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	RISK ASSESSING LEVEL CROSSINGS	

1 <u>PURPOSE</u>

1.1 This document provides a process for risk assessing level crossing assets.

This document contributes to the control of the following high level risks:

- Level Crossings: vehicle, person or animal on the line at risk of collision; and

- Level crossing – non-collision (with train) incident.

Level Crossing risk assessments form part of a multi-disciplinary process that demonstrates that level crossings remain safe, reliable and legally compliant.

2 <u>SCOPE</u>

2.1 This process describes a method of risk assessing operational level crossings on Network Rail's managed infrastructure. It includes:

a) the core level crossing risk assessment process;

b) frequency of risk assessments;

c) use of the All Level Crossing Risk Model (ALCRM) as the risk model;

d) monitoring and response to level crossing incidents and accidents; and

e) level crossing risk records.

It does not apply to authorised walking routes that cross the railway unless they are classified as a staff crossing with white lights. It does not apply to road rail access points or track access points.

A flowchart of the process is shown in Appendix A. A RACI chart is shown in Appendix B.

3 <u>GENERAL</u>

3.1 Operational level crossings on Network Rail managed infrastructure shall be risk assessed as required by NR/L2/OPS/100 – Provision, Risk Assessment and Review of Level Crossings.

Risk assessment of level crossings shall include:

- an ALCRM assessment of risk incorporating site visit, census and data collection;

- demonstration of collaborative working with stakeholders;

- optioneering; and

- production of a Narrative Risk Assessment (NRA).

Level crossings shall be risk assessed at the required frequencies, see Section 5.

At hybrid level crossings where separate public and private rights exist, a separate risk assessment shall be conducted for each element of the asset.

Note 1: All elements of a level crossing risk assessment should normally be undertaken by the same person.

Note 2: An example of a hybrid level crossing is one where a public footpath and private vehicle gates each provide separate means of access across the railway.

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4   **COMPETENCE**

4.1   Level crossing risk assessments shall be undertaken by risk assessors who:

a)   have completed the level crossing risk assessment training; and

b)   have demonstrated the capabilities necessary to undertake level crossing risk assessments; or

c)   are under mentorship by someone who is competent to undertake level crossing risk assessments.

Note: The level crossing competence framework is shown in Appendix C.

5   **RISK ASSESSMENT FREQUENCY**

5.1   Calculated Frequency

The frequency of level crossing risk assessments shall be based on the calculated risk for each crossing. The calculated frequency is the minimum frequency at which crossings shall be risk assessed.

Note 1: The minimum risk assessment frequencies are calculated by ALCRM using the live risk scores. Risk assessment frequencies may be increased, see Section 5.2.

Crossings are placed into one of four categories. The categories, their associated risk assessment frequency and categorisation criteria are shown in Table 1.

The risk assessment frequency for hybrid level crossings shall be determined by the highest risk score.

Category	Criteria	Assessment Frequency (Years)
Red	• Individual risk is A • Collective risk is 1 • Collective risk is 2 • Collision frequency (pedestrian + vehicle) is > 0.01	1.25
Yellow	• Individual risk is B • Individual risk is C • Collective risk is 3 • Collision frequency (pedestrian + vehicle) is > 0.001 • Sighting time is less than warning time by > 4 seconds **Note:** This does not take mitigations such as whistle boards and telephones into account	2.25
Double Yellow	Risk score is not M13 and no red or yellow criteria apply	3.25
Green	Risk score is M13	Not assessed

Table 1 – Risk assessment frequency and risk categorisation criteria

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Note 2: Level crossing MSTs in Ellipse should align to ALCRM frequencies and be reviewed as part of an annual check of risk assessment frequencies.

5.2 Calculated Risk Assessment Frequency Review

The risk assessor shall review the risk assessment frequencies calculated by ALCRM. The frequency may be increased where structured expert judgement or limitations in ALCRM's ability to model crossing specific risks are present. The risk assessor shall record their decision when the frequency is increased.

5.3 Additional Risk Assessment triggers

A level crossing risk assessment shall be carried out:

a) at the evaluation stage for new crossings, proposed renewals, or alterations to the type of protection;

b) after commissioning of the renewal or safety enhancement of a level crossing;

c) within four weeks of a formal expression of concerns from internal or external stakeholders, e.g. TOCs (Train Operating Companies), ORR (The Office of Rail Regulation), highways authority, authorised user;

d) before significant timetable changes (as a minimum, optioneering of the impact of timetable change), see NR/L2/OCS/031 – Rail Assessment and Briefing of Timetable Change;

e) before alterations to permissible line speeds, see NR/L2/SIG/30021 – Alterations to Authorised Line Speeds;

f) within four weeks of an incident of misuse, near miss or accident which triggers the requirement for a risk assessment, see Table 2;

g) before Network Rail responds to planning proposal consultations that indicate a substantial change in traffic volumes, patterns or speeds (as a minimum, optioneering of the impact of traffic volume);

h) following a report of a significant change in the environment which has an impact on a level crossing;

i) within four weeks of receiving information of substantial increase in road traffic volume;

j) before infrastructure changes that affect a level crossing, e.g. new lines / sidings, line closures or the reopening of mothballed lines.

Note 1: Risk assessments are also undertaken to support decision making for enhancements projects or stand-alone renewals.

Note 2: Apply structured expert judgement when deciding if changes are significant or substantial.

Note 3: In the case of very lightly used crossings a small increase in the number of road vehicles will have a greater impact on risk.

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6   **RISK ASSESSMENT PROCESS – COLLATE INFORMATION**

6.1   Initial Contact with Authorised Users of User Worked Crossings (UWC)

Risk assessors shall use the Customer Relationship Management (CRM) system to correspond with authorised users. Authorised users of user worked crossings shall be sent the templated authorised user initial letter which includes the authorised user questionnaire. Letters shall be sent between two and three months before the date of the next scheduled risk assessment.

Note: Contact with authorised users of user worked crossings is important to support our understanding of risk. It enables us to work jointly with authorised users to improve level crossing safety.

Letters shall be sent with a pre-paid envelope for authorised users to respond.

Authorised users might provide an email address as their preferred means of contact. In these circumstances, authorised user letters should be sent as email attachments.

6.2   Follow Up Contact with Authorised Users of User Worked Crossings

Where contact telephone numbers are available, risk assessors shall telephone authorised users to confirm their attendance at the site visit.

6.3   Prepare for Site Visit

Risk assessors shall prepare for the site visit. As a minimum this shall include:

a)   completing the office based element of the risk assessment;

b)   a review of previous census data;

c)   deciding which type of census will be undertaken. Factors to take into account include time of day, duration and need for a second census due to seasonal variations;

d)   obtaining crossing usage information held by the controlling signal box e.g. records of requests to use the crossing entered in the occurrence book for user worked crossings, drivers of long or slow moving vehicles, herding animals; and

e)   using appropriate 'smart' sources of information, e.g. local sources of information on crossing usage held in site logs by businesses or reports from residents, Google maps, local authority websites, SMIS (Safety Management Information System).

Note: See Level Crossing Guidance documents LCG 01 and LCG 02 which are available on the Level Crossings Hub.

6.4   Stakeholder Involvement

Risk assessors shall decide if stakeholder representation is needed during the site visit. Arrange to meet stakeholders on site when their attendance is needed.

6.5   Carry Out Site Visit

Risk assessors shall use a mobile device when undertaking the risk assessment site visit.

Risk assessors shall use the mobile device to record site visit inputs to risk assessments. The mobile device shall only be used in a position of safety.

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Note: The mobile device presents risk assessors with the relevant questions for the crossing being risk assessed. It provides risk assessors with the available fields and options to record the inputs to the risk assessment.

If the mobile device fails, risk assessors can undertake risk assessment site visits using data collection forms.

6.6 <u>Confirm Usage – No Users Observed</u>

At crossings where a quick census is undertaken, no users are observed and there is no visual or other supporting evidence of crossing use:

EITHER:

a) where possible carry out appropriate local investigations to substantiate usage, e.g. contact the authorised user, speak to nearby residents, check the internet for local walking groups etc; and

b) information supports the crossing is not being used;

c) where possible, establish and record if non-usage is temporary or permanent;

d) record no use as an estimated census in ALCRM and add supporting commentary.

Note 1: Where permanent non-use has been established, closure should be pursued.

Note 2: If agreement can be reached with the authorised user, lock crossing out of use until such time as it is needed again.

OR:

e) if local investigations are not possible;

f) record no use as an estimated census in ALCRM and add supporting commentary;

g) deploy census equipment for a minimum of one month to verify if the crossing is being used. If this confirms that;

EITHER

1. the crossing is being used, update the risk assessment with the revised census information and continue to risk assess at the required frequency;

OR

2. the crossing is not being used, the risk assessment remains valid. Confirm its M13 status in ALCRM and continue to monitor for use during asset inspection visits.

If monitoring during asset inspection visits identifies that the crossing is being used, conduct a new risk assessment within four weeks.

If informed that a crossing with M13 status is being used, a new risk assessment shall be conducted within four weeks.

Note 3: Interim measures might be needed before the new risk assessment is conducted.
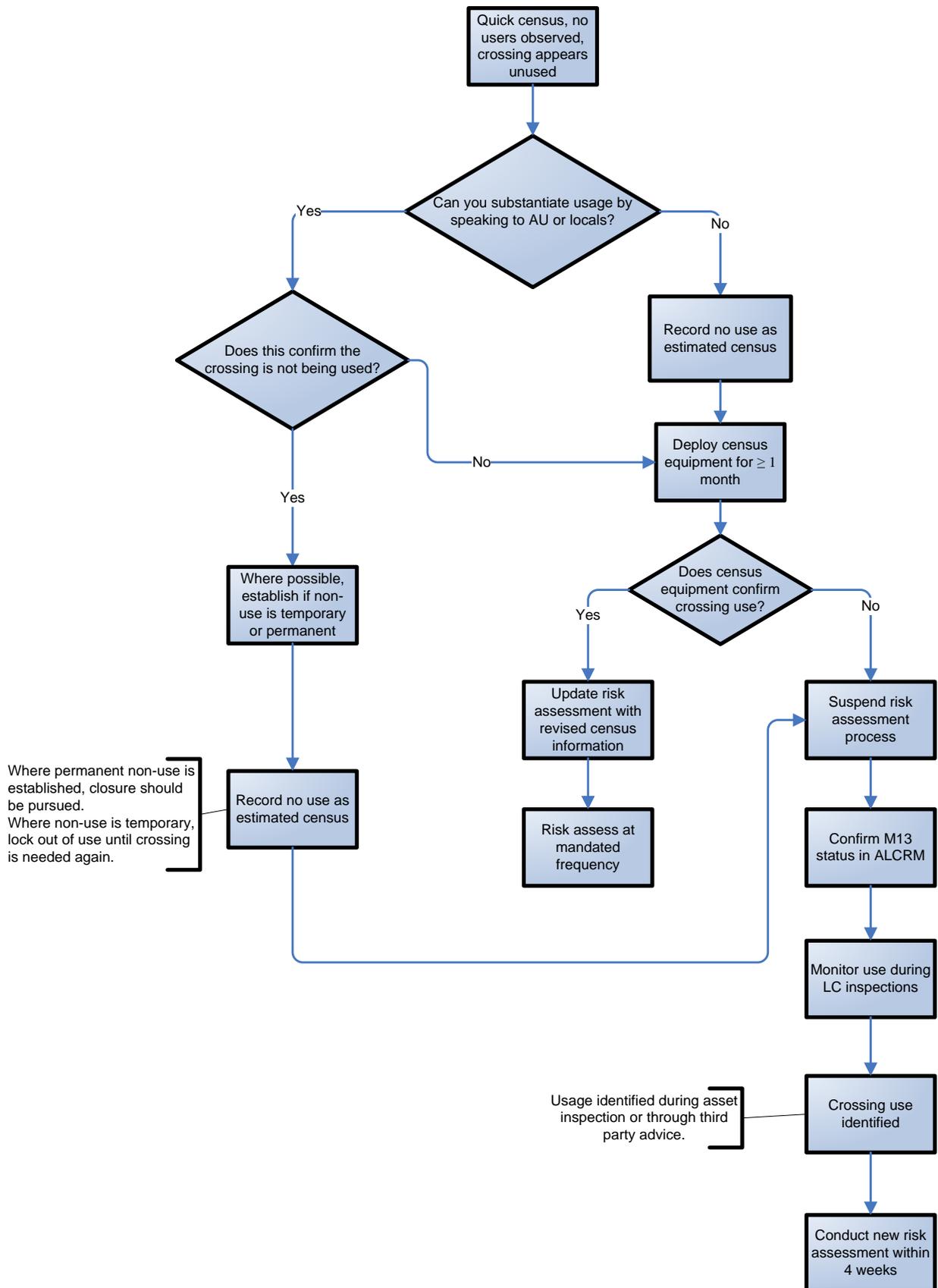
A flowchart of the action to take is shown in Figure 1.

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Figure 1 – Substantiating use of M13 status

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6.7   Post Site Visit Follow Up

After completing the site visit, follow up checks might be needed. These can include:

a)   checking the accuracy of data collected; or

b)   speaking to an outside party, e.g. a local business; or

c)   conducting an additional site visit.

6.8   Submit Data into ALCRM

Risk assessors shall commit the data collected for the risk assessment into ALCRM from the mobile device.

Note: To avoid loss of data, always commit the data collected where full Wi-Fi is available.

Where risk assessment data is not recorded on the mobile device, e.g. device failure or paper copy used, risk assessors shall manually enter the data into ALCRM.

6.9   Check for Existing Safety Benefits

Check the mitigations tab of the previous risk assessment in ALCRM to determine if any safety benefits have been applied, e.g. spoken alarm or red light safety equipment. Apply the safety benefits to the new risk assessment if still applicable.

6.10   Carry Out ALCRM Sign Off Checks

A sign off check shall be undertaken for each risk assessment. This shall be conducted by a person who meets the requirements of Section 4.

The person undertaking the check should focus on key inputs and sense check all data for errors and anomalies. Any issues identified shall be discussed with the relevant risk assessor. Agreement shall be reached on any corrective action to be taken prior to sign off.

6.11   Sign Off ALCRM Risk Assessment

Risk assessments shall be signed off in ALCRM:

a)   within six weeks of the site visit; and

b)   a person who meets the requirements of Section 4.

6.12   Changes to Risk Assessment Frequency

ALCRM provides a warning of change in risk assessment frequency. If the risk assessment frequency has changed, the risk assessor shall arrange for the relevant MST (Maintenance Schedule Task) in Ellipse to be updated.

Note 1: Information on changes in risk assessment frequency is held on the Analyse Results page. The change in frequency management report (available on the Level Crossings Hub) can be run periodically to identify changes in risk assessment frequency.

Note 2: MSTs are updated by the Systems Support Manager. If the ALCRM score has changed to M13, the MST should be turned off.

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7   RISK ASSESSMENT PROCESS – IDENTIFY RISK CONTROLS OPTIONEERING

7.1   Optioneering Short and Long Term Solutions

Optioneering is the opportunity to investigate potential safety improvements at a level crossing or its environment. Options that are modelled in ALCRM and selected for progression should be practicable.

Optioneering shall be undertaken on all risk assessments. Optioneering shall be undertaken within 12 weeks of the site visit. Options to be progressed shall be identified and set to 'recommended' status within this timescale.

Potential risk controls shall be identified taking account of:

a)   the ALCRM outputs;

b)   key risk drivers;

c)   structured expert judgement; and

d)   other sources e.g. advice from other experts or key stakeholders.

Risk controls shall include short and long term solutions as appropriate.

New Level Crossing Orders place requirements on Network Rail and local authorities to agree long term strategies for public road level crossings. Discussions and agreements shall be referenced in the NRA, see Section 7.10, and recorded in the level crossing file, see Section 10.1.

Note 1: Risk assessors can create a first version of the NRA to assist with identifying risk controls during optioneering.

Note 2: The Level Crossing Risk Management Toolkit (LXRMTK) http://www.lxrmtk.com and the Level Crossing Risk Management Catalogue are good sources of risk control and human factors information.

Note 3: See 7.9.2 for action to be taken when risk is deemed to be adequately managed by existing controls and no further mitigations are reasonably practicable.

Note 4: It is good practice to agree long term strategies for all public road level crossings and footpath crossings with local authorities. All long term strategies should be developed in consultation with the Route Asset Manager.

7.2   Optioneering Interim Risk Controls:

Interim risk controls might be needed in addition to short and long term solutions. As a minimum, interim risk controls shall be evaluated and progressed in the following circumstances:

a)   deficient sighting; or

b)   where a significant risk would exist pending delivery of short or long term solution(s).

Note: See guidance on Managing Interim Risk at Level Crossings. Interim risk controls should be modelled as short term options in ALCRM.

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7.3   Copy Previous Options

Relevant options from the previous risk assessment shall be copied onto the new live risk assessment.

Note 1: Relevant options can include those that:

a)   control risk and have not previously been recommended or approved;

b)   have been previously recommended and are awaiting financial authority to progress to approved stage; or

c)   are approved options awaiting delivery.

Note 2: Previous options being copied should be checked and where needed amended for consistency with the new risk assessment, e.g. census numbers, sighting distances, train service data.

7.4   Analyse Results

Modelled options shall be analysed to determine which:

a)   give the greatest safety benefit as measured in Fatalities and Weighted Injuries (FWI);

b)   are effective at controlling and / or reducing risk conditions present at the crossing, e.g. address key risk drivers, known incidents of misuse or potential consequences of an incident or environmental risks; and

c)   are achievable and practicable.

7.5   Carry Out Cost Benefit Analysis (CBA)

CBA shall be carried out on options that meet the requirements of Section 7.4. The CBA shall be completed using the Network Rail CBA tool.

The CBA will give a benefit to cost ratio. CBA shall be used to support the decision when selecting options that will be progressed.

The following can be used to support decision making:

a)   benefit to cost ratio is ≥ 1: positive safety and business benefit established;

b)   benefit to cost ratio is between 0.99 and 0.5: reasonable safety and business benefit established; and

c)   benefit to cost ratio is between 0.0 and 0.49: weak safety and business benefit established.

CBA might not be needed in all cases, e.g. low cost solutions or remedies for enforcement action. CBA gives an indication of overall business benefit. It should be used to support, not override, structured expert judgement when deciding which option(s) to progress. CBA does not always adequately reflect the safety benefit that can be achieved by implementing an option.

Note: Where a business to cost ratio is < 1, supporting documentation will be needed to progress an option.

7.6   Final Option Selection

Decide which option(s) will be progressed for implementation.

Note 1: This could include discussing with and obtaining the support of the wider Route team.

Note 2: More than one option can be progressed. Option(s) can include interim, short and long term risk controls.

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7.7   Recommend Option(s)

All option(s) that are:

a)   being progressed; or

b)   are to be progressed in the future;

shall be set to 'recommended' status in ALCRM.

Note: The ALCRM User Guide gives guidance on recommending options. Optioneering guidance is being developed.

7.8   Seek Option Approval

Obtain approval for the selected option as appropriate.

Seek financial authority for the selected option(s) where needed.

Note: This includes obtaining the support of an Investment Panel where appropriate. A sponsor might be appointed.

For technical solutions, establish the high level feasibility of selected option(s).

7.9   Option(s) Approved

7.9.1   Options to be progressed

When a feasible option has obtained approval, including financial authority where needed, it shall be set to 'approved' status in ALCRM.

Review the progress of recommended option(s) that have not gained financial authority or where feasibility has not been established within six months. Establish if the option remains viable.

Risk assessors shall revisit option selection, see Sections 7.1 and 7.2 if options are not approved or are not viable.

7.9.2   No options to be progressed

Risk assessors shall 'recommend', 'approve' and 'implement' a 'no further SFAIRP mitigation identified' option. Where:

a)   risk is deemed to be adequately managed by existing risk controls, e.g. at a CCTV level crossing; and

b)   no further safety benefits are reasonably practicable.

Note: SFAIRP – so far as is reasonably practicable.

7.10   Complete a Narrative Risk Assessment (NRA)

The risk assessor shall complete a NRA for the level crossing being risk assessed.

As a minimum a NRA shall contain:

a)   information automatically extracted from ALCRM;

b)   enhanced qualitative narrative to greater articulate the risks present and support decision making;

c)   conclusions relating to the management of risk in the interim, short and long term; and

d)   evidence of risk control option(s) identified, those being progressed and those identified for future progression.

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The NRA shall be completed within 12 weeks of the site visit.

Note 1: The process for creating and guidance for completing NRAs are available on the Level Crossings Hub.

Note 2: The NRA is a risk assessment report for the level crossing. It should be written in report format.

Note 3: Review the joint long term strategy for all public road crossings when completing the conclusions.

7.11   Notify Authorised Users of Risk Assessment Outcome

When the risk assessment is complete, the risk assessor shall send authorised users of user worked crossings the templated authorised user follow up letter and appropriate safe crossing usage information.

If the authorised user has provided alternative contact details, e.g. an email address, and confirmed they prefer to be contacted using these details, the letter shall be sent using the alternative contact details.

Note: Authorised user letter templates are contained in CRM.

8   RISK ASSESSMENT PROCESS – IMPLEMENT RISK CONTROLS

8.1   Stakeholder Management

Risk assessors shall:

a)   Maintain contact with stakeholders to keep them updated on the progress of approved options;

b)   Inform stakeholders that work is due to take place before it commences.

8.2   Track Option Implementation:

Risk assessors shall progress and track option(s) until they are implemented. Liaise with the sponsor and / or delivery agent as needed.

Work closely with teams implementing the works.

Recommended option(s) that have not been progressed within 12 months of the risk assessment date shall be reported six monthly. The report shall be run by the Route Level Crossing Manager (RLCM) / Operations Risk Advisor (ORA).

Note 1: The suite of ALCRM management reports includes an optioneering report.

Note 2: Risk assessors should review the recommended options report to advise if options are still viable.

8.3   Implement Delivered Option

Risk assessors shall establish that an option has been implemented and the expected safety benefits are achieved. Evidence of implementation can include:

a)   site visit;

b)   photographs; and

c)   documentary evidence, e.g. changes to ground plans, Level Crossing Orders etc.

When this has been established the option status shall be set to 'implemented' in ALCRM.

Update ALCRM to reflect temporary or permanent closure of a level crossing.

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Follow the requirements of Section 6.12 to determine if the risk assessment frequency has changed.

Note 1: This will generate a new live risk assessment. The risk assessment date will remain as the date of the site visit on which the implemented option is based.

Note 2: Guidance on closing and archiving crossings in ALCRM is given in AUG/CA, which is available on the Level Crossings Hub.

Note 3: Implementing a risk control option can result in a change to the risk assessment frequency and reduce the FWI.

8.4   Carry Over Ongoing Options

Where more than one option is being progressed, carry over any other ongoing recommended or approved options to the new live risk assessment, see Section 7.3.

8.5   Notify Stakeholders

Notify internal and external stakeholders of implemented options.

8.6   Decide if a New Risk Assessment is Needed

Factors to take into account include:

a)   the time elapsed between the date of site visit and delivery of implemented option; and

b)   the requirements of Section 5.3.

Restart the process if a new risk assessment is needed.

9   LEVEL CROSSING INCIDENTS AND ACCIDENTS

9.1   Identifying Incidents and Accidents

Risk assessors shall review daily Route Control logs and SMIS downloads to identify incidents and accidents affecting level crossings for which they are responsible.

This includes incidents of misuse, near misses and accidents.

9.2   Follow Up to Incidents and Accidents

Risk assessors shall implement the actions described in Table 2.

When undertaking trigger risk assessments of user worked crossings, risk assessors shall document the method of contact and attempts to contact authorised users in the relevant level crossing file.

Where possible, involve other stakeholders in the review of risk assessments, findings and recommended actions arising from incidents and accidents. Stakeholders include Highway Authorities, Environment Agency, the BTP (British Transport Police), Emergency Services and Road Rail Partnership Groups, etc.

Note 1: Risk assessors should keep a record of incidents and accidents on the level crossings for which they are responsible to help identify when the triggers given in Table 2 are reached.

Note 2: Risk assessors should identify potential factors that might cause or increase misuse and the controls to address the risks. Risk assessors should maintain regular contact with Community Safety Managers so they are aware of route crime incidents at level crossings.

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9.3   Report Reconciliation

Risk assessors shall reconcile data recorded in the Route Control log and SMIS for each period within one week of receipt of the report. Risk assessors shall inform the Safety Reporting Specialist (SRS) of any discrepancies. Risk assessors shall reach agreement with the SRS on any discrepancies identified and how they will be recorded in SMIS.

Note: Risk assessors might receive other reports or information about incidents and accidents from local sources that can clarify the location or circumstances of incidents.

10   LEVEL CROSSING RISK RECORDS

10.1   Level crossing files shall be maintained in accordance with NR/L3/OCS/041/5-20 – Level Crossing Administration. Records shall include:

a)   copies of all correspondence sent to the authorised users of UWCs;

b)   copies of completed NRAs;

c)   correspondence related to the consideration of and decisions about proposed risk controls;

d)   correspondence relating to actual or potential closures;

e)   long term strategy agreements and proposals;

f)   actions taken as a result monitoring and response to incidents and accidents;

g)   general correspondence relating to the risk management of level crossings.

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Table 2 – Responding to Incidents and Accidents

Crossing Type	Definition of Misuse	Trigger	Action Required	Definition of Near Miss	Trigger	Action Required	Definition of Accident	Trigger	Action Required
ABCL, AHB, AOCL(+B), AOCR	Crossing of the line during the warning sequence by vehicles or pedestrians Irregular use of the crossing by a long, low or slow moving vehicle	3 times in a period of 12 months	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Crossing of the line during the warning sequence by vehicles or pedestrians necessitating emergency braking to be initiated by the train driver or too late for avoiding action to be taken	After each reported occurrence	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Train has struck a vehicle or pedestrian or a vehicle has struck a train	After each reported occurrence (except pedestrian suicides)	Undertake additional risk assessment
MCB type, MG	Crossing of the line during the warning sequence by vehicles or pedestrians Barrier Strikes before the crossing clear button is pressed	3 times in a period of 12 months	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Barrier Strikes after the crossing clear button is pressed	After each reported occurrence	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Train has struck a vehicle or pedestrian or a vehicle has struck a train	After each reported occurrence (except pedestrian suicides)	Undertake additional risk assessment

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Crossing Type	Definition of Misuse	Trigger	Action Required	Definition of Near Miss	Trigger	Action Required	Definition of Accident	Trigger	Action Required
Open	Crossing of the line during the approach of a train (within the minimum required sighting distance)	3 times in a period of 12 months	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Crossing of the line during the approach of a train by vehicles or pedestrians necessitating emergency braking to be initiated by the train driver or too late for avoiding action to be taken	After each reported occurrence	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Train has struck a vehicle or pedestrian or a vehicle has struck a train	After each reported occurrence (except pedestrian suicides)	Undertake additional risk assessment
UWC type	Crossing of the line during the approach of a train (within the minimum required sighting distance) Non use of telephone when provided (except incidents of the user failing to call back after use) Crossing when the MSLs are red Gates left open	3 times in a period of 12 months	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months Make contact with authorised user to invite them to attend the risk assessment	Crossing of the line during the approach of a train by vehicles or pedestrians necessitating emergency braking to be initiated by the train driver or too late for avoiding action to be taken	After each reported occurrence	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months Make contact with authorised user to invite them to attend the risk assessment	Train has struck a vehicle or pedestrian or a vehicle has struck a train	After each reported occurrence (except pedestrian suicides)	Undertake additional risk assessment If appropriate, make contact with authorised user to invite them to attend the risk assessment

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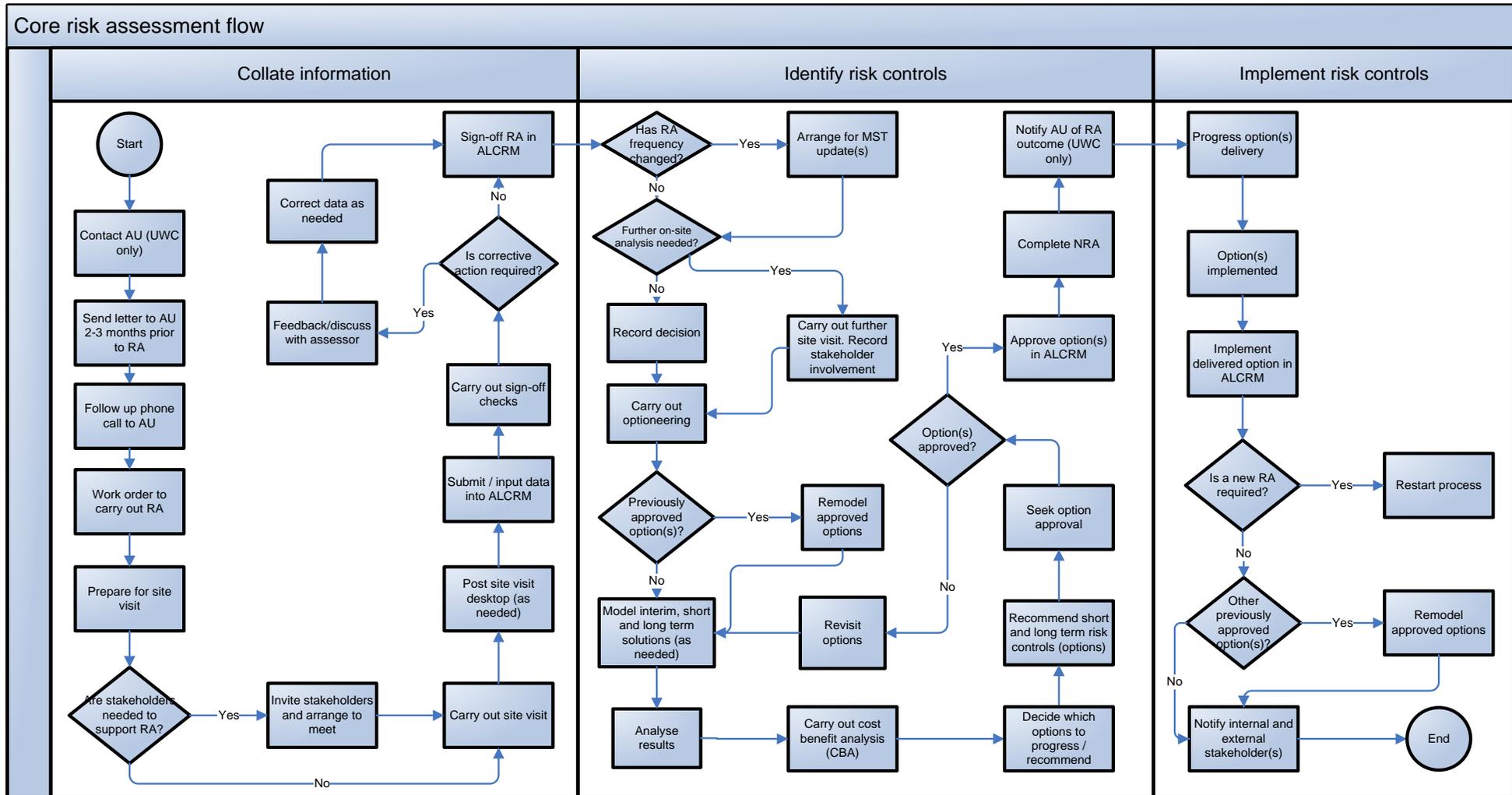**Compliance date:** 07 March 2015

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Crossing Type	Definition of Misuse	Trigger	Action Required	Definition of Near Miss	Trigger	Action Required	Definition of Accident	Trigger	Action Required
BW, FP, Station pedestrian crossings	Crossing of the line during the approach of a train (within the minimum required sighting distance) Crossing when the MSLs are red Crossing when the White Light Indicator is extinguished	3 times in a period of 12 months	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	In any of the following circumstances: • crossing of the line during the approach of a train • crossing when the MWLs are red • crossing when the White Light Indicator is extinguished necessitating emergency braking to be initiated by the train driver or too late for avoiding action to be taken	After each reported occurrence	Undertake additional risk assessment unless within 6 months of last routine risk assessment or a risk assessment has already been undertaken in accordance with this table within the last 12 months	Train has struck a pedestrian or horse	After each reported occurrence (except pedestrian suicides)	Undertake additional risk assessment

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Appendix A

RISK ASSESSMENT FLOWCHART

Core risk assessment flow — Collate information / Identify risk controls / Implement risk controls

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Appendix B

RESPONSIBILITIES

		Level Crossing Manager	Route Level Crossing Manager / Operations Risk Advisor	Authorised User	External stakeholders	Internal Stakeholders	Sponsor
R – **Responsible** is the person or people who are responsible for performing a certain task or action. A – An **Accountable** person is one who has overall accountability to make sure that a task or action is completed. C – **Consulted** people have an input into the task or action, this can be providing information, reviewing documents or attending workshops etc. I – **Informed** people are those who receive the output of a task or process.							
3	General	R	A C				
5	Scheduled risk assessment	R	A C				
6	Collate information	R	A C	C	C	C	
7	Identify risk controls	R	A C	I	C	C	C
8	Implement risk controls	R	A C	I	I	C	C
9	Level crossing incidents and accidents	R	A C	C	C	C	
10	Level crossing risk records	R	A				

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APPENDIX C

LEVEL CROSSING COMPETENCE FRAMEWORK

C.1 <u>**PURPOSE**</u>

C.1.1 This procedure details the competency assessment process for those required to maintain competency to carry out the role of Level Crossing Manager (LCM).

Note: The level crossing competency standard Authority to Work together with relevant AiTL give Level Crossing Managers their authority to undertake their role.

C.1.2 An LCM can be classed as a Level Crossing Manager or a person competent to carry out the role. LCMs are employed specifically to undertake the risk management of level crossings and do so as part of their core duties. Other persons competent to carry out the role are those staff within the function that will only undertake risk management of level crossings in emergency or during contingent situations. They need to maintain competency to do so.

C.1.3 All activities or tasks that an LCM undertakes have been risk assessed and graded as low, medium or high risk.

C.1.4 Activities or tasks that have been graded as low risk carry an assumed competency unless evidence is available to indicate non-compliance or poor performance.

C.1.5 Medium and high risk activities or tasks are assessed through direct observation, the submission of supporting evidence and by simulation and knowledge tests.

C.1.6 All risk levels are supported by:

a) observation of the LCM;

b) professional discussion as part of the bands 1 to 4 performance management process;

c) naturally occurring performance indicators; and

d) simulation and knowledge tests.

C.1.7 An additional assessment of the non-technical skills of capabilities and behaviours demonstrated by an LCM supports Line Managers' decisions on competence.

C.2 <u>**GUIDANCE AND CLARIFICATION**</u>

C.2.1 Line Managers and other staff who need further clarification on the contents of this document should contact the Level Crossing Risk Manager, National Level Crossing Team.

Note: See Managing Level Crossing Risk Management Competence Guidance LCG 07 which is available on the Level Crossings Hub.

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C.2.2   The assessment and development day will comprise of:

   a)   an observation of the LCM conducting a planned level crossing data collection;

   b)   input into ALCRM;

   c)   considered and recommended options;

   d)   review of the LCM's performance and supporting evidence of their risk management of their core crossing types.

C.2.3   There will be simulation and knowledge testing for medium and high risk activities that are not a normal part of the LCM's activity, or where there is insufficient naturally occurring evidence.

C.2.4   Line Managers regularly and actively assess the competence and performance of LCMs by direct observation of level crossing risk management activities. These observations take place during visits to each LCM on their area. These visits, known as Observation visits are detailed in C.9.

C.2.5   Line Managers agree action plans with LCMs where any gaps exist regarding an individual's competence. Where considerable knowledge gaps and lack of understanding are identified, Line Managers decide whether to remove an individual's Authority to Work (AtW) certification until competence has been reviewed, re-assessed and regained.

C.3   <u>DEFINITIONS</u>

LCM	Any individual permanently required to undertake risk management of level crossings.
Person competent to carry out the role	Anyone who is not permanently employed to undertake risk management of level crossings but may be required to under contingent arrangements.
Competence	The ability to perform activities to the standards expected in employment. It is a combination of practical and thinking skills, experience and knowledge, soft skills and behaviours. It includes the willingness of an individual to consistently perform a task to the standard required.
Line Manager	The manager who is directly responsible for LCMs who are required to maintain competency to undertake risk management of level crossings.
Line Manager – qualification	To carryout the requirements of this procedure Line Managers (or any nominated deputy) need to be a qualified assessor as set out in C.16.
Non-technical skills	Non-technical skills are core behavioural capabilities of those responsible for the management of level crossing risk.

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C.4   **COMPETENCE FRAMEWORK OVERVIEW**

C.4.1   Each LCM shall be subject to a one yearly competency cycle.

C.4.2   Each cycle shall be sub divided into two cycles of 26 week duration.

Note: Each level crossing risk management activity and task that an LCM is required to undertake have been risk assessed and graded as low, medium or high risk.

C.4.4   Low risk activities shall be given an assumed competency unless evidence is available to suggest non-compliance or poor performance.

C.4.5   Medium and high risk activities or tasks shall be assessed through one to one discussion, direct observation and the submission of supporting evidence and by simulation and knowledge tests.

C.4.6   LCMs shall attend an assessment and development day with Line Managers once each 26 week cycle. They shall undertake those observations, knowledge tests and simulations detailed in the competency cycle. LCMs shall provide self-generated evidence of their level crossing risk management activity in support of their competence.

Note: More frequent assessment and development days can be undertaken if needed.

C.4.7   In support of the knowledge testing and simulation, Line Managers shall:

a)   undertake observation visits,

b)   monitor safety critical voice communications; and

c)   undertake non-technical skills assessments with LCMs.

C.4.8   AtW certificates for this competence shall be issued to LCMs at the commencement of each one year cycle.

C.5   **COMPETENCE CYCLE**

C.5.1   All tasks and activities that LCMs are required to maintain competency in have been defined and grouped unto units and elements. These units and elements have been graded as high or medium risk.

C.5.2   Within each 26 week cycle, the competency cycle dictates which high and medium risk elements will be tested and assessed.

Note: The competency cycle is published on the competence management system.

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C.6   **SIMULATION**

C.6.1   Line Managers shall undertake simulations at each assessment and development day. The topics to be tested are scheduled in the competency cycle.

Note 1: All simulation scenarios are based on the medium and high risk elements within the competency cycle. The majority of simulations are generic and are applicable to all LCMs with some exceptions.

Note 2: Line Managers are issued with an assessor pack for each simulation. It includes all materials needed to conduct the simulation and to record the actions and output from the LCM. This includes competence decisions and responses to 'what if' questions. 'What if' questions are provided to enhance the generic simulations to provide location based specifics that could not be replicated within the scenarios.

C.6.2   Where a simulation is not provided that adequately matches a particular circumstance, utilise locally produced scenarios. These scenarios shall match the requirements of each simulation topic.

C.6.3   Line Managers upload the output from the simulations and the resulting competence decisions to the competence management system.

C.6.4   Line Managers shall indicate which 'what if' questions are used. They shall record LCM's responses to the questions.

C.6.5   Line Managers shall use their judgement and technical knowledge to determine if the LCM is competent in the activities and tasks being assessed. In making this determination Line Managers might need to carry out coaching.

Note: The simulation supported by 'what if' questions allow Line Managers to assess LCMs' overall understanding and ability to apply their knowledge.

C.6.6   Line Managers are required to make a decision on an individual's competence status. An individual can be assigned as:

a)   not yet competent with a Development Action Plan (DAP) and suitable mitigations in place;

b)   competent with a DAP plan in place; or

c)   competent and confident.

Note: To be assigned competent and confident an individual should demonstrate the technical knowledge and have clear self belief in their level of understanding and its application.

C.7   **ASSESSMENT AND DEVELOPMENT DAY**

C.7.1   LCMs and their Line Managers shall undertake an Assessment and Development Day during each 26 week cycle.

C.7.2   LCMs shall provide evidence of level crossing risk management activity to support their development day. LCMs shall undertake knowledge tests as required and simulations allowing Line Mangers to:

a)   identify an individual's strengths;

b)   identify any areas for development;

c)   provide coaching; and

d)   address any minor knowledge deficiencies highlighted during area visits.

C.7.3   The observational element of assessment and development days shall consist of Line Managers observing LCMs:

a)   conducting a planned level crossing site visit; and

b)   assessing the LCM's knowledge and understanding of the risks associated with the level crossing.

C.7.4   Following the observational element, LCMs shall discuss the following topics with their Line Managers:

a)   options they would consider and recommend including their reasoning:

b)   LCM's self-generated evidence of their risk management of their core crossing types; and

c)   non-technical skills capability assessment record.

C.7.5   When Line Managers cannot reach a decision on an LCM's competence based on observation and submitted evidence, the LCM shall undertake the competence cycle determined knowledge tests and simulation. Knowledge tests of high risk activities shall be followed by simulations of the same activity. See C.14.3 for action to be taken if competency cannot be established.

C.8   **PERSON COMPETENT TO CARRY OUT THE ROLE**

C.8.1   Persons competent to carry out the role shall undergo the process set out in this procedure.

C.8.2   Persons competent to carry out the role shall have a test menu set up by their Line Manager. It shall include a dated plan for the assessments to take place within the one year cycle. A minimum of one assessment day shall be completed within each one year competency cycle.

Note 1: The test plan should be set up with the support of the relevant RLCM / ORA.

Note 2: At least one assessment session should take place within the first six month period of this new procedure commencing.

C.8.3   It is recognised that Line Managers of some persons competent to carry out the role might not have the required competence to conduct assessments. It is permitted for any person competent to carry out the role to be assessed by a manager who meets the requirements of C.16.

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C.9 <u>**VISITS TO LEVEL CROSSING MANAGERS**</u>

C.9.1 Line Managers shall visit each LCM they are responsible for a minimum of once in every alternate period.

Note: This allows the Line Manger the chance to observe and discuss the LCM carrying out level crossing risk management activity in their normal working environment. This can include level crossing asset inspections.

C.9.2 Each visit should be of a duration that allows:

a) Line Managers the opportunity to observe and discuss with the LCM any issues they may have; and,

b) LCMs the opportunity to present any evidence they wish to be considered in support of their competence.

Note: Line Managers should allow sufficient time so that the individual's performance can be considered and assessed as being to an acceptable level.

C.9.3 Line Managers should give consideration to undertaking visits to LCMs when LCM workload is at the maximum level.

Note: Visits at these times might be of more value than visits to the LCM when workload is at a minimum.

C.9.4 During each visit Line Managers shall as well as observing and discussing the individual's performance, check outputs from any activity outside normal business as usual issues.

C.9.5 Where Line Managers become aware that the LCM is not performing at an acceptable level, they shall discuss the performance issues with the individual. A DAP shall be opened immediately.

Note: This should include making the individual aware which areas of performance are not at the required standard.

C.10 <u>**MONITORING OF VOICE COMMUNICATIONS**</u>

C.10.1 Within the one year competency cycle, Line Managers shall monitor and rate a sufficient number of naturally occurring safety critical communications associated with the high risk activities to deem an LCM competent.

C.10.2 Line Managers shall decide how many naturally occurring safety critical communications they will monitor for each LCM.

C.10.3 Where, due to the nature of the voice recorder coverage on the area, naturally occurring safety critical communications recordings are not available for high risk activities. Line Managers shall use the output from the Simulations as evidence of voice communications, provided the Line Manager has the agreement of their Line Manager.

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C.10.4   The outcome of assessments shall be managed as shown in Table C.1.

Rating	Outcome	Immediate Action	Follow up Action
A and B	Competent	None.	None.
C	Competent with minor development	Agree a DAP plan with the LCM.	• Monitor further until LCM can consistently deliver voice communications graded B or above. • Agree frequency of monitoring with LCM
D	Not yet competent	• Discuss outcome with LCM within one week of development need being identified. • Make clear which elements of safety critical communications need to be improved • Agree a DAP with the LCM.	• Assess a sufficient number of further communications in the following month to determine if there has been an improvement or whether further action is necessary. • Monitoring further until LCM can consistently deliver voice communications graded B or above.
E	Not yet competent	• Discuss outcome with LCM immediately on identifying development need. • Make clear which elements of safety critical communications need to be improved • Decide if the LCM's authority to work is to be suspended. • Agree a DAP with the LCM.	

Table C.1 – Assessment outcome and actions

C.10.5   The safety critical communications monitoring record form, F3-08A is provided on the competence management system. It shall be completed for each naturally occurring High Risk voice communication and for simulation output voice communications.

C.10.6   In determining if an LCM is competent in Safety Critical Communication Line Managers shall use the process and guidance set out in NR/L3/OCS/041/3-08 – Voice Recording Checks – Messages Concerning Safety.

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C.11   NON-TECHNICAL SKILLS CAPABILITY ASSESSMENT

C.11.1   Non-technical skills shall be observed at different times and from different sources. The assessment shall be made and during:

   a)   site visits;

   b)   optioneering;

   c)   Narrative Risk Assessments etc.

C.11.2   At a minimum frequency of once every six months, Line Managers shall complete a Level Crossing Manager non-technical skills capability assessment for each LCM they manage. Any issues arising from this assessment shall be documented in a DAP.

C.11.3   Line Managers shall decide if NR/L3/OCS/041/2-07 – Operator Additional Monitoring and Support is required by the individual.

C.12   NEW LCMs

C.12.1   Where new LCMs are appointed, Line Managers shall open a DAP. Use the plan to document the gap between current knowledge and understanding and the knowledge and understanding the individual needs to obtain as part of the process for gaining an authority to work for their area.

C.13   RETURNING TO WORK FROM A PERIOD OF ABSENCE FROM LEVEL CROSSING RISK MANAGEMENT DUTIES

C.13.1   At the end of any period of absence, and before LCMs return to level crossing risk management duties, Line Managers shall arrange to complete the actions shown in Table C.2.

Length of Absence	Criteria	Action
1 to 6 months	No assessment and development days missed	Decide if following are required; location refresher training and Rule Book / Instruction changes briefing. Decide if the knowledge test and / or simulations will be used to assist the LCM in returning to level crossing risk management duties. Agree a DAP with the LCM for this purpose.
1 to 6 months	Assessment and development day missed	Decide if following are required; location refresher training and Rule Book / Instruction changes briefing. The missed assessment and development day shall take place within I month of the individual returning to work. Agree a DAP with the LCM for this purpose.

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Length of Absence	Criteria	Action
Over 6 months	One or more assessment and development day(s) missed	Arrange for the AtW to be suspended. A period of location refresher training shall be undertaken before a new AtW can be issued. Rule Book / Instruction changes briefing shall be given. Outstanding observations, knowledge tests and simulations shall be completed. Agree a DAP with the LCM.

Table C.2 – Return to work following periods of absence

Note: In some cases it may be appropriate for the individual LCM to attend all or part of Initial Level Crossing Manager training course.

C.14 ADDRESSING DEVELOPMENT NEEDS

C.14.1 Line Manager supported development

Line Managers shall create DAPs when development needs are identified.

Note: During the Assessment and Development day the Line Manager has an opportunity to coach the LCM. Using the simulation, explaining the activity in a different way or relating the task to the LCM's normal working location may bring clarity to the individual's understanding.

C.14.2 An LCM can fall below standard on simulation results and Line Managers may still return a 'competent' decision. Line Managers shall provide evidence to support these decisions including simulation reports and other supporting evidence. This evidence shall be recorded in the individual's competence record.

C.14.3 If following coaching and open discussions, Line Managers cannot deem the individual competent, Line Managers shall put actions into place to mitigate any risks with the individual's lack of knowledge. This can include the suspension of an individual's AtW until re-training and a successful re-assessment has taken place. The details of action taken shall be recorded in a DAP.

C.14.4 Self-Development

Self-development is aimed at LCMs wishing to develop themselves e.g. by moving to a different location, or broadening their knowledge of core crossing types and associated issues. Appropriate development needs to be judged on a case by case basis. All development actions shall be recorded by Line Managers in the individual's competence record.

Note: Types of development might include opening up further simulations beyond the location specific menu, time on other areas, cab rides, job shadowing, etc.

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C.15   INDIVIDUAL COMPETENCE RECORD

C.15.1   Line Managers shall update individual's competence record in Academy.

Note: The individual's competence record is contained within Academy which is the Network Operations Competence Management System (CMS). The Operations Competency Manager assigns access rights to the CMS.

C.15.2   At the beginning of a new competence cycle, a new individual competence record shall be started. The previous completed record shall be closed. Records shall be retained in accordance with Network Rail's records retention requirements.

C.15.3   When LCMs move location within the cycle, the existing Line Manager shall transfer the individual's competence record to the new Line Manager. The new Line Manager shall update the record as appropriate.

C.16   LINE MANAGER / ASSESSOR COMPETENCE

C.16.1   Line Managers / assessors competence shall meet the requirements of Table 2.

C.16.2   Line Managers shall maintain occupational and vocational competence in accordance with Table 2.

C.16.3   The Line Managers' Manager shall check that Line Manager / assessor competence is maintained in accordance with Table C.3.

C.17   VERIFICATION

C.17.1   Verification shall be carried out in accordance with Table C.3.

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	Occupational	Vocational	New assessors/verifiers	Existing assessors/verifiers without qualifications	Verification
Line Manager/ assessor	Line Managers shall; a) have undertaken the activity in relation to their location; or b) have performed the activity in the past and currently supervise or train people in the activity; or c) be regarded as technical experts because they directly manage the quality of the activity to be assessed; or d) demonstrate knowledge and understanding in the subject matter to make them a credible assessor.	Line Managers shall hold; a) D32/D33; or b) A1; or c) L20; or d) Network Rail Operations Assessor Qualification	New Line Managers shall successfully complete the Network Rail Operations Assessor training programme and pass the associated knowledge and understanding test.	The Lead Verifier for the scheme involved shall provide guidance on what combination of the above process shall apply to existing assessors without qualifications. *NOTE: This should account for the length of time an individual has been assessing and the quality of their assessing.*	Shall be observed conducting an assessment and development day at a minimum of once a year. *NOTE: This will normally be by their Line Manager.*
Verifier	Verifiers shall have; a) undertaken the activity in the preceding five years, or; b) performed the activity in the past and are currently supervising or training people in the activity, or c) be regarded as technical experts because they currently directly manage the quality of the activity to be assessed or they can demonstrate sufficient technical expertise to make them a credible assessor, or; d) written agreement from the Lead Verifier for the scheme in question that they have appropriate occupational competence.	Verifiers shall hold; a) D34; or b) V1; or c) Network Rail Operations Verifier qualification; or d) other qualification deemed appropriate by the Lead Verifier for the scheme involved.	New Verifiers shall successfully complete the Network Rail Operations Verifier training programme and pass the associated knowledge and understanding test. They shall also be subject to additional monitoring by the Lead Verifier for a period of three months. At the end of this period the Lead Verifier shall deem them competent or shall initiate further development and further monitoring.	The Lead Verifier for the scheme involved shall provide guidance on what combination of the above process shall apply to existing Verifiers without qualifications. *NOTE: This should account for the length of time an individual has been verifying and the quality of their verification.*	The Network Operations Competence Manager assumes the role of Lead Verifier. Verifiers shall observe the Line Manager / assessor conducting an assessment and development day at a minimum of once a year. The person carrying out this observation will normally be Line Managers' Manager and shall meet the criteria of a verifier set out in this table.

Table C.3 – Line Manager / Assessor Competence and Verification