use of 'level crossing' becomes repetitive and laboured.

Crossing keeper

A person appointed at a permanent gate box to carry out the normal operating procedure of a level crossing.

Crossing speed

The permissible speed applying between a special railway speed restriction board and a locally monitored level crossing.

Crossing time

Time taken for a user to traverse the crossing from the decision point to a position of safety on the other side of the railway. Crossing time includes time taken for the user to make a decision to cross.

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Decision point

The point at which a level crossing user makes a decision to cross or wait.

Level crossing

An intersection at the same level of a road, footpath or bridleway and one or more railway tracks.

New level crossing

For the purpose of this document, a new level crossing is:

- a) A level crossing provided at a location where previously there was no means of crossing the railway at the same level
- b) A level crossing altered to provide vehicular access where previously there was no vehicular access
- c) A level crossing altered to provide access for horse riders and cyclists where previously there was only access for pedestrians

Permissible speed

The maximum permitted speed of trains over a section of line, as detailed in table A of the Sectional Appendix. For the purposes of this document, the term 'permissible speed' includes enhanced permissible speeds applicable to tilting trains.

Railway staff

A person employed in the railway industry, acting in accordance with their duties.

Signaller

A person responsible for the operation of the signalling system, to safely control the passage and regulation of trains, usually located in a signal box.

Train crew

A driver or guard who is authorised to operate level crossings.

Type (of level crossing)

A recognised combination of control measures used at level crossings, appropriate to particular circumstances, for example ABCL (automatic barrier crossing, locally monitored); CCTV monitored barrier crossing; staffed gated crossing.

Unacceptable risk

Individual risk above the upper limits of tolerability defined in 'Reducing Risks, Protecting People', published by the Health and Safety Executive.

User

A person who uses a level crossing.

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Warning time

- a) Applied to a footpath, bridleway or user worked crossing, the shortest time for a train to travel from the point where it is first visible, or heard (where whistle boards are provided), to its arrival at the crossing, on any of the lines over the crossing
- b) Applied to an automatic crossing, the shortest time from the commencement of the warning activated by an approaching train, to the arrival of the train at the crossing

Whistle board

A sign to instruct the train driver to sound the horn.

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5 Provision, risk assessment and review of level crossings

5.1 New level crossings

5.1.1

If a new crossing of the railway is necessary, a level crossing shall be provided only if it is not practicable to provide some other means of crossing the railway, for example, an overbridge, underbridge or subway.

5.1.2

It is, however, permissible to provide a new level crossing to replace an existing level crossing if this increases the safety of the railway and crossing users (for example, by closing two level crossings in exchange for one new level crossing).

5.1.3

New user worked crossings (including footpath and bridleway crossings) shall not be installed where there are more than two running lines, unless the new crossing replaces one or more existing crossings and provides an overall reduction in risk.

5.1.4

New level crossings shall not be provided where the permissible speed exceeds 100 mph.

5.1.5

Where a new level crossing is being considered it shall conform to the appropriate configuration outlined in Appendix A.

5.2 Existing level crossings

5.2.1

Existing level crossings shall conform to the appropriate configuration outlined in Appendix A, so far as is reasonably practicable.

5.2.2

Where it is planned to increase the permissible speed to greater than 125 mph, all level crossings shall be closed before the line speed can be increased.

5.2.3

There shall be a valid risk assessment in place for each level crossing. Existing risk assessments shall remain valid until a review and update of the risk assessment is required in accordance with clause 6.2.

5.2.4

The All Level Crossing Risk Model (ALCRM) shall be used to assess the risk, to be supported as necessary by expert judgement or additional risk assessment processes where appropriate.

5.2.5

The risk assessments for each level crossing shall be reviewed and updated in accordance with periodic and other criteria set down.

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5.2.6

When a risk assessment has been undertaken, the results shall be compared with the following criteria and, where necessary, the appropriate action shall be taken:

- a) Where the risk is unacceptable, the level crossing shall be closed, or additional control measures applied, for example upgrading to a more protective type, or providing additional safeguards to reduce the risk
- b) Where the risk is sufficiently high for it to be reasonably practicable to provide another means of crossing the railway, consideration shall be given to closing the level crossing
- c) Where the risk is sufficiently high for it to be reasonably practicable to do so, the crossing shall be upgraded to a more protective type or additional safeguards provided
- d) Where the risk is sufficiently low for it to be not reasonably practicable to provide additional safeguards, no further action other than routine inspection and monitoring is required until the next risk review

5.3 Competence requirements for undertaking site visits and censuses, level crossing risk assessments, checking, authorisation and retention of records

5.3.1

Each site visit and census shall be undertaken by an individual who has been briefed in and practically demonstrated their ability to undertake the process and complete the documentation.

5.3.2

Each level crossing risk assessment shall be undertaken by an individual who has been trained and met the competence requirements for use of the ALCRM.

5.3.3

Each level crossing risk assessment shall be checked and authorised by an individual, other than the assessor who undertook it, who has been trained and met the competence requirements for use of the ALCRM.

5.3.4

Documents and electronic records relating to level crossing risk assessments shall be retained in accordance with functional requirements.

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6 Procedure

6.1 General

6.1.1

The Director, Control & Communications Engineering shall have a process in place such that, when level crossing equipment falls due for renewal, it is subject to risk assessment and cost benefit analysis in accordance with the Network Rail Investment requirements, to determine the most suitable type of protection to be provided.

6.1.2

The Director, Commercial Property shall have a process in place to identify whether received planning applications which may potentially have an adverse impact on specific level crossings, to consult with the Director, Operations & Customer Services as to the scope of that impact, and to respond to the planning applications accordingly.

6.1.3

The Director, Operations & Customer Services shall have a process in place to consider and respond to planning applications received from the Director, Commercial Property, that may have potential impacts on specific level crossings.

6.1.4

The Director, Infrastructure Maintenance shall have a process in place such that, when level crossings are inspected, any changes of land use that may affect the utilisation of the level crossing are noted and advised to the Director, Operations & Customer Services.

6.1.5

The Director, Operations & Customer Services shall have a process in place to pursue closure or reduction in status of all types of level crossing when the opportunity arises and the work can be done at an economic cost, and to involve the relevant Liability & Clearance Advisor at an early stage.

6.2 Risk assessment and risk management

6.2.1

The Director, Operations & Customer Services shall have sufficient personnel who are trained and competent in the use of the ALCRM and in the interpretation of the results.

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6.2.2

The Director, Operations & Customer Services shall have a process in place such that all existing or new level crossings are risk assessed using the ALCRM, and that the risk assessments are reviewed and updated periodically, and in the following circumstances:

- a) When required by [NR/L2/OPS/031](#)
- b) When the volume of vehicular traffic, pedestrians or animals using a level crossing has increased significantly
- c) When evaluating new level crossings or those to be renewed
- d) Prior to responding to planning proposal consultations
- e) Following a report of significant change in the environment on the approach to a level crossing
- f) Following a formal expression of concern by Network Rail, a Train Operator, the safety regulator (HMRI), or the relevant Highway Authority

6.2.3

The Director, Operations & Customer Services shall have a process in place to monitor accidents and incidents at individual crossings, and where necessary to review and update risk assessments following incidents and accidents and develop and implement suitable local risk mitigation schemes if reasonably practicable.

6.3 Additional requirements – User Worked Crossings (UWC)

6.3.1

The Director, Operations & Customer Services shall have a process in place such that Network Rail writes at not longer than three yearly intervals to the principal crossing user at each UWC to formally:

- a) Remind them of the correct method to use the crossing safely
- b) Remind them of their obligation that they, and other authorised users, use the crossing correctly
- c) Seek information about crossing use and the user's willingness to consider closure of the crossing remind them of the correct method to use the crossing safely

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7 Level crossing orders

7.1

The Director, Operations & Customer Services shall have a process in place for seeking new or amended Level Crossing Orders in compliance with the Level Crossing Act 1983 and the Level Crossing Regulations 1999. Orders are required in the following circumstances:

- a) When amending the arrangements at a level crossing already subject to an order
- b) When changing the level of control at a public level crossing that does not have a current order
- c) When requested to submit an order by the Secretary of State

7.2

The Company Secretary will provide legal guidance to those preparing orders.

7.3

The Director, Infrastructure Maintenance shall examine compliance with the Level Crossing Order at least annually through the inspection arrangements, with remedial action taken as necessary.

8 Records

8.1 Level crossing files

8.1.1

The Director, Operations & Customer Services shall have a process in place to create a file for each level crossing so that the risk mitigation methods are defined, and that the Director, Infrastructure Maintenance has been given a clear specification of what needs to be maintained at each level crossing.

8.1.2

Level crossing files shall be maintained for the lifetime of a level crossing and for 7 years thereafter. Consideration should be given to archiving non-active documents within the file, particularly electronically.

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Appendix A Minimum combinations of control measures for new level crossings

This appendix is mandatory. It sets out minimum permitted combinations of level crossing control measures (reference **point 5.1.5**). Additional control measures are to be provided where appropriate (reference **point 5.2.6**).

	Controlled by:	Monitored by:	Type of barrier required	Fixed signs required?	Phone to signaller required for user?	Active visible warning required?	Active audible warning required?	Limit on train speed	Additional requirements	Current crossing type meeting these requirements
A	Railway passenger at a station to gain access to a platform (pedestrian only)	Not monitored	None	Yes	No	Sometimes - see additional requirements	Sometimes – see additional requirements	Not to be provided where permissible train speed > 100 mph	An active visible warning is required where direct observation of trains does not give sufficient warning time (that is, the warning time is less than the crossing time). Audible warning of the approach of a second train shall be considered where the level of risk justifies it.	Station footpath crossing
B	Railway staff supervised at a station to gain access to a platform (pedestrian only, or with barrows and trolleys)	Not monitored	None	Yes	Sometimes - see additional requirements	Sometimes - see additional requirements	No	Not to be provided where permissible train speed > 100 mph	Either an active visible warning or a phone to signaller is required where direct observation of trains does not give sufficient warning time (that is, the warning time is less than the crossing time or less than 30 seconds).	Barrow crossing
C	Railway staff on authorised walking route (pedestrian only)	Not monitored	None	Yes	Sometimes - see additional requirements	Sometimes - see additional requirements	No	Not to be provided where permissible train speed > 125 mph	Either a phone to signaller or an active visible warning is required where direct observation of trains does not give sufficient warning time (that is, the warning time is less than the crossing time) or permissible train speed > 100 mph.	Authorised walking route crossing running lines and sidings (reference GC/RT5203)
D	User (pedestrian only)	Not monitored	Gate or stile	Yes	No	Sometimes - see additional requirements	Sometimes - see additional requirements	Not to be provided where permissible train speed > 125 mph	Active visible and audible warnings are required where direct observation of trains does not give sufficient warning time (that is, the warning time is less than the crossing time) or where permissible train speed > 100 mph, except where whistle boards are currently provided as a means of extending the warning time.	Footpath crossing

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	Controlled by:	Monitored by:	Type of barrier required	Fixed signs required?	Phone to signaller required for user?	Active visible warning required?	Active audible warning required?	Limit on train speed	Additional requirements	Current crossing type meeting these requirements
E	User (including vehicle driver, horse rider, cyclist, person moving farm animals on the hoof and pedestrian)	Not monitored	Gate or lifting full barrier	Yes	Sometimes - see additional requirements	Sometimes - see additional requirements	Sometimes - see additional requirements	Not to be provided where permissible train speed > 125 mph	Either a phone to signaller or an active visible warning is required where direct observation of trains does not give sufficient warning time (that is, the warning time is less than the crossing time) or permissible train speed > 100 mph. An active audible warning is also required where an active visible warning is provided at a crossing over which there is a public right of way. Not to be provided on public roads.	Bridleway crossing. User worked crossing.
F	User (including vehicle driver, horse rider, cyclist, and pedestrian)	Not monitored	None	Yes	No	No	No	The speed of trains over the crossing should not exceed 10 mph	There should not be more than one line over the crossing. The maximum daily traffic moment not normally to exceed 2000 or the peak hour traffic moment 30 or the maximum actual daily road vehicle user 200. The 85%ile road speed at the crossing to be less than 35 mph.	OC (Open Crossing)
G	Automatic control system	Train driver	None	Yes	Yes	Yes	Yes	Speed of trains to be limited so that drivers can stop short of the crossing from the point at which the crossing comes fully into view. The crossing speed shall not exceed 55 mph	Not to be provided where there is more than one running line.	AOCL (Automatic Open Crossing, Locally monitored)

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	Controlled by:	Monitored by:	Type of barrier required	Fixed signs required?	Phone to signaller required for user?	Active visible warning required?	Active audible warning required?	Limit on train speed	Additional requirements	Current crossing type meeting these requirements
H	Automatic control system	Train driver	Lifting half barrier	Yes	Yes	Yes	Yes	Speed of trains to be limited so that drivers can stop short of the crossing from the point at which the crossing comes fully into view. The crossing speed shall not exceed 55 mph	Not to be provided where there are more than two running lines. Barriers are to close only the entrances to the crossing, leaving the exits clear.	ABCL (Automatic Barrier Crossing, Locally monitored)
I	Automatic control system	Signaller	Lifting half barrier	Yes	Yes	Yes	Yes	Not to be provided where permissible speed > 100 mph	Not to be provided where there are more than two running lines. Not to be provided where grounding or blocking back of traffic is considered likely. Barriers are to close only the entrances to the crossing, leaving the exits clear.	AHBC (Automatic Half Barrier Crossing)
J	Train crew, locally	Train crew (integral with working of crossing)	Gate or lifting full barrier	Yes	No	Sometimes - see additional requirements	Sometimes - see additional requirements	Not applicable - train comes to a halt at the crossing	Active visible and audible warnings are required, except where existing crossings are fitted with gates.	Train crew operated gated crossing. Train crew operated barrier crossing.
K	Signaller or crossing keeper, remotely (by CCTV)	Signaller or crossing keeper (integral with working of crossing)	Lifting full barrier	Yes	No	Yes	Yes	Not to be provided where permissible train speed > 125 mph		CCTV monitored barrier crossing.

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	Controlled by:	Monitored by:	Type of barrier required	Fixed signs required?	Phone to signaller required for user?	Active visible warning required?	Active audible warning required?	Limit on train speed	Additional requirements	Current crossing type meeting these requirements
L	Signaller or crossing keeper, locally	Signaller or crossing keeper (integral with working of crossing)	Gate or lifting full barrier	Yes	No	Sometimes - see additional requirements	Sometimes - see additional requirements	Not to be provided where permissible train speed > 125 mph	Active visible and audible warnings are required, except where existing crossings are fitted with gates.	Staffed gated crossing. Staffed barrier crossing.

Standards Briefing Note



Ref: NR/L2/OPS/100	Issue: 02	Publication Date: 1 June 2008	Compliance Date: 26 August 2008				
Title: Provision, risk assessment and review of level crossings							
Standard Owner: Head of Operations Principles & Standards							
Non-Compliance rep (NRNC): Head of Operations Principles & Standards							
Purpose: The purpose of Provision, risk assessment and review of level crossings is to set out the requirements that must be complied with for Network Rail to have a robust and consistent process for determining the safety requirements for new level crossings, and the risk assessment and management processes that shall apply to both new and existing level crossings.		The following teams require awareness briefing:					
Scope: Provision, risk assessment and review of level crossings applies to all level crossings on Network Rail Managed Infrastructure.		Executive Management Group <input type="checkbox"/>					
		Commercial Property <input type="checkbox"/>					
		Contracts and Procurement <input checked="" type="checkbox"/>					
		Strategic Change <input type="checkbox"/>					
		CTRL <input checked="" type="checkbox"/>					
		Engineering					
		Asset Management <input checked="" type="checkbox"/>					
		Civil Engineering <input checked="" type="checkbox"/>					
		E&P Engineering <input checked="" type="checkbox"/>					
		Enhancements Engineering <input checked="" type="checkbox"/>					
		Ergonomics <input checked="" type="checkbox"/>					
		Future Railway Programme <input checked="" type="checkbox"/>					
		Ops Principles & Standards <input checked="" type="checkbox"/>					
		Rail Vehicle Engineering <input checked="" type="checkbox"/>					
		Railway Systems <input checked="" type="checkbox"/>					
		Telecoms Engineering <input checked="" type="checkbox"/>					
		Track Engineering <input checked="" type="checkbox"/>					
		Signal Engineering <input checked="" type="checkbox"/>					
		Finance <input type="checkbox"/>					
		Funding <input checked="" type="checkbox"/>					
		Govt & Corp Affairs <input type="checkbox"/>					
		Human Resources <input checked="" type="checkbox"/>					
		Information Management <input type="checkbox"/>					
		Infrastructure Investment					
		Crossrail <input checked="" type="checkbox"/>					
		Track <input checked="" type="checkbox"/>					
		Programme Management <input checked="" type="checkbox"/>					
		Contracts & Procurement <input checked="" type="checkbox"/>					
		HSQE <input checked="" type="checkbox"/>					
		Sig. Power & Comms <input checked="" type="checkbox"/>					
		WCRM <input checked="" type="checkbox"/>					
		Construction <input checked="" type="checkbox"/>					
		FTN/GSM-R <input checked="" type="checkbox"/>					
		Thameslink <input checked="" type="checkbox"/>					
		Enhancements <input checked="" type="checkbox"/>					
		Infrastructure Maintenance					
		Maintenance Areas <input checked="" type="checkbox"/>					
		Operational Property <input checked="" type="checkbox"/>					
		Overhead Condition Renewals <input checked="" type="checkbox"/>					
		Legal Services <input type="checkbox"/>					
		National Delivery Service <input checked="" type="checkbox"/>					
		Network Development <input checked="" type="checkbox"/>					
		Operations & Customer Services <input checked="" type="checkbox"/>					
		Planning & Regulation <input type="checkbox"/>					
		Safety and Compliance <input checked="" type="checkbox"/>					
		Westwood <input type="checkbox"/>					
What's New/Changed: Provision, risk assessment and review of level crossings has been updated as required as a result of the Phase 2A and Engineering changes reorganisation which specifically applies to the Infrastructure Maintenance and Engineering Functions within Network Rail.							
Affected documents:							
<table><tr><td>Reference</td><td>Impact</td></tr><tr><td>N/A.</td><td>N/A.</td></tr></table>				Reference	Impact	N/A.	N/A.
Reference	Impact						
N/A.	N/A.						
Implementation requirements: <i>The following posts have specific responsibilities within this standard and shall receive technical briefing as part of the Implementation Programme:</i>							
Director, Control & Communications Engineering, Director, Infrastructure Maintenance, Route Operations Managers, Area Operations Managers, Operations Risk Advisors.							
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